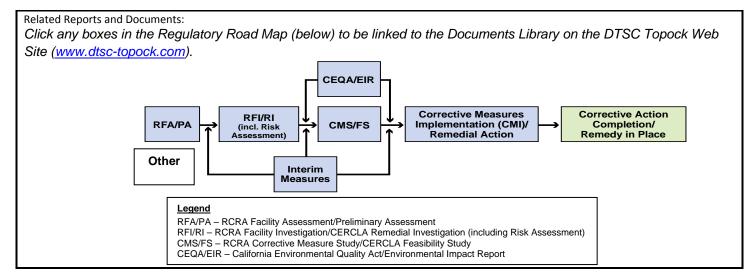
Topock Project I	Executive Abstract
Document Title: First Quarter 2013 Interim Measures	Date of Document: 5/15/2013
Performance Monitoring and Site-wide Groundwater and	Miles Constant this Decomposity (i.e. DCGE DTCC DCI Other)
Surface Water Monitoring Report, PG&E Topock Compressor	Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)
Station, Needles, California	PG&E
Submitting Agency: DTSC	
Final Document? X Yes No	
Priority Status: HIGH MED LOW	Action Required:
Is this time critical?  Yes  No	Information Only Review & Comment
Type of Document:	Return to:
☐ Draft ☐ Report ☐ Letter ☐ Memo	By Date:
U Other/Explain:	Other/Explain:
What does this information pertain to?	Is this a Regulatory Requirement?
Resource Conservation and Recovery Act (RCRA) Facility	Yes
Assessment (RFA)/Preliminary Assessment (PA)	│
RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)	If no, why is the document needed?
Corrective Measures Study (CMS)/Feasibility Study (FS)	
Corrective Measures Implementation (CMI)/Remedial Action	
California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)	
☐ Interim Measures	
Other/Explain:	
What is the consequence of NOT doing this item? What is the	Other Justification/s:
consequence of DOING this item?	Permit Other / Explain:
Report is required to be in compliance with DTSC requirements.	
Brief Summary of attached document:	
This quarterly report documents the monitoring activities and p	verformance evaluation of the Interim Measure (IM) hydraulic
containment system under the IM Performance Monitoring Pro	· · · · ·
<u> </u>	nd chemical monitoring data were collected and used to evaluate IM
	andards approved by California Environmental Protection Agency,
, , , ,	ided in this report are: (1) measured groundwater elevations and
, · · · · · · · · · · · · · · · · · · ·	ne direction of groundwater flow is away from the Colorado River um data for monitoring wells, (3) pumping rates and volumes from
	gram and Surface Water Monitoring Program activities and results.
Based on the data and evaluation presented in this report, the light which includes the months of January, February, and March 20	13. The average pumping rate for the IM extraction system during
the first quarter 2013 was 132.6 gallons per minute. To date, th	
(3,420 kilograms) of chromium.	, , ,
Written by: Pacific Gas and Electric Company	
Recommendations:	
This report is for information only.  How is this information related to the Final Remedy or Regulatory Req	uirements:
This report is required by DTSC as part of the Interim Measures Perform	
Other requirements of this information?	
None.	



Version 9



Yvonne J. Meeks Manager

Environmental Remediation

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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

honne Meks

# 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

California Environmental Protection Agency
Department of Toxic Substances Control

Pacific Gas and Electric Company

May 15, 2013



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 [ $\mu$ g/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  $\mu$ g/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  $\mu$ g/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  $\mu$ g/L is based on the calculated natural background upper tolerance limit for Cr(VI) in groundwater from the background study (CH2M HILL, 2008, 2009a).

The areas where Cr(VI) concentrations are greater than 32  $\mu$ g/L in the shallow, mid-depth, and deep intervals of the Alluvial Aquifer and bedrock wells are generally similar to the previous quarterly monitoring events (CH2M HILL, 2009c-e, 2010a-c, 2011a-d, 2012a-c, 2012e, and 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  $\mu$ g/L (MW-12, MW-33-40, MW-42-55, and MW-67-260). The maximum concentration (46.5  $\mu$ g/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  $\mu$ g/L (MW-57-185 at 13.0  $\mu$ g/L, MW-72-80 at 11.0  $\mu$ g/L, and MW-72BR-200 at 14.0  $\mu$ g/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  $\mu$ g/L) concentrations were detected at all sampled locations. Dissolved iron and manganese results were also generally low and near or below laboratory reporting limits, with the exception of the samples collected at C-MAR-S, 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."

3-2

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.<sup>1</sup> 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.

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<sup>&</sup>lt;sup>1</sup> 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  $\mu$ g/L in February 2013 to a minimum value of 867  $\mu$ 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  $\mu$ 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

4-2

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.

#### **SECTION 5**

## **Upcoming Operation and Monitoring Events**

Reporting of the IM extraction and monitoring activities will continue as described in the PMP and under direction from DTSC. All monitoring results, operations, and performance monitoring data will be reported in the 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

						Selected Fie	ld Parameter
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-9	SA	05-Dec-12	259	257	2,800	-24	7.4
MW-10	SA	15-May-12	269	278	3,000	39	7.5
		10-Dec-12	484	461	2,700	12	7.7
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

Date Printed: 4/19/2013

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

							Selected Fie	ld Parameter
Location ID	Aquifer Zone	Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-20-130	DA	29-Nov-12 I	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 I	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

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

						Selected Fie	ld Parameter
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	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

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

							Selected Fie	ld Parameters
Location ID	Aquifer Zone	Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-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

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

							Selected Fiel	ld Parameters
Location ID	Aquifer Zone	Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-34-100	DA	26-Feb-13		76.8	71.9	17,000	110	7.5
		26-Feb-13 F	D	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	Ī	ND (0.2)	ND (1.0)	6,000	-170	7.6
		04-Dec-12 F	D	ND (0.2)	ND (1.0)	6,200	FD	FD
MW-36-40	SA	04-Dec-12	ĺ	ND (0.2)	ND (1.0)	1,500	-170	7.7
MW-36-50	MA	04-Dec-12	ĺ	ND (0.2)	ND (1.0)	1,100	-110	7.6
MW-36-70	MA	04-Dec-12	ĺ	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	Ì	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

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

						Selected Fie	ld Parameter
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (μg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	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

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

						Selected Fie	ld Parameter
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	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

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

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

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

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

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

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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

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

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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

						Selected Field Paramete		
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (μg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	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
First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

						Selected Fie	ld Parameter
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	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

Date Printed: 4/19/2013

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

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

#### 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

#### 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.

 $\mu g/L = micrograms per liter.$ 

 $\mu$ S/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  $0.2~\mu g/L$  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
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (μg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-12	SA	26-Feb-13	46.5		8.8	14.6	ND (0.5)	12.5
		26-Feb-13 <sub>FD</sub>	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 <sub>FD</sub>	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 <sub>FD</sub>	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 <sub>FD</sub>	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 <sub>FD</sub>	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 <sub>FD</sub>	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
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-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 <sub>FD</sub>	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 <sub>FD</sub>	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.

 $\mu$ g/L = micrograms per liter.

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

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

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

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

There is no USEPA or California MCL for molybdenum.

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

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

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

The Background Study UTL for nitrate as 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 aguifer (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

 $\mu$ g/L = micrograms per liter.

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

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

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

Metals analyzed by Methods SW6010B or SW6020A.

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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 Lo		(#9/ –/	(149, -)	(μο/ο)	Pi.
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 Lo	cations				
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 San	nples				
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 Lo	cations			
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

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

ND = not detected at listed reporting limit.

 $\mu g/L = micrograms per liter.$ 

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	Alkalinity, carbonate as CaCO3	Alkalinity, total as CaCO3	Arsenic, dissolved	Iron, Total	Iron, dissolved	Manganese, dissolved	Molybdenum, dissolved	Nitrate as Nitrogen	Selenium, dissolved	Total suspended solids	
		mg/L	mg/L	mg/L	μg/L	μg/L	μg/L	μg/L	μg/L	mg/L	μg/L	mg/L	
In-channel Loc	cations												
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 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-O	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 Sam			. ,				. ,	` '		` '	, ,	. ,	
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)	
	03/05/2013	123	ND (5.0)	121	2.4	ND (20.0) ND (20.0)	ND (20.0) ND (20.0)	0.64	3.9 4.2	ND (0.5)	ND (5.0)	ND (10.0)	
R-19	03/05/2013	141	140 (0.0)	141	2.0	140 (20.0)	(20.0)	0.04	7.4	140 (0.0)	140 (3.0)	(10.0)	

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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	Alkalinity, carbonate as CaCO3	Alkalinity, total as CaCO3	Arsenic, dissolved	Iron, Total	Iron, dissolved	Manganese, dissolved	Molybdenum, dissolved	Nitrate as Nitrogen	Selenium, dissolved	Total suspended solids	
	mg/L	mg/L	mg/L	mg/L	μg/L	μg/L	μg/L	μg/L	μg/L	mg/L	μg/L	mg/L	
Shoreline Samp	oles												
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.

 $\mu$ g/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

	January 20	13	February 2	013	March 201	3	First Quarter 2013		
Extraction Well ID	Average Pumping Rate <sup>a</sup> (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.

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.

<sup>&</sup>lt;sup>a</sup> The "Average Pumping Rate" is the overall average during the reporting period, including system downtime, based on flow meter readings.

Table 4-2
Analytical Results for Extraction Wells, 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
Natas	05-Mar-13	6.60 LF	6.50	2,820

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

LF = lab filtered.

mg/L = milligrams per liter.

 $\mu g/L = micrograms per liter.$ 

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

Dissolved chromium was analyzed by Method SW6020A or 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 <sup>a</sup>	Reporting Period	Mean landward <sup>b</sup> Hydraulic Gradient (feet/foot)	Days in <sup>c</sup> Monthly Average	
	January	0.0055	NA	
Overall Average	February	0.0059	NA	
	March	0.0064	NA	
Northern Gradient Pair	January	0.0022	31 / 31	_
MW-31-135 / MW-33-150	February	0.0023	28 / 28	
	March	0.0025	31 / 31	
Central Gradient Pair	January	0.0104	21 / 31	_
MW-45-95 / MW-34-100	February	0.0115	25 / 28	
	March	0.0124	27 / 31	
Southern Gradient Pair	January	0.0038	31 / 31	_
MW-45-95 / MW-27-85	February	0.0039	28 / 28	
	March	0.0044	31 / 31	

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

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

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

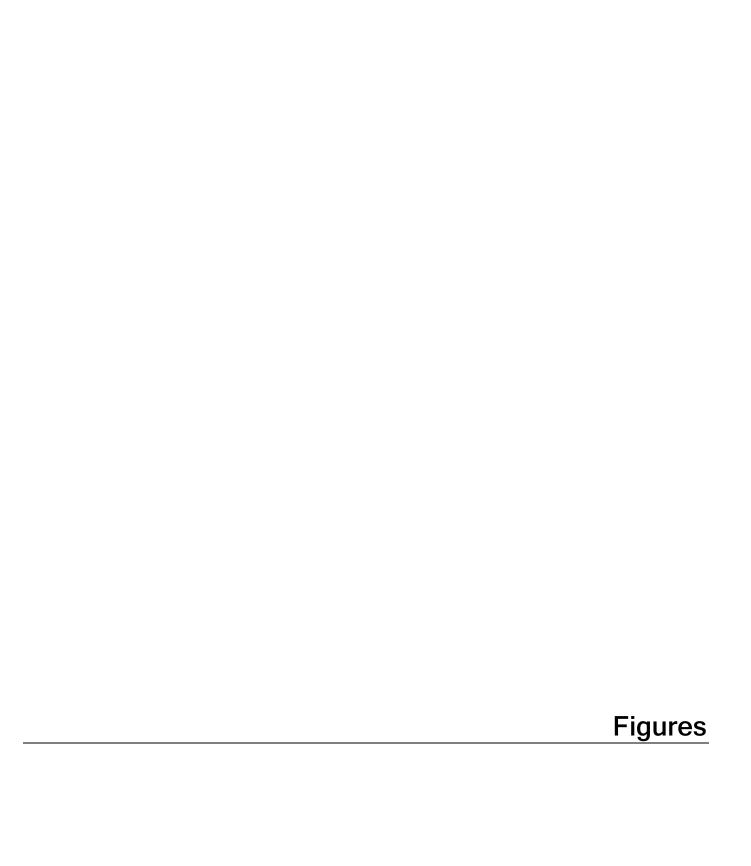
ft amsl = feet above mean sea level.

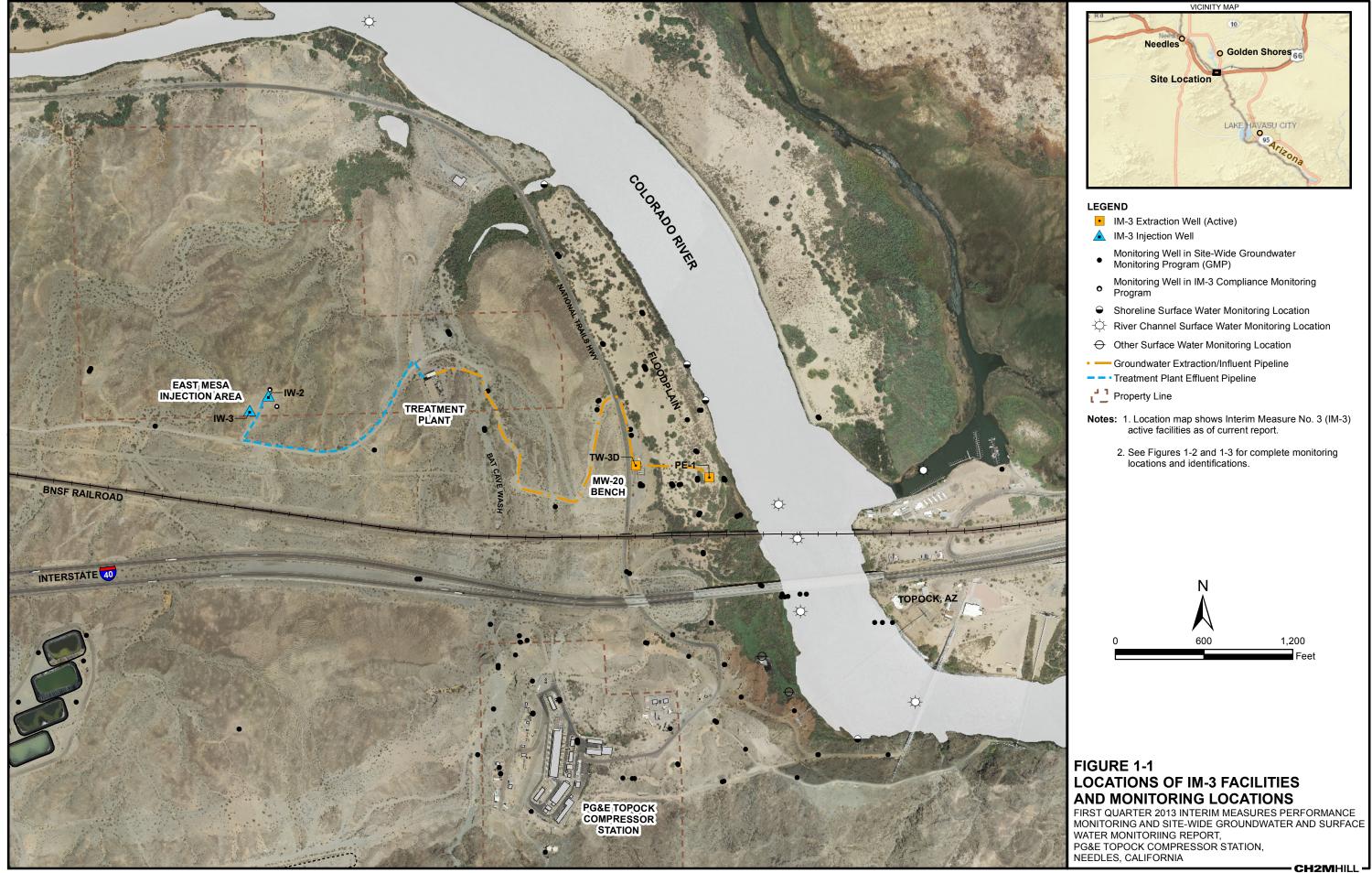
NA = Data unavailable during this time period.

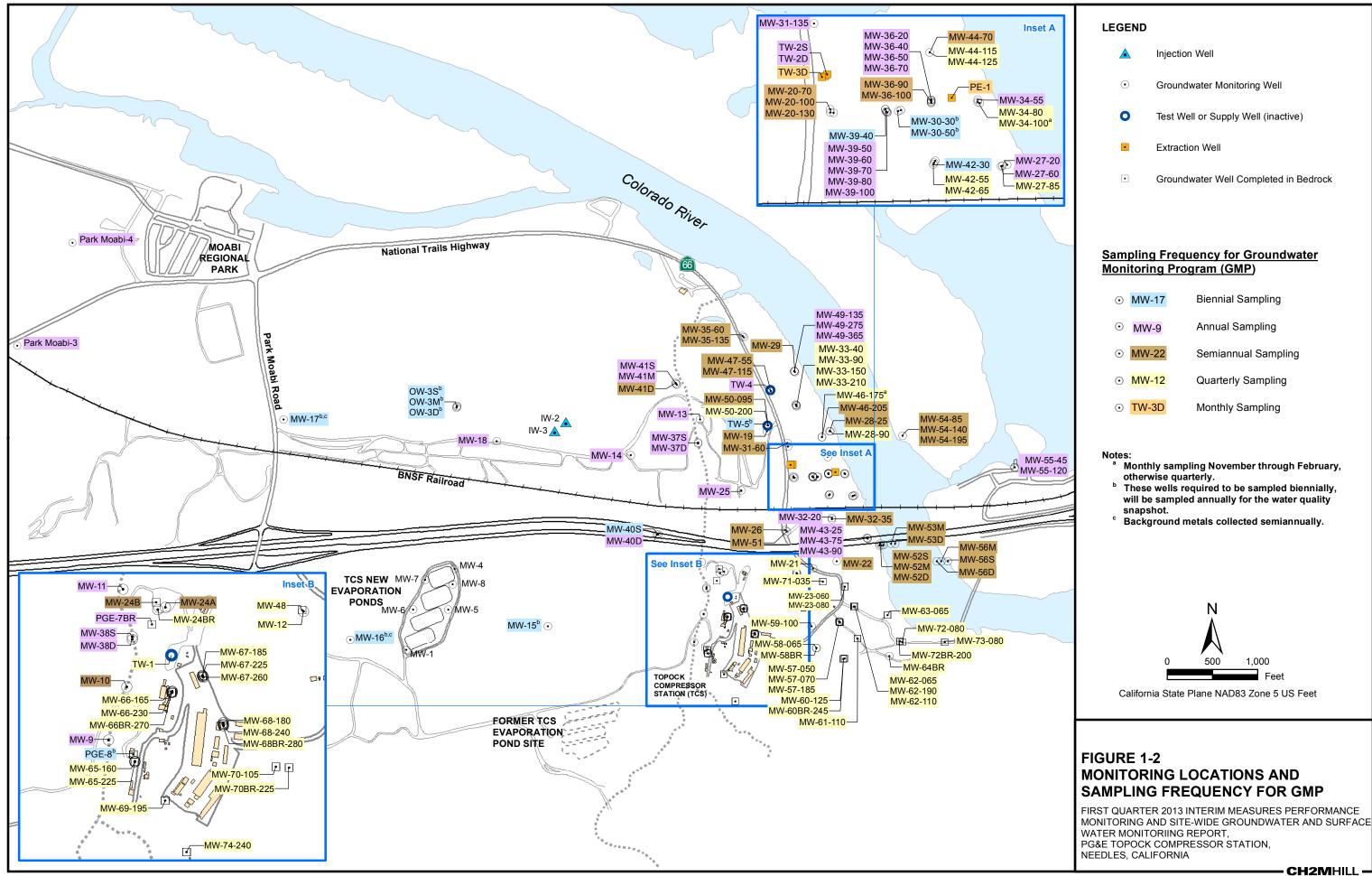
Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon April 2013 USBR projections. These data are reported monthly by the US Department of Interior,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

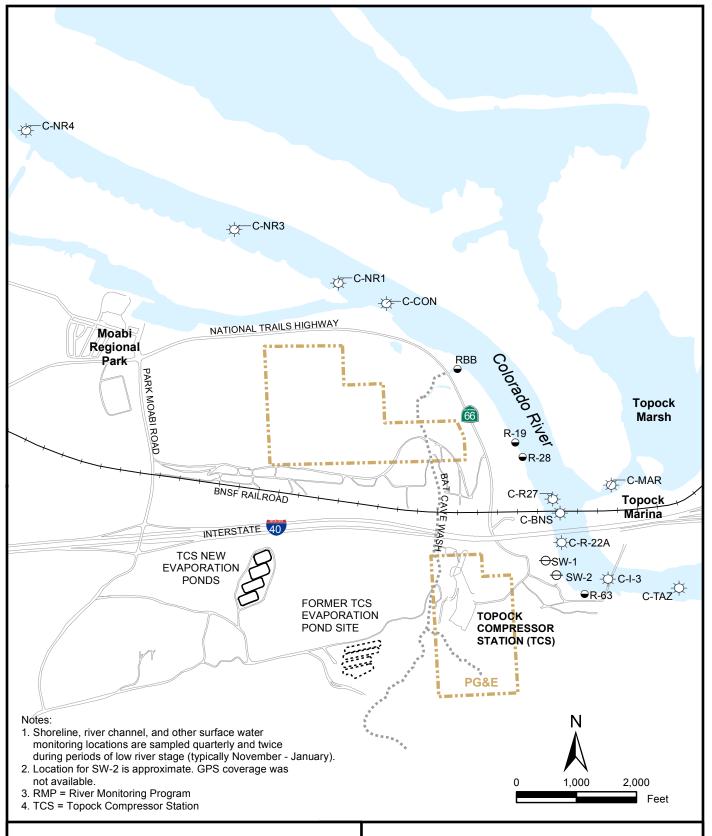
The difference in I-3 elevation is the difference between the I-3 elevation predicted and the actual elevation measured at I-3. The source of this difference is differences between BOR projections and actual dam releases/Havasu reservoir levels, rather than the multiple regression error.

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).









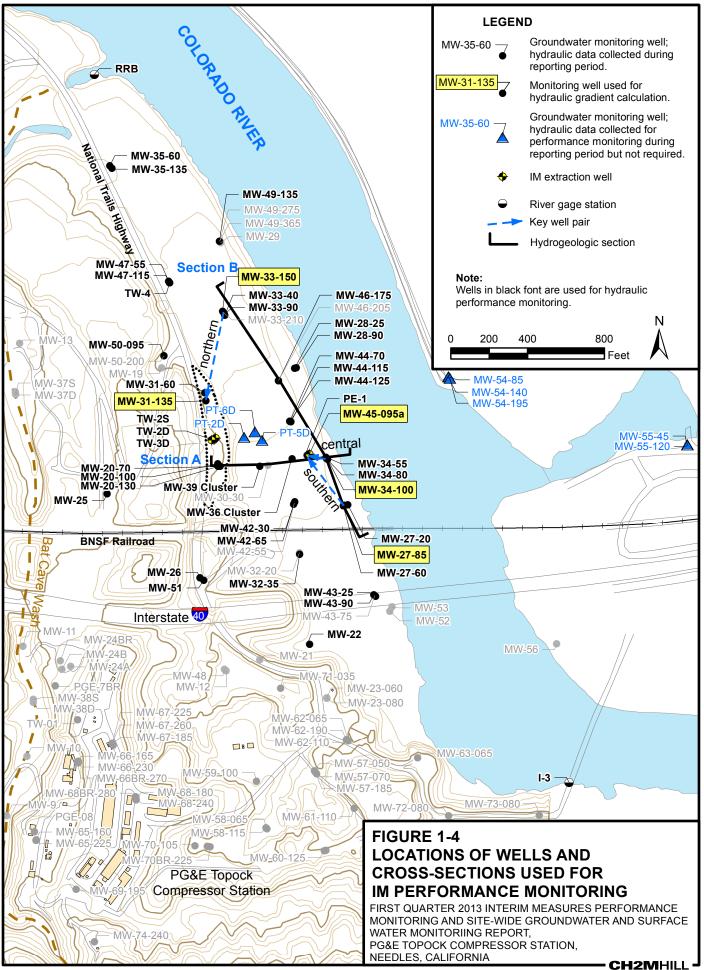
#### **LEGEND**

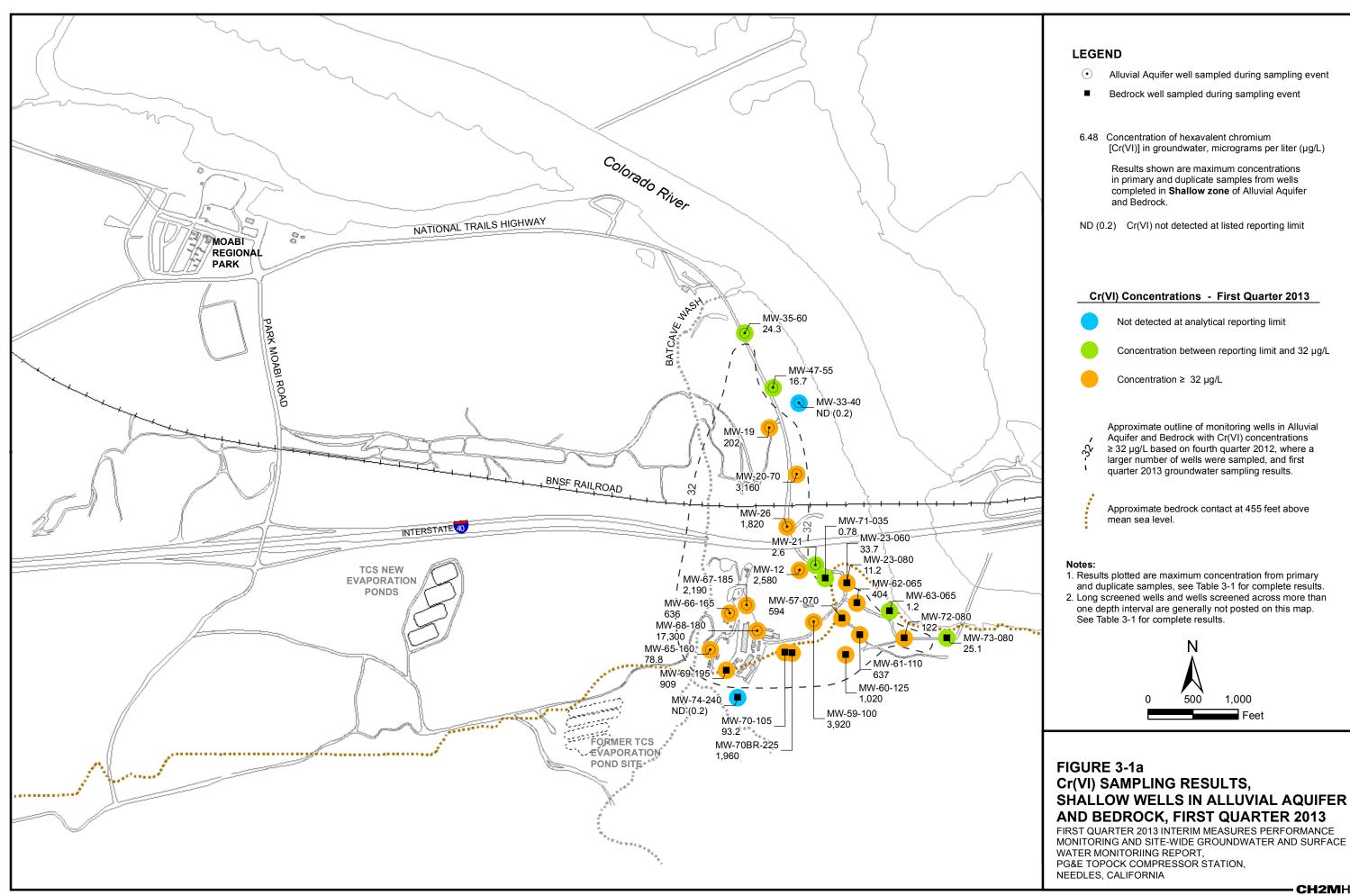
- Shoreline Surface Water Monitoring Location
- River Channel Surface Water Monitoring Location
- Other Surface Water Monitoring Location

#### FIGURE 1-3 MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR RMP

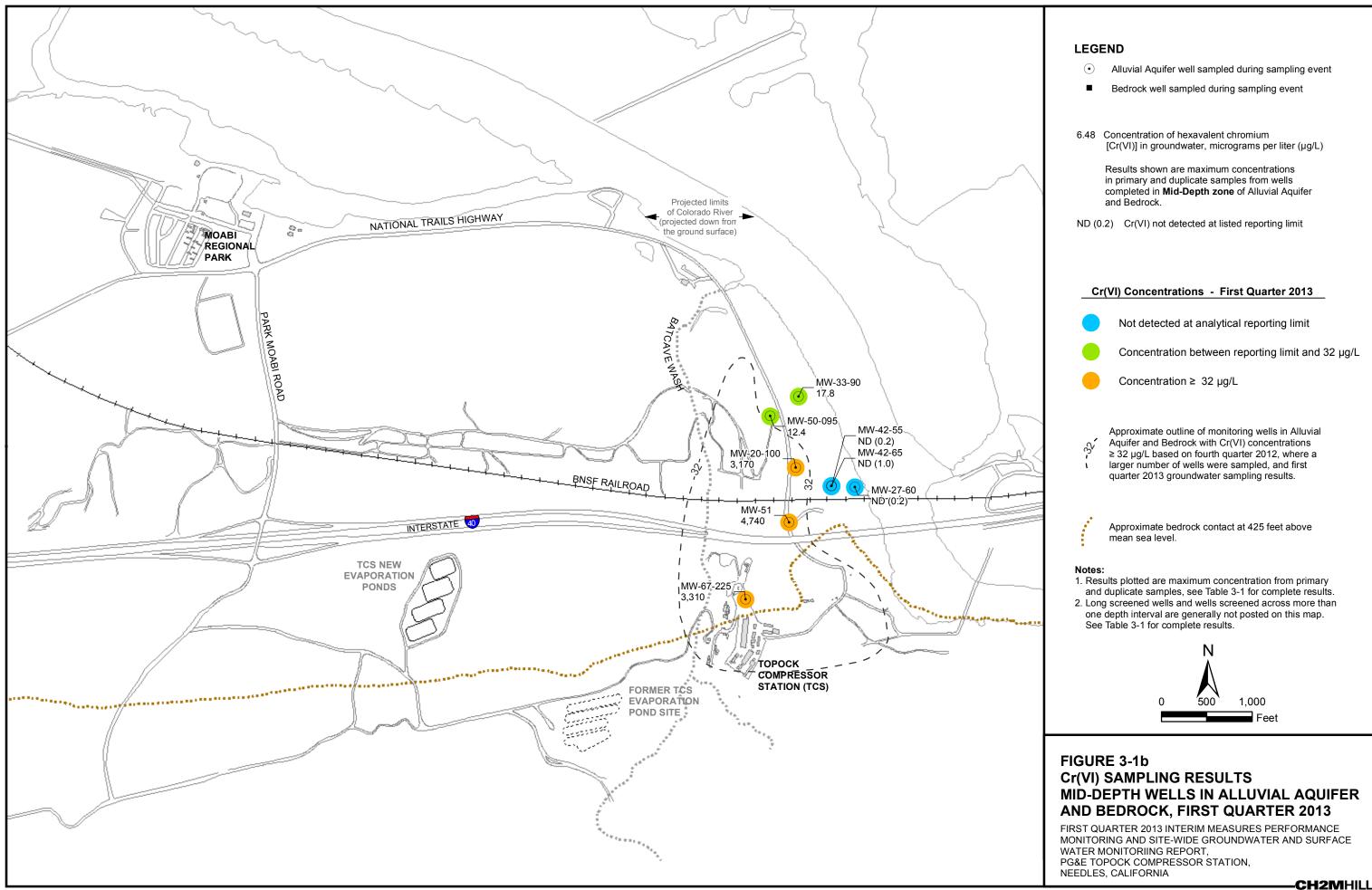
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

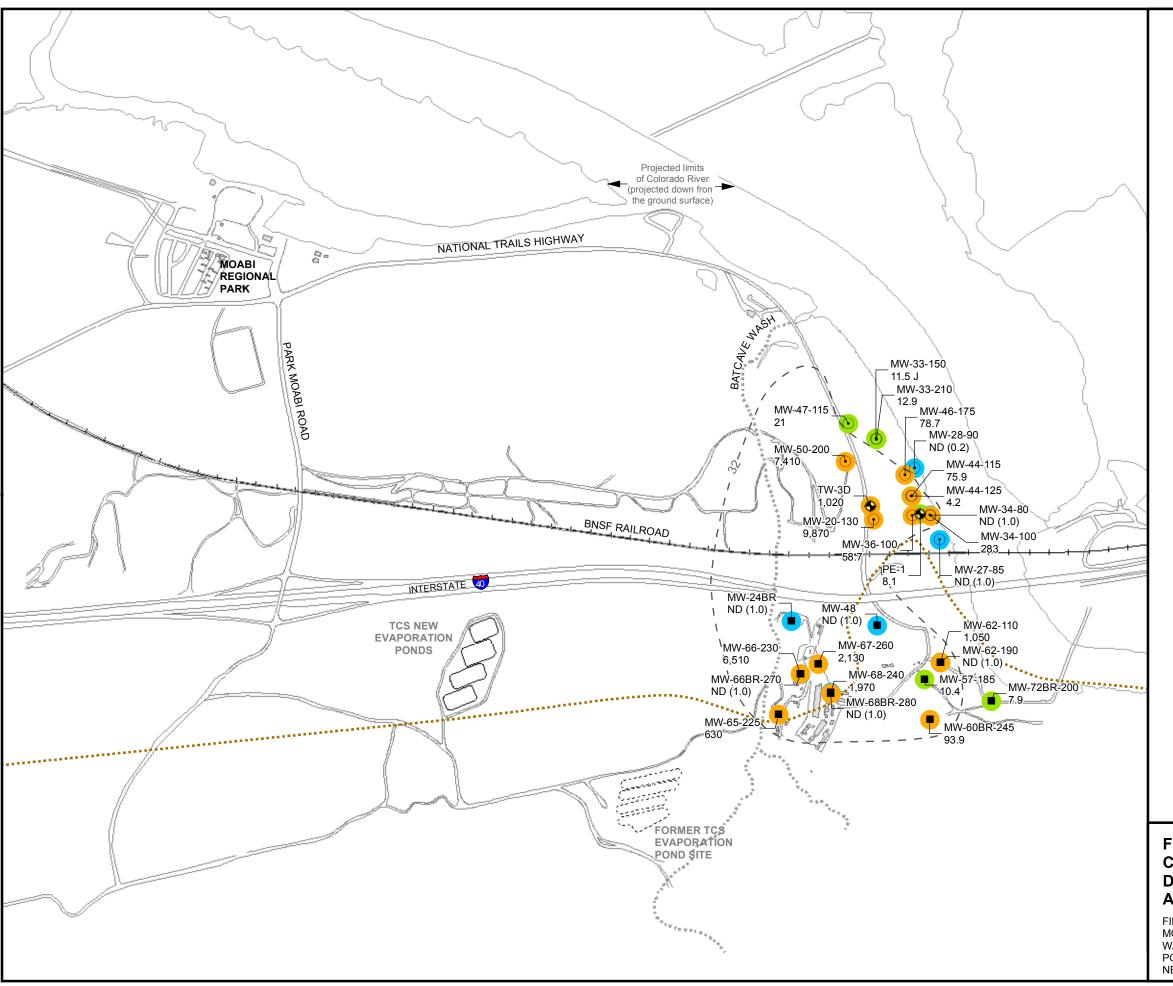
· CH2MHILL





· CH2MHILL ·





#### **LEGEND**

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

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

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

#### Cr(VI) Concentrations - First Quarter 2013

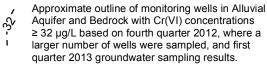
Not detected at analytical reporting limit



Concentration between reporting limit and 32 µg/L

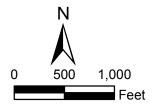


Concentration ≥ 32 µg/L



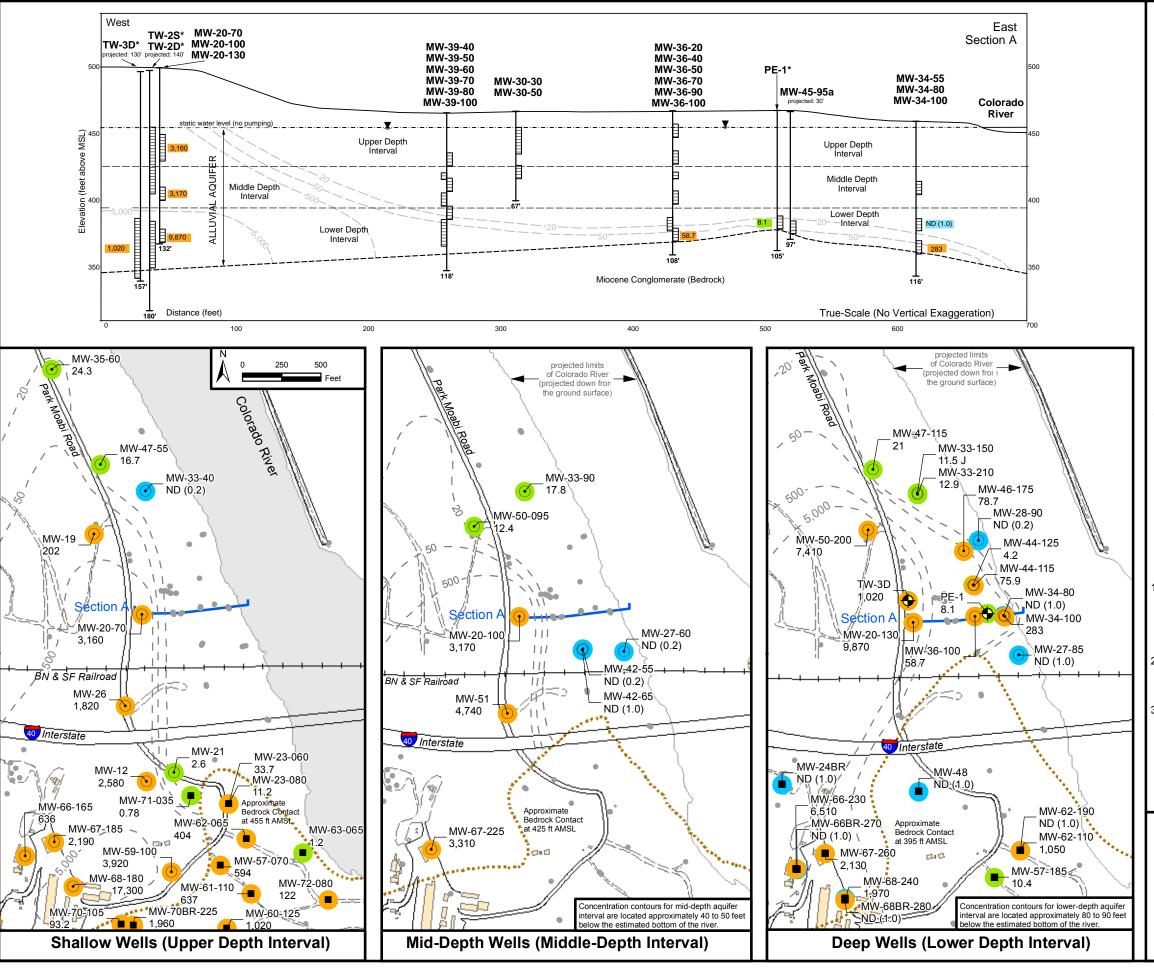
Approximate bedrock contact at 395 feet above mean sea level.

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



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

FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING 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
  - 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

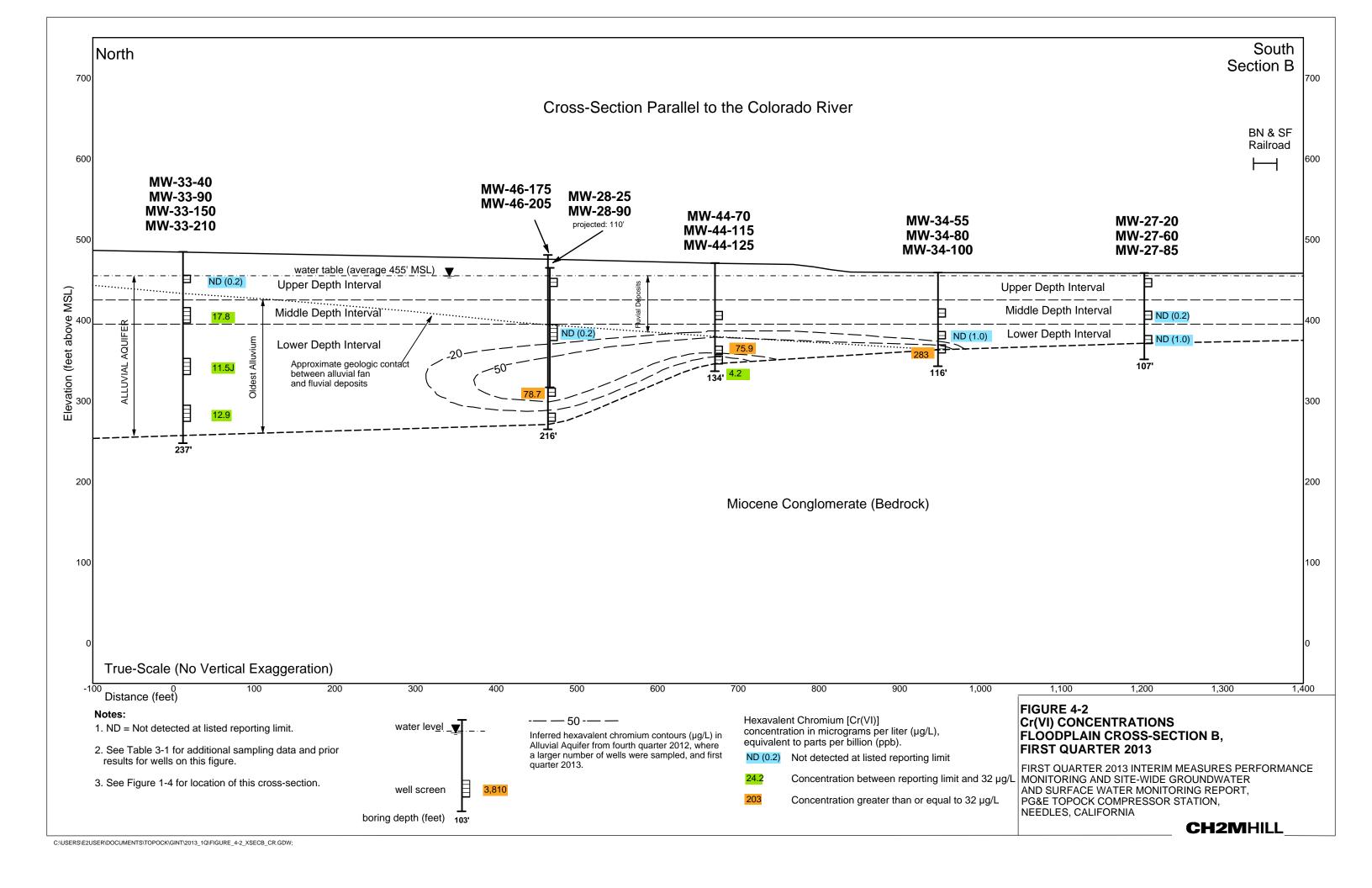
#### Notes:

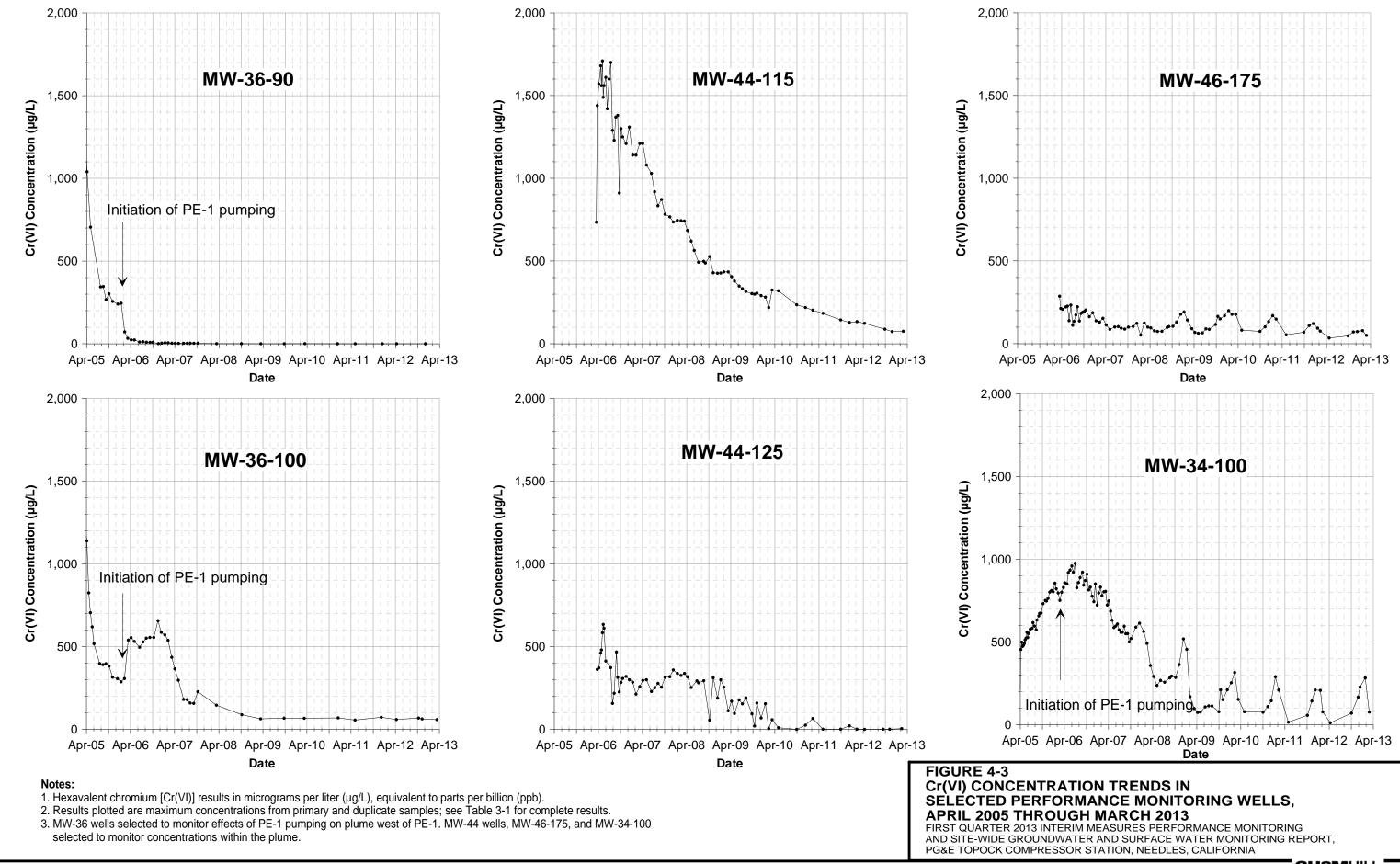
- The Cr(VI) concentration contours of 20 and 50 μg/L are shown in accordance with DTSC's 2005 IM performance monitoring directive. The IM performance standard was established for containment of Cr(VI) concentrations greater than 20 ug/L in the floodplain portion of the Alluvial Aquifer.
- Extraction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

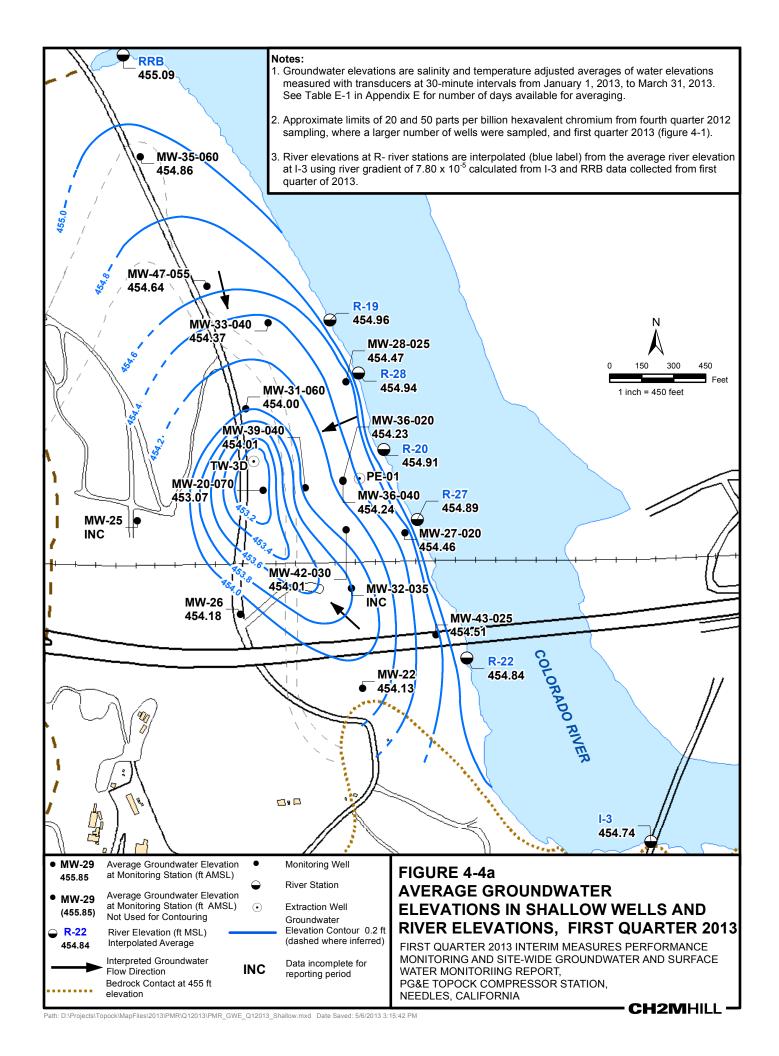
# FIGURE 4-1 MAXIMUM Cr(VI) CONCENTRATIONS IN ALLUVIAL AQUIFER AND BEDROCK, FIRST QUARTER 2013

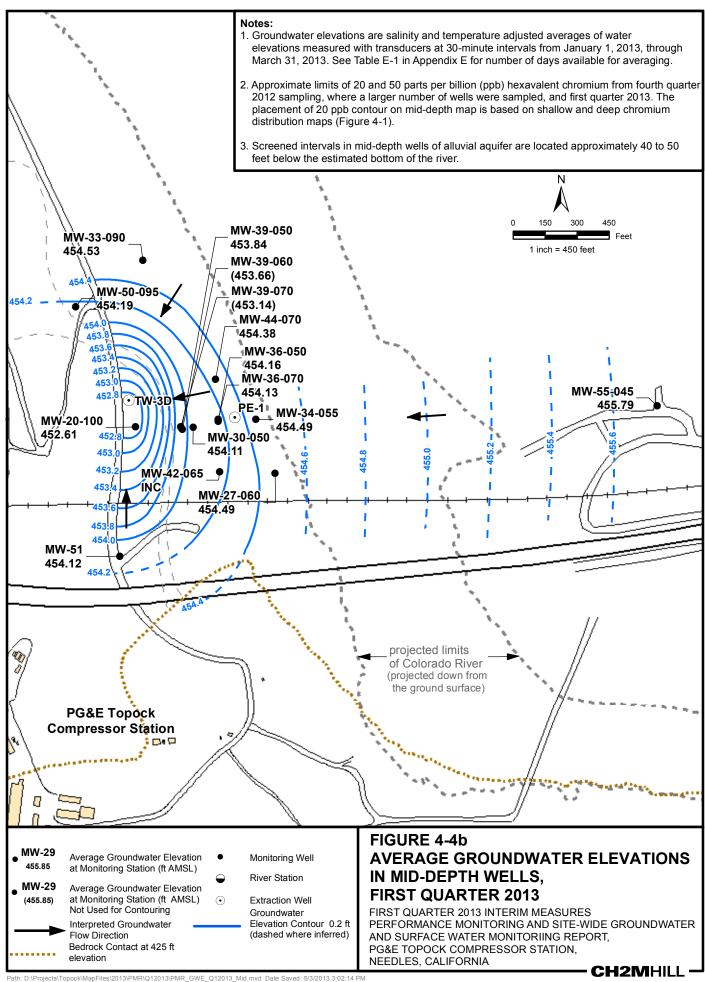
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

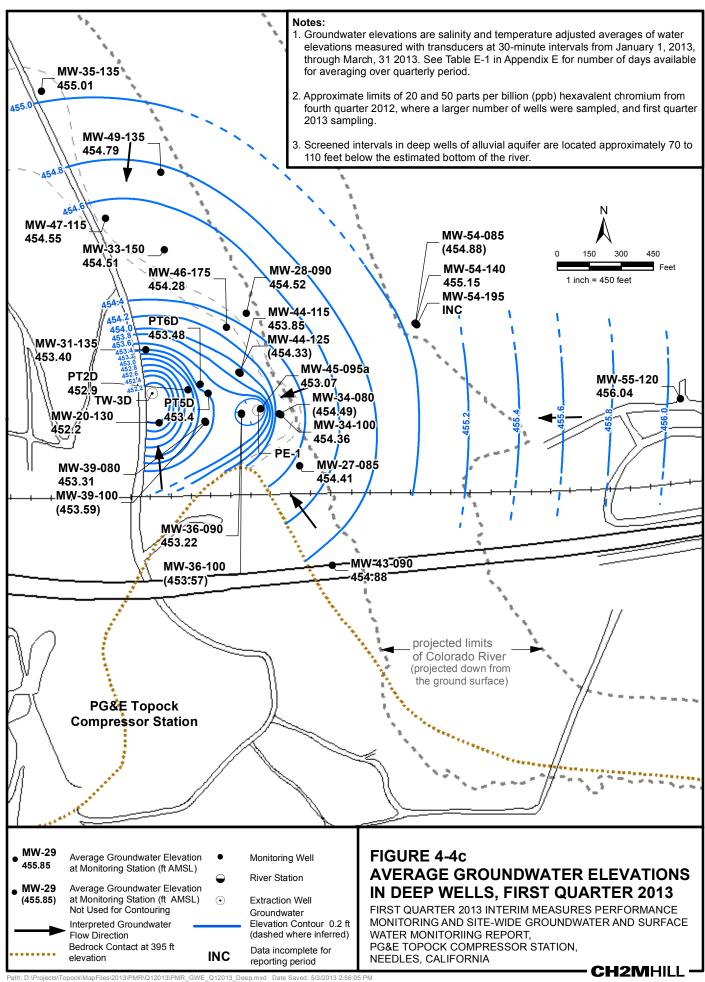
- CH2MHILL -

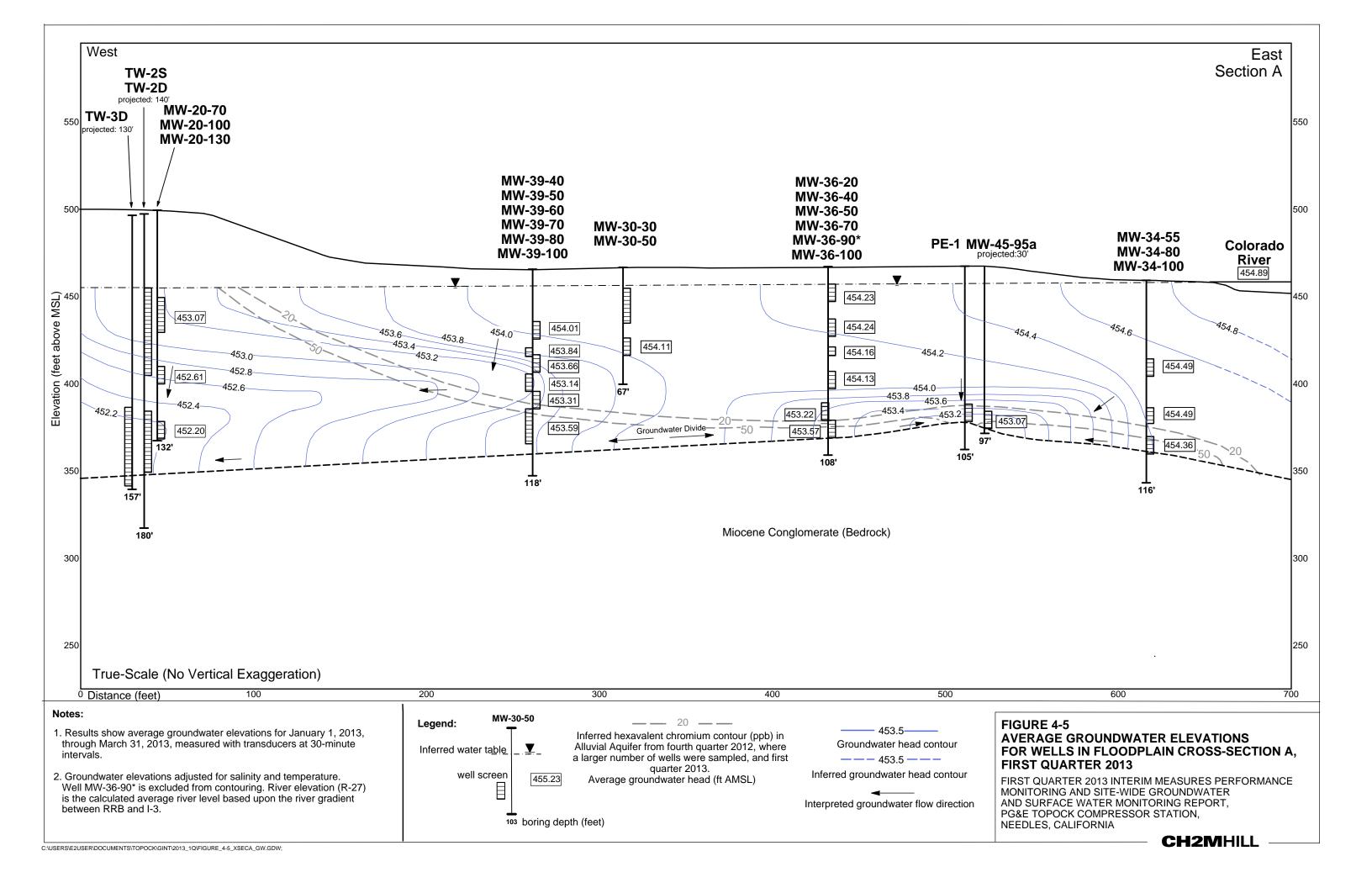


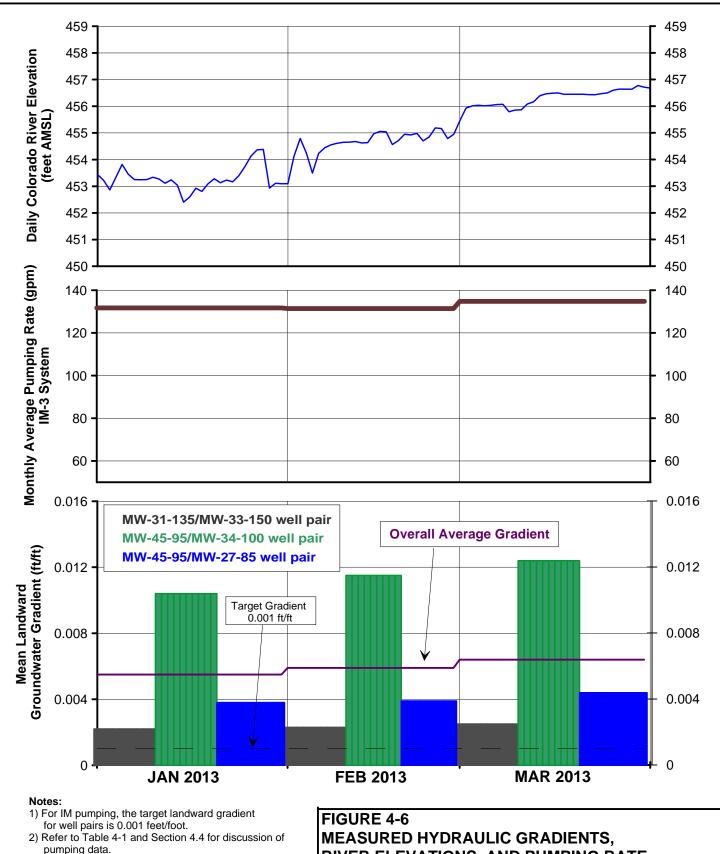










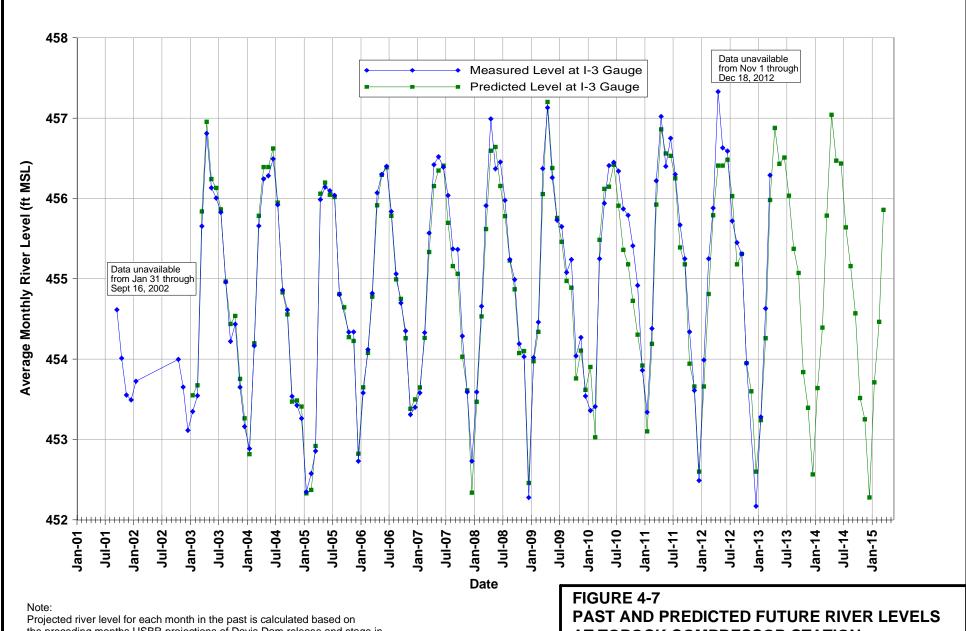


- pumping data.
- 3) Pumping rate plotted is the combined rate of extraction wells TW-3D and PE-1 in operation
- 4) Refer to Table 4-3 and Section 4.5 for discussion of gradient data.

## 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

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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

## 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

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



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.

to - Mona Nassimi

Manager, Analytical Services

Allichael the

Michael Ngo

Quality Assurance/Quality Control Officer

#### TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



Established 1931

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

Laboratory No.: 806048

Date Received: January 28, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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

#### Truesdail Laboratories, Inc.

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Page 1 of 6

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Printed 2/14/2013

Laboratory No. 806048

#### 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:

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 806048-002 MW-46-175-190 01/24/2013 12:03 Water

Chrome VI by EPA 218.	6		Batch	02CrH13F			2,40
Parameter		Unit	Ana	ilyzed D	F MDL	RL	Result
806048-001 Chromium, Hex	avalent	ug/L	02/06	6/2013 09:21 25	.0 0.230	5.0	283
806048-002 Chromium, Hex	avalent	ug/L	02/06	5/2013 05:01       5.0	0.0460	1.0	78.7
Method Blank			granista neris				
Parameter	Unit	DF	Result				
Chromium, Hexavalent	ug/L	1.00	ND				
Duplicate						Lab ID =	806049-003
Parameter	Unit	DF	Result Expected		RPD Accept		ance 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 Ran	
Chromium, Hexavalent	ug/L	1.00	0.175	0.200	87.4	70 - 130	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce 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	Accepta	nce 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	Accepta	nce 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 products. authorization from Truesdail Laboratories.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.GM

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Parameter		Unit	Ana	lyzed D	F MDL	RL	Result
806048-001 Arsenic		ug/L	02/06	5/2013 01:50 2.0	0.200	0.50	1.7
Chromium		ug/L	02/06	s/2013 01:56 5.0	0.460	2.0	292
806048-002 Chromium		ug/L	02/06	5/2013 02:02 2.0	0.184	1.0	79.3
Method Blank	Sastings in	ayey. Îr				en da e Ma	
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	Accepta	nce Range
Arsenic	ug/L	2.00	0.946	1.05	10.4	0 - 20	J
Chromium	ug/L	2.00	2.18	2.19	0.641	0 - 20	
Low Level Calibration	Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce 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	Accepta	nce Range
Arsenic	ug/L	2.00	51.3	50.0	103	85 - 115	5
Chromium	ug/L	2.00	52.8	50.0	106	85 - 115	5
Matrix Spike						Lab ID =	806017-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce Range
Arsenic	ug/L	2.00	51.9	51.0(50.0)	102	75 - 125	j
Chromium	ug/L	2.00	50.9	52.2(50.0)	97.4	75 - 125	j
Matrix Spike Duplicat	е					Lab ID =	806017-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce Range
Arsenic	ug/L	2.00	54.8	51.0(50.0)	107	75 - 125	j
Chromium	ug/L	2.00	53.1	52.2(50.0)	102	75 - 125	j
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce 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	Accepta	nce Range
Arsenic	ug/L	1.00	20.1	20.0	101	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 protection from Truesdail Laboratories.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.GM

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Interference Check S	Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	ND	0		
Interference Check S	Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check S	Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check S	Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.1	20.0	100	80 - 120
Interference Check S	Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	80 - 120
Interference Check S	Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	80 - 120
Interference Check S	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

CH2MHILL

CHAIN OF CUSTODY RECORD 1/24/2013 12:41:46 PM

Page <u>1</u> OF <u>1</u>

								•	
Project Name PG&E To	pock	Cont	111161.	250 ml Poly	1x500 ml Poly	1x500 ml Poly			
Location Topock Project Manager Jay Pi	er	Preserva	tives:	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C			
Sample Manager Shawn	Duffy	Fil	ered:	Field	Field	Field		1	
		Holding	Time:	28	180	180			
Project Number 423578 Task Order Project 2013-GMP-190 Turnaround Time 10 Shipping Date: 1/11/20 COC Number: GMP-19	Days 3	.GM.0		Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Arsenic,Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
MW-34-100-190 1/24/2	013 10	:30 W	ater	X	Х			2	1
2 MW-46-175-190 1/24/2	013 12	:03 W	ater	Х		Х		2	1000
		•			7	,	TOTAL NUMBER OF CONTAINERS	4	





	1 :				
proved by	Signatures	Date/Time	Shipping Details	ATTN:	Special Instructions:
ampled by	K //	1552	Method of Shipment: FedEx	ATIN:	Jan, 2013
Pinquished by	14/		On Ice: yes / no	Sample Custody	
Delived by	5 11	1-28-17	さeAirbill No:		:
elinquished by M	3 14	20130-17	Lab Name: Truesdail Laboratories, Inc.		Report Copy to Shawn Duff
eceived by	2 TLI 11	Alix and	Lab Phone: (714) 730-6239		(530) 229-330

# 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	NA	in A	NA	RB
Ì	1 -5		1		}	1
	6					
	-7					7
	-3					
	-9					
	10		V	b	ų.	Į.
1/2/13	805996-1	9.5	N/ <del>ナ</del>	NIA	NIA	KB
	_2	ł	1		· ·	
	-3 -9		·			
	-9					
	_5					
	_6					
	-7					
	-8					
	_9			1		
	-10		· ·	<u> </u>	· ·	
1125/13	406016-1	9.5	NIA	NIA	MIA	HAV
do	1, -2	4	4		la	7
1128,13	806047-1	9.5	414	N14	N/A	KB
	-2					
	-3					
	-4					
1.0000	-5			<u> </u>	J.	1
1129113	806048-1	9.5	NIA	10/14	NIA	RB
<u> </u>	<u> </u>	₩	V	J	<i>y</i>	1
1/29/13	806049-1 1 -2	9.5	N/2	NA	NIA	13
	-3					+
<u> </u>	-3	<u> </u>	<del></del>			
<u> </u>		<u> </u>	<i>y</i>	-	<i>V</i>	

2-11-13

HAV 02/08/13





Turbidity/pH Check

Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comment
Q,05954 (1-5)	12	42	01/20/13	DC	Yes			
805993 (1-8,6)	e	11	1/30/13		45			
805994 (1,3-8)	4	1	$\perp$ ' $\downarrow$	$\downarrow$	Yes			
806073	<١	<b>1 1 2</b>	1130/13	BE	Xes			
80609240-12	) <1	>2	1/31/13	BL	No			
8060944-3			<b></b>	J				
606017L1-497)		<2	2-1-13	BE	×e3			
806047(1-5)								
8.6.48 (1-2)								
806.4941-4		1						
806075 LI)	•	72		J		2-1-13		
806050 (17)	41	42	J	PC	yes			
806076 (1-7)	1		1	oc	gs			
806098 (1,2)				1	1			
806099(1,2,3)				1.	1			
806/13(1-6)	1	I	J	1/	$-\nu$			
806084	41	72	2/3/13	De	yes	13:30		
806116 (1-4,6)	41	12			1			
806115 (1-8)	4	22						
806114 (1-12)	1	1						
806074 (1-4)								
806097 (1-10)		1			J			
806156(1-3)	41	72	2/4/13	00	NO	15:40		i
806150	<1	42	L	i	yes			
806155 (1,2,4)	41	72	L	L	No	15:00		***
806172	41	72	2/5/13	pc	<del>y</del> स	16:25		
806177	1	er			1			
806178								
806179								
806180								
806181								
806182								
806183						-		
806166	- V	J			Ţ			
806163 (16,23)	41	>2-1-TR	ust13 l	bc	No	16:30		
806165(1-4)	41	72		.L	J	y		
806187	<u> </u>	>2	2-6-13	BE	NO	12:00		
806144(1-7)	21	22	2/6/13	ES	yes			
906145(1-2)			1	-	1			
806146(1-6)		1						
806148(1-2)		-222		1/		11:30	il:	-1 pH72
806 147 (1-4)	¥ ∠1	42	2/4/13	E <sub>2</sub>	yu	1 20		1 12
1 906 201 (1-2)	41	-122	1	1	0	2:00		-2pH72
1086201-2	J	72		17		2:00		Filtered the

- 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

Clie	ent:E2	Lab # 806048
Date	e Delivered: <u>역 / ዲዮ</u> / 13 Time: <u>ፌଡ:૩</u> ೦ By: □Mail ⊠I	Field Service
1.	Was a Chain of Custody received and signed?	⊠Yes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No Øn/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ÞNA
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No □N/A
<b>5</b> .	Were all requested analyses understood and acceptable?	ÆYes □No □N/A
<b>6</b> .	Were samples received in a chilled condition? Temperature (if yes)? <u>3.3 ° C</u>	類Yes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	.⊈Yes □No □N/A
<b>8</b>	Were sample custody seals intact?	□Yes □No ΦŃ/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?	ØYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail □Client	ØfYes □No □N/A
12.	Were samples pH checked? pH = <u>Seℓ C</u> . Ø. ℓ.	⊠Yes □No □N/A
3.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	□Yes □No □N/A
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b> ☑ Std	ØYes □No □N/A
5.	<u>Sample Matrix:</u> □Liquid □Drinking Water □Ground W	
	□Sludge □Soil □Wipe □Paint □Solid ※	Other Water
6.	Comments:	
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	d. Shabiense



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



Established 1931

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Laboratory No.: 806203

Date Received: February 5, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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

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Page 1 of 9

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

Printed 3/5/2013

Laboratory No. 806203

#### 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:

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

Field ID				Lab ID	Col	lected	Mati	-ix	
MW-121-191				806203-001	02/04	/2013 07:02	Wat	er	
MW-123-191				806203-002		02/04/2013 17:54		Water	
MW-220-191			806203-003	02/04	/2013 16:00	Wat	er		
MW-221-191				806203-004	02/04	/2013 21:30	Water		
MW-27-060-191				806203-005	02/04	/2013 11:26	Wat	er	
MW-27-085-191				806203-006	02/04	/2013 12:50	Wat	er	
MW-42-055-191				806203-007	02/04	/2013 15:37	Wat	er	
MW-42-065-191				806203-008	02/04	/2013 14:39	Wat	er	
Chrome VI by EPA 218.	6		Batch	02CrH13N					
Parameter		Unit	Ana	Analyzed DF MDL				Result	
806203-001 Chromium, Hex	avalent	ug/L	02/14	1/2013 11:37	1.00 0.00920		0.20	ND	
806203-003 Chromium, Hex	avalent	ug/L	02/14	1/2013 12:29	1.00 0.00920		0.20	ND	
806203-004 Chromium, Hex	avalent	ug/L	02/14	1/2013 12:39	9 1.00 0.00920		0.20	ND	
806203-005 Chromium, Hex	avalent	ug/L	02/14	1/2013 12:49	1.00	0.00920	0.20	ND	
806203-007 Chromium, Hex	avalent	ug/L	02/14	1/2013 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		Accepta	ance Range	
Chromium, Hexavalent	ug/L	1.00	11.4	11.6	2.06		0 - 20		
Low Level Calibration	Nerification	l							
Parameter	Unit	DF	Result	Expected	expected Recovery		Acceptance Range		
Chromium, Hexavalent	ug/L	1.00	0.202	02 0.200 101		101	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.



Client: E2 Consulting Eng	jineers, Inc		oject Name: oject Number:	PG&E Topock Pro 423575.MP.02.GM	-	Page 2 of 9 Printed 3/5/2013	
Lab Control Sample							
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.92	Expected 5.00	Recovery 98.3	Acceptance Range 90 - 110 Lab ID = 806147-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 18.3	Expected/Added 18.8(10.0)	Recovery 94.6	Acceptance Range 90 - 110 Lab ID = 806147-003	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 7.48	Expected/Added 7.66(5.00)	Recovery 96.5	Acceptance Range 90 - 110 Lab ID = 806147-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 7.83	Expected/Added 7.96(5.00)	Recovery 97.4	Acceptance Range 90 - 110 Lab ID = 806147-005	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.954	Expected/Added 1.00(1.00)	Recovery 95.4	Acceptance Range 90 - 110 Lab ID = 806203-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.964	Expected/Added 1.00(1.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 806203-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.768	Expected/Added 1.00(1.00)	Recovery 76.8	Acceptance Range 90 - 110 Lab ID = 806203-003	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.959	Expected/Added 1.00(1.00)	Recovery 95.9	Acceptance Range 90 - 110 Lab ID = 806203-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.971	Expected/Added 1.00(1.00)	Recovery 97.1	Acceptance Range 90 - 110 Lab ID = 806203-005	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.03(1.00)	Recovery 99.3	Acceptance Range 90 - 110 Lab ID = 806203-006	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.663	Expected/Added 1.53(1.00)	Recovery 13.1	Acceptance Range 90 - 110 Lab ID = 806203-007	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.00(1.00)	Recovery 106	Acceptance Range 90 - 110	



Client: E2 Consulting Engineers, Inc.			Project Name: Project Number:	PG&E Topock Pro 423575.MP.02.GN	-	Page 3 of 9 Printed 3/5/2013
Matrix Spike						Lab ID = 806203-008
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 0.876	Expected/Added 1.19(1.00)	Recovery 68.8	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.91	Expected 5.00	Recovery 98.1	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.76	Expected 10.0	Recovery 97.6	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.85	Expected 10.0	Recovery 98.5	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.95	Expected 10.0	Recovery 99.5	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 4 of 9

Project Number: 423575.MP.02.GM

Printed 3/5/2013

Chrome VI by EPA 218.6	3		Batch	02CrH13P				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806203-002 Chromium, Hex	avalent	ug/L	02/15	5/2013 14:58	5.00	0.0460	1.0	ND
806203-006 Chromium, Hex	avalent	ug/L	02/14/2013 15:09		5.00	0.0460	1.0	ND
806203-008 Chromium, Hex	avalent	ug/L	02/14	1/2013 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	Accepta	ance 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	•	ance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200		99.0	70 - 130	כ
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	•	ance 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/Ad	ded	Recovery		ance 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/Ad	ded	Recovery	•	ance Range
Chromium, Hexavalent	ug/L	5.00	4.93	5.00(5.00)		98.6	90 - 110	ס
Matrix Spike							Lab ID =	806203-008
Parameter	Unit	DF	Result	Expected/Ad	dded	Recovery	•	ance 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/Ad	ded	Recovery	•	ance 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/Ac	dded	Recovery	•	ance Range
Chromium, Hexavalent	ug/L	1.00	0.978	1.00(1.00)		97.8	90 - 110	
Matrix Spike								806330-002
Parameter	Unit	DF 5.00	Result	Expected/Ac	ided	Recovery		ance Range
Chromium, Hexavalent	ug/L	5.00	35.8	34.0(25.0)		107	90 - 110	J



Client: E2 Consulting Engineers, Inc.Project Name: PG&E Topock ProjectPage 7 of 9Project Number: 423575.MP.02.GMPrinted 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 ND 1.0 806203-005 Chromium ug/L 02/07/2013 13:11 2.00 0.1841.0 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 0.1841.0 1.4 806203-008 Chromium ug/L 02/07/2013 13:29 2.00 0.1841.0 ND Method Blank Parameter Unit DF Result Arsenic ug/L 1.00 ND Chromium ug/L 1.00 ND Lab ID = 806147-001 Duplicate Parameter Unit DF Expected **RPD** Result Acceptance Range 1.17 0.994 Arsenic ug/L 2.00 16.3 0 - 20Chromium ug/L 2.00 16.9 16.0 5.41 0 - 20Low Level Calibration Verification Parameter Unit DF Result Expected Recovery Acceptance Range 0.225 0.200 Arsenic ug/L 1.00 112 70 - 130Chromium 70 - 130 ug/L 1.00 0.255 0.200 128 Lab Control Sample DF Expected Parameter Unit Result 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 53.8 Arsenic ug/L 2.00 51.0(50.0) 106 75 - 125 Chromium ug/L 2.00 68.2 66.0(50.0) 104 75 - 125Matrix Spike Duplicate Lab ID = 806147-001 Parameter Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 52.5 2.00 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 1.00 19.3 20.0 96.6 90 - 110 ug/L

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 Eng	Client: E2 Consulting Engineers, Inc		Project Name: Project Number:	PG&E Topock 423575.MP.02	-	Page 9 of 9 Printed 3/5/2013
Interference Check Sta	andard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	andard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.9	20.0	104	80 - 120
Interference Check Sta	indard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.5	20.0	97.7	80 - 120
Interference Check Sta	ndard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.2	20.0	106	80 - 120
Interference Check Sta	indard 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.

Mona Nassimi

Manager, Analytical Services

S 806203

## 806203

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

2/5/2013 12:23:47 PM

Page 1 OF 1

		-							2.02013 12.20.47 1 M	O1 _		
	Project Name PG		ik C	ontainer:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly				7
	Location Topock		Droco	an estiman	(NH4)2S O4/NH4O	(NH4)2S O4/NH4O	HNO3, 4°C	HNO3, 4°C			l	
	Project Manager J	lay Piper	riese	avauves.	H, 4°C	H, 4°C	4-0	4-0			-	
	Sample Manager S	3hawn Du	ffy	Filtered:	Field	Field	Field	Field			ĺ	1
			Holdi	ing Time:	28	28	180	180			e.	.
	Project Number 4	123575.MF	.02.GM	1.0							į	
	Task Order				Cr6	Cr6	Metals	Metals	w > . 10		İ	
	Project 2013-GMP	P-191-Q1			) (E)	(E2	s (6			۲		
	<b>Turnaround Time</b>	10 Days	s		218.	18.	020 C	020 C		Number	İ	
	Shipping Date: 2/	/5/2013			6) F	SH)	AFF	AFF	1400000			
	COC Number: 1				ield	Field	niun	(6020AFF) Field Chromium	orditions Form Attached	of C		-
					(E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	(6020AFF) Field Filtere Chromium	) de F		Containers		
					erec	tere	-ilte	Filte		ain		
		DATE	TIME	Matrix		d	red	red		SJE	COMMENTS	;
~ (	MW-121-191	2/4/2013	7:02	Water		х	х			4	7	1
2	MW-123-191	2/4/2013	17:54	Water		Х	х			4	> PH=2	1
3	MW-220-191	2/4/2013	16:00	Water	х					1	\$20 Za	7
-4	MW-221-191	2/4/2013	21:30	Water	Х					1		1
5	MW-27-060-191	2/4/2013	11:26	Water		Х	х			4	7	٦,
. ,	MW-27-060-191-EB	2/4/2013	10:12	Water	х			Х		2	1	1
46	MW-27-085-191	2/4/2013	12:50	Water		Х	Х		ALERI!!	4		1
	MW-27-085-191-EB	2/4/2013	11:44	Water	х			х	LAVOLTH QC	2	pu=2	J
	MW-42-055-191	2/4/2013	15:37	Water		Х	X		LEVELLA	4	6030	7 7
<b>₹</b> : 	MW-42-055-191-EB	2/4/2013	14:50	Water	х			Х		2		1
-8	MW-42-065-191	2/4/2013	14:39	Water		Х	X			4	J	1
			<del> </del>		<del> </del>				TOTAL NUMBER OF CONTAINERS	32		1
	F											

Approved by	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by  Sempled by	<i>[[</i> ]	1520	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Figure 199		1205	On Ice: yes / no	Sample Custody	
Received by	Davila	2-5-13	Airbill No:		D
Relinquished by	ul Davila	2-5-13 21.	Lab Name: Truesdail Laboratories, Inc.		Report Copy to Shawn Duffy
Received by	TI d	15/13 2/12	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
02/01/13	806148-1	9.5	NIA	NIA	NIA	HAV
	-2	1			)	
1	1, -3	4	J	4		
02/06/13	806201-1	7	2 ml	9-5	10 00 AM	HAV
7,	1 -2		4	4	10:05 AM	HAV
02/06/13	866202-1	. 7	2 ml	9.5	10:10 AM	HAY
	4 -2		4	<u> </u>	10:20 AM	ITAV
02106/13	806203-1	9.5	NIA	NIA	NIA	HAY
	-2			· .		
	-3					
	-4					
	-5					
	-6					
	.7			-		
J	-8			1		<u></u>
	806237-1	9.5	MA	MA	NIA	RB
021/3/13	· · · · · · · · · · · · · · · · · · ·	7	2 ml	9.3	9:30 AM	HAI
02113/13	806330-1	9.5	HIA	NIA	NIA	HAV
	1 -2					
	-3	-				
	-4					
	-5					
1	-6					
	<u> </u>					
	-8					
	-9					
	-10					
	-11					_
	-13					
						_
	1 -14	7/		<u> </u>		<u> </u>



M2011

#### TRUESDAIL LABORATORIES, INC.



Turbidity/pH Check

Turbidity/pH Check									
Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments	
806 202(1-2)	41	72	2/6/19	E>	Us	Lin		FilterentA	
906212(11-13)	<u> </u>	72	2/7/13	BF	ys ~°	8 anAm			
9.0 (2-304-3)	41	72	2-8-13	BZ	No	7: 30A			
8062 (96172)	>1	<b>۲</b> 2	1	1	Xes				
806821	i	72XBE				7:30AA	h		
806922		<2							
806224									
806234									
80622034328)	<1	72	2-6-13	BE	425				
80599611-10)	,(		01/3 -13		l				
Ea 5995(1-9)			7				\		
806243	41	42	2/8/13	or	ges				
806244	41	12	7.07		19			1	
806 265	41	<u> </u>							
806267 BE	4	<b>L2</b>			.V		-	<u> </u>	
3062684-41	71	< 2	2-11-13	BE	Xes				
88626961-4)		Ì		Ī					
406237	<1	<b>1</b> 2							
806211	TTLC	****		1.					
80629661-41	۲۱ .	<b>۲</b> 2	2 12-13	BZ					
306 263	72	12	2/12/13	ES	ijs				
806275 (1-2)	1	1		1	1				
(06 242 (1-8)									
806285									
806286 (1-2)									
806287									
606291 (1-4)									
Su 6 29 2				-				· · · · · · · · · · · · · · · · · · ·	
8062.2	< \	72	2-13-13	BU	Yes ·	81.30 A1	n		
806330(1-499-11)	<1	< <b>\</b>	1	1	<b>V</b>	0.5-11			
80634114-6)	<1	>2			<b>~</b> °	13:30			
806322		1		- t			2-19-13	PH <z< td=""></z<>	
806339	71	72	2/13/13	De	Yes	14:30	6-17-17	1410	
806299	41	12	4/19/12	1	- 13	17.00		· '	
806337 (-6)	<u> </u>	>2	2-14-13	Bi	NO	6.30	2-15-13	PHCZ	
806341036		-	1 1117	1	7			1	
£ 06346 (1-18)	-+-			1		<del>     </del>			
8 (6347 (1.3)									
206348 (1-294)		-, .				-		<del>-  </del>	
806704	<u> </u>	<u> </u>	2/14/13	ES	<del>                                    </del>	+	A	<b>y</b>	
		26	-114117	E 2	yes				
806 305		-		<del>-  </del>					
806 306				_					
(nr 304									
806 308	<u> </u>	1	<b>V</b>	<u> </u>	<u>\</u>				

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

### Sample Integrity & Analysis Discrepancy Form

	ent: <u>E2</u>	Lab #8'06203
Dat	e Delivered: ❷1 ❷1 13 Time:❷/ 30 By: □Mail Ø	Field Service
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ⊅N/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ⊘±N/A
1.	If a letter was sent with the COC, does it match the COC?	□Yes □No ANA
<b>i</b> .	Were all requested analyses understood and acceptable?	ØYes □No □N/A
<b>)</b> .	Were samples received in a chilled condition? Temperature (if yes)? <u> </u>	⊠Yes □No □N/A
	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	∕QYes □No □N/A
	Were sample custody seals intact?	□Yes □No ZiN/A
	Does the number of samples received agree with COC?	daYes □No □N/A
).	Did sample labels correspond with the client ID's?	AYes □No □N/A
١.	Did sample labels indicate proper preservation? Preserved (if yes) by: Д <b>Truesdai</b> l □Client	⊅Yes □No □N/A
•	Were samples pH checked? pH = <u>\$\mathcal{SUC}, O.C.</u>	ÆYes □No □N/A
	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	⊠Yes □No □N/A
	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b> ÆStd	ØYes □No □N/A
5.	Sample Matrix: □Liquid □Drinking Water □Ground □Sludge □Soil □Wipe □Paint □Solid 🖄	11/ 17.00
	Comments:	
	Sample Check-In completed by Truesdail Log-In/Receiving:	duda Hisheen

#### 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.

- Mona Nassimi

Manager, Analytical Services

Muluel At

Michael Ngo

Quality Assurance/Quality Control Officer

#### TRUESDAIL LABORATORIES, INC.

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

Laboratory No.: 806330

Date Received: February 12, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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



Lab Sample II	) 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.

### TRUESDAIL LABORATORIES, INC.

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Established 1931

Page 1 of 11

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

Printed 3/14/2013

Water

Water

Water

Laboratory No. 806330

#### 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:

MW-48-191

MW-71-035-191

MW-72BR-200-191

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

Field ID	Lab ID	Collected	Matrix
MVV-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

806330-013

806330-014

806330-015

02/07/2013 08:35

02/07/2013 08:05

02/07/2013 15:10

#### 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.



Client: E2 Consulting Engineers, Inc.			roject Name: roject Numbei	ect	Page 2 of 11 Printed 3/14/2013			
806330-013 Chromium, Hexa	avalent	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	-	ance 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	•	nce Range
Chromium, Hexavalent Lab Control Sample	ug/ <b>L</b>	1.00	0.198	0.200		99.0	70 - 130	)
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce 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/Add	ded	Recovery		ince Range
Chromium, Hexavalent	ug/L	5.00	4.86	5.00(5.00)		97.3	90 - 110	
Matrix Spike								806203-006
Parameter	Unit	DF 5.00	Result	Expected/Add	ded	Recovery	•	ince Range
Chromium, Hexavalent  Matrix Spike	ug/L	5.00	4.93	5.00(5.00)		98.6	90 - 110	806203-008
Parameter	1.1:4	DE	D#	F t - d / A -d	المال	D		
Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.88	Expected/Add 5.00(5.00)	aea	Recovery 97.6	90 - 110	ince Range
Matrix Spike	ug/ =	0.00	1.00	0.00(0.00)		01.0		, 806329-001
Parameter	Unit	DF	Result	Expected/Add	ded	Recovery		ince Range
Chromium, Hexavalent	ug/L	1.00	1.25	1.28(1.00)	ucu	97.3	90 - 110	_
Matrix Spike	-			,			Lab ID =	806330-001
Parameter	Unit	DF	Result	Expected/Add	ded	Recovery	Accepta	nce 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/Add	ded	Recovery		nce 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/Add	ded	Recovery	•	nce Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.9(1.00)		14.2	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 witten authorization from Truesdail Laboratories.



Client: E2 Consulting En	igineers, Ind		roject Name: roject Numbe	PG&E Topock Pror: 423575.MP.02.GN	-	Page 3 of 11 Printed 3/14/2013
Matrix Spike						Lab ID = 806330-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 37.5	Expected/Added 37.9(25.0)	Recovery 98.5	Acceptance Range 90 - 110 Lab ID = 806330-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.974	Expected/Added 1.00(1.00)	Recovery 97.4	Acceptance Range 90 - 110 Lab ID = 806330-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.968	Expected/Added 1.00(1.00)	Recovery 96.8	Acceptance Range 90 - 110 Lab ID = 806330-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806330-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.984	Expected/Added 1.00(1.00)	Recovery 98.4	Acceptance Range 90 - 110 Lab ID = 806330-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 34.6	Expected/Added 35.4(25.0)	Recovery 97.0	Acceptance Range 90 - 110 Lab ID = 806330-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 5.94	Expected/Added 6.17(5.00)	Recovery 95.4	Acceptance Range 90 - 110 Lab ID = 806330-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 7.38	Expected/Added 7.56(5.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 806330-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.969	Expected/Added 1.00(1.00)	Recovery 96.9	Acceptance Range 90 - 110 Lab ID = 806330-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 5.21	Expected/Added 5.24(5.00)	Recovery 99.5	Acceptance Range 90 - 110 Lab ID = 806330-014
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.74	Expected/Added 1.78(1.00)	Recovery 96.0	Acceptance Range 90 - 110 Lab ID = 806330-015
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 32.4	Expected/Added 31.1(25.0)	Recovery 105	Acceptance Range 90 - 110

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.GM

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Printed 3/14/2013

Chrome VI by EPA 218.6

Batch 02CrH13Q

Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806330-004 Chromium, Hexa	valent	ug/L	02/21	/2013 16:08	5.00	0.0460	1.0	ND
Method Blank								
Parameter Chromium, Hexavalent Duplicate	Unit ug/L	DF 1.00	Result ND				Lab ID =	806432-005
Parameter Chromium, Hexavalent Low Level Calibration	Unit ug/L Verification	DF 1.00	Result 18.3	Expected 18.7		RPD 1.98	Accepta 0 - 20	ance Range
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.188	Expected 0.200		Recovery 94.2	Accepta 70 - 130	ance Range )
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.91	Expected 5.00		Recovery 98.2	90 - 110	ance Range ) 806330-004
Parameter Chromium, Hexavalent <b>M</b> atrix Spike	Unit ug/L	DF 5.00	Result 4.74	Expected/Add 5.00(5.00)	ded	Recovery 94.7	90 - 110	ance Range ) 806330-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.911	Expected/Add 1.00(1.00)	ded	Recovery 91.1	90 - 110	ance Range ) 806431-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.92	Expected/Add 1.98(1.00)	ded	Recovery 94.7	90 - 110	ance Range ) 806432-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.95	Expected/Add 1.97(1.00)	ded	Recovery 97.8	90 - 110	ance Range ) 806432-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.85	Expected/Add 1.93(1.00)	ded	Recovery 92.0	90 - 110	ance Range ) 806432-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.36	Expected/Add 1.40(1.00)	ded	Recovery 96.6	Accepta 90 - 110	ance Range )



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 7 of 11

Project Number: 423575.MP.02.GM

Printed 3/14/2013

Chrome VI by EPA 218.6	6		Batch	03CrH13D					
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result	_
806330-002 Chromium, Hex	avalent	ug/L	03/06	/2013 12:40	5.00	0.0460	1.0	11.5	J
806330-015 Chromium, Hex	avalent	ug/L	03/06	3/2013 12:51	5.00	0.0460	1.0	7.9	
Method Blank									
Parameter	Unit	DF	Result						
Chromium, Hexavalent Duplicate	ug/L	1.00	ND				Lab ID =	806330-01	1
Parameter	Unit	DF	Result	Expected		RPD	Accepta	ance Range	е
Chromium, Hexavalent	ug/L	1.00	2.56	2.58		0.653	0 - 20		
Low Level Calibration	Verification								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range	е
Chromium, Hexavalent Lab Control Sample	ug/L	1.00	0.210	0.200		105	70 - 130	_	
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range	е
Chromium, Hexavalent	ug/L	1.00	4.85	5.00		97.0	90 - 110	)	
Matrix Spike							Lab ID =	806330-002	2
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	Accepta	ance Range	Э
Chromium, Hexavalent	ug/L	5.00	36.3	36.5(25.0)		99.3	90 - 110	)	
Matrix Spike							Lab ID =	806330-01	1
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	Accepta	ance Range	Э
Chromium, Hexavalent	ug/L	1.00	7.49	7.58(5.00)		98.2	90 - 110	)	
Matrix Spike							Lab ID =	806330-01	5
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	Accepta	ance Range	Э
Chromium, Hexavalent	ug/L	5.00	31.9	32.9(25.0)		95.8	90 - 110	)	
Matrix Spike							Lab ID =	806635-00	1
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	Accepta	ance Range	Э
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)		97.7	90 - 110	)	
Matrix Spike							Lab ID =	806635-000	3
Parameter	Unit	DF	Result	Expected/A	.dded	Recovery	Accepta	ance Range	Э
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)		96.2	90 - 110	)	
Matrix Spike							Lab ID =	806635-004	4
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	Accepta	ance Range	9
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 Page 10 of 11

Project Number: 423575.MP.02.GM

Printed 3/14/2013

Metals by EPA 6020A, Dis	solved		Batch	021313A				
Parameter		Unit	Ana	lyzed I	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 Chromium	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	806330-010
Parameter	Unit	DF	Result	Expected	F	RPD	•	nce Range
Chromium	ug/L	2.00	1.42	1.48		3.86	0 - 20	
Low Level Calibration V	erification/							
Parameter	Unit	DF	Result	Expected	R	Recovery		nce Range
Chromium	ug/L	1.00	0.198	0.200		99.0	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery		nce 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/Adde	d R	Recovery		nce 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/Adde	d R	tecovery	•	nce Range
Chromium	ug/L	2.00	51.6	51.5(50.0)		100	75 - 125	
MRCCS - Secondary								
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.3	Expected 20.0	R	Recovery 96.7	Accepta 90 - 110	nce Range
Omomum	ug/L	1.00	13.5	20.0		<i>3</i> 0.1	90 - I IU	ı



Client: E2 Consulting Eng	gineers, Inc		Project Name: Project Number:	PG&E Topock 423575 MP.02	•	Page 11 of 11 Printed 3/14/2013
MRCVS - Primary						
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 19.1	Expected 20.0	Recovery 95.6	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.0	Expected 20.0	Recovery 100.	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 19.4	Expected 20.0	Recovery 96.8	Acceptance Range 90 - 110
Parameter Chromium Interference Check Sta	Unit ug/L andard A	DF 1.00	Result 20.7	Expected 20.0	Recovery 103	Acceptance Range 90 - 110
Parameter Chromium Interference Check Sta	Unit ug/L andard A	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check Sta	Unit ug/L andard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check Sta	Unit ug/L andard AB	DF 1.00	Result 20.0	Expected 20.0	Recovery 100	Acceptance Range 80 - 120
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.2	Expected 20.0	Recovery 95.9	Acceptance Range 80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

MF2

2

### 806330

#### **CHAIN OF CUSTODY RECORD** CH2MHILL 2/7/2013 1:14:58 PM Page 1 OF 1x500 250 ml 2x250 2x500 Project Name PG&E Topock Container: Poly ml Poly ml Poly mi Poly Rec'd 02/12/13 Location Topock (NH4)2S 04/NH40 (NH4)2S ниоз, ниоз, Preservatives: 04/NH40 Project Manager Jay Piper 806330 H, 4°C H, 4°C Sample Manager Shawn Duffy Filtered: Field Field Field Field **Holding Time:** 28 28 180 180 Project Number 423575.MP.02.GM.03 Metals (6020AFF) Field Filtered Chromium Metals (6020AFF) Field Filtered Chromium Task Order Project 2013-GMP-191-Q1 (E218,6H) Field Filtered (E218.6) Field Filtered Number of Containers Turnaround Time 10 Days Shipping Date: 2/5/2013 COC Number: 4 DATE TIME Matrix COMMENTS MW-28-090-191 2/5/2013 12:41 Water 4 Х X 94-2 MW-28-090-191-EB 2/5/2013 11:50 Water 2 х MW-33-150-191 2 2/5/2013 14:44 Water Х MW-33-210-191 2 2/5/2013 15:55 Water Χ. х MW-34-080-191 2/5/2013 11:03 Water х X 4 MW-34-080-191-EB 2/5/2013 Water 2 9:30 X X MW-21-191-EB 2 2/6/2013 9:00 Water Х MW-222-191 2/6/2013 1 7:00 Water X MW-223-191 2/6/2013 7:15 Water 1 х MW-224-191 2/6/2013 15:38 Water . x 1 MW-225-191 1 2/6/2013 15:30 Water X MW-57-185-191 2/6/2013 14:25 Water 2 X X

Approved by	Signatures	Date/Time	Shipping Details		Special Instructions:
Sampled by	15//	<u> </u>	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Relinquished by		1400	On Ice: yes / no	Sample Custody	
Received by	Catal Harik	カツ ダー・インタンくん	Airbili No:		Report Copy to
Relinquished by	afact Davila	2-12-13 21:30	Lab Name: Truesdail Laboratories, Inc.		Shawn Duffy
Received by Lin	da, TLI &	1/2/13 2/170	Lab Phone: (714) 730-6239		(530) 229-3303
The state of the s					A CONTRACTOR OF THE PROPERTY O

20 MW-63-065-191

MW-21-191

2/6/2013

2/7/2013

10:58

9:05

Water

Water

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#### CH2MHILL

#### **CHAIN OF CUSTODY RECORD**

" 2/7/2013 1:14:59 PM

Page 2 OF 2

Project Name PG Location Topoci		C	.vinaiie	Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly	Please change sample ID MW-72-200-191 to MW-72BR-200-1	91	·
Project Manager	Jay Piper		ervatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	303-05-13 Deff		
Sample Manager	Shawn Duff	fy	Filtered:	Field	Field	Field	Field	03-05-13		1
		Hold	ing Time:	28	28	180	180		1	
Project Number of Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 4	P-191-Q1 10 Days 1/5/2013		1.673 Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metais (6020AFF) Field Filtered . Chromlum	Metals (6020AFF) Field Filtered Chromium	Levelliac	Number of Containers	COMMENTS
2 MW-226-191	2/7/2013	1540	Water	Χ.					1	
3 MW-48-191	2/7/2013	8:35	Water	×	ļ		х		2	1
MW-71-035-191	2/7/2013	8:05	Water	Х		,	х	V	2	104-2
WOR AT WAY	2-7-13	1510	Wilter	ж.	-	1 2 2	×	MW-72BR-200-191 TOTAL NUMBER OF CONTAINERS	35	2
4	SPD	·	L	<b></b>		ŧ	<u></u>		37	4

Signatures Date/Time **Shipping Details** Special Instructions: Approved by ATTN: Feb 4 - Feb 28, 2013 Method of Shipment: Sampled by On Ice: yes / no Relinquished by Sample Custody Received by
Relinquished by Report Copy to Lab Name: Truesdail Laboratories, Inc. Shawn Duffy (530) 229-3303

CH2MHILL CHAIN OF CUSTODY RECORD 2/7/2013 1:14:58 PM Page 1 OF 2 2x250 250 ml 2x500 1x500 Project Name PG&E Topock Container Poly ml Poly ml Poly ml Poly Rec'd 02/12/13 Location Topock (NH4)2S (NH4)2S HNO3, HNO3, Preservatives Ò4/NH4O 04/NH40 Project Manager Jay Piper 806330 H, 4°C Sample Manager Shawn Duffy Filtered Field Field Field Field Holding Time: 28 28 180 180 Project Number 423575.MP.02.GM.03 Metals Cr6 Task Order Cr6 (E218.6) Field Filtered (E218.6R) Field Filtered Project 2013-GMP-191-Q1 Number (6020AFF) Field Chromium Turnaround Time 10 Days Shipping Date: 2/5/2013 of Containers COC Number: 4 Filtered DATE TIME Matrix COMMENTS MW-28-090-191 12:41 Water 4 2/5/2013 X X M-26020 MW-28-090-191-EB 2 2/5/2013 11:50 Water X Х MW-33-150-191 2 14:44 Water 2/5/2013 X X MW-33-210-191 2 1711-2 2/5/2013 15:55 Water Х X 6000 MW-34-080-191 4 2/5/2013 11:03 Water X X MW-34-080-191-EB 2 2/5/2013 9:30 Water X X MW-21-191-EB 2 2/6/2013 9:00 Water X X MW-222-191 2/6/2013 Water Sec. 7:00 X 6 MW-223-191 A COMM 2/6/2013 7:15 Water X MW-224-191 Alexandr. 2/6/2013 15:38 Water Х MW-225-191 2/6/2013 15:30 Water X MW-57-185-191 2/6/2013 2 14:25 Water X X 40 MW-63-065-191 2 2/6/2013 10:58 Water

Approved by Sampled by Renamination Received by Relinquished by 9 Received by

2/7/2013

9:05

Signatures

Water

MW-21-191

1-12-13 Jul Harik 2-12-13 15:30 Carl Davila 2-12-13 21:30

X

**Shipping Details** 

Method of Shipment:

On Ice: yes / no

Airbill No:

X

X

Lab Name: Truesdail Laboratories, Inc.

2/12/13 2/170 Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

Feb 4 - Feb 28, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303 MF 2

806330

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

2/7/2013 1:14:59 PM

Page 2 OF 2

											-
Project Name PG Location Topoc Project Manager	:k		Container: servatives:	250 ml Poly (NH4)2S 04/NH40 H, 4°C	(NH4)2S		1x500 ml Poly HNO3, 4°C				
Sample Manager	Shawn Du	ffy	Filtered:	Field	Field	Field	Field		l		
		Holo	ding Time:	28	28	180	180				
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 4	1P-191-Q1 • 10 Day: 2/5/2013	S	M.03 Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium	Level III QC	Number of Containers	соммен	NTS
NW-226-191	2/7/2013	1540	Water	х					1		
MW-48-191	2/7/2013	8:35	Water	Х			Х		2	7.	
MW-71-035-191	2/7/2013	8:05	Water	д			Х		2	pu-	2
mui-72-200-191	2-7-13	1510	Wilter	×			X	TOTAL NUMBER OF CONTAINERS	35	260	, Z
			·		<u></u>				37	4	

	Eignaturos	Date/Time			
Approved by	Signatures		Shipping Details	ATTN:	Special Instructions:
Sampled by	K-//	2-12-17	Method of Shipment: courier	ATIN.	Feb 4 - Feb 28, 2013
Remogquished by	11/1	- 1400	On Ice: yes / no	Sample Custody	
Received by Ray	Carl Day 6	2-12-13 15:	3 Airbill No:		Donort Conv.to
Relinquished by	but Davila	2-12-13 21:	3 Lab Name: Truesdail Laboratories, Inc.		Report Copy to Shawn Duffy
Received by	la ref	1/12/13 2/13-	Lab Phone: (714) 730-6239		(530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

		T		I	1	<del>r</del>
Date		Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
02/01/13	806148-1	9.5	NIA	NIA	NIA	HAY
	-2					
_ ↓	1, -3	4	1	7	1	
02/06/13	806201-1	7	2 ml	9.5	10:00 AM	HAV
7,	J -2		4	1	10:05 AM	HAV
02/06/13	866202-1	7	2 ml	9.5	10:10 AM	HAY
1	4 -2	J	4	4	10:20 AM	ITAV
02/06/13	806203-1	9.5	NIA	NIA	NIA	HAY
	-2					1
	-3					
	-4					
	-5					
	-6					
	.7					
<u></u>	-8	<i>J</i> ,				<u> </u>
02/08/13	806237-1	9.5	NA	MIA	NIA	RB
021/3/13	806329	7	2 ml	9.3	9:30 AM	HAIT
02113/13	806330-1	9.5	NIA	NIA	NIA	HAV
	-2					
	-3	-				
	-4					
	-5					
	-6					
	-7				·	
	.8					
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	-10					
	-1)					
	-12					
	-13					
ا با	1 -14	1	1	_ b _	1	1

02/21/13

TU W20/1

# 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	NIA	INIA	NIA	HAV
02/14/14	806352-1	8.5	1 ml /100 ml	9.5	6:10 AM	HAY
	- 2	1	4	9.5	6:15 AM	
	-3	-8	2 ml/100 ml	9.5	6: 20 AM	
	-4	7	2 ml/100 ml		6:28 AM	HAY
	-5				6:30 AM	
	. 6				6:35 AM	
	. 7				6: 40 AM	
	-8				6:UP AM	
	1 . 9		4	1	6:50 AM	1
02/15/14	806378-1	7	2 ml	9.5	6 10 AM	1-i A V
	-2				6:15 AM	
	-3				6:20 Ann	
	4				6:21 Am	
	-,`				6:30 17111	
	.6				6:35 Am	
	1 .7				6:40 pm	
	1, -8	1		1	6:65 AM	1
2/19/10/15	806432-1	9,5	N/A	NA	N/A	Tay
	-2					
	-3					
	-4					
	-5	1				
2/19/13	806413-1	9,5	NA	NA	NA	TM
	- 2					
	-3					
	-4	1				
. 1	706431-15	7.0	2mc/100ml	9,5	10:00 AM	TM
V	~11	<u> </u>	J	<i>\lambda</i>		TM
. 1	1		1			

a) 02/21/13

1/20/1

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log





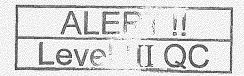
Turbidity/pH Check

			Turbic	lity/pH C	heck			
Sample Number	Turbidity	рH	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
806 202(1-2)	41	72	2/6/19	E>	yes	Lin		Filtereath
506212(11-13)	<b>&lt;1</b>	72	2/7/13	BF	yus ~ o	8 landn		
9062304-3)	۷)	72	2-8-13	BI	No	7:30A	^	
8062191172)	>1	<2		1	X es			
806821	Ì	72XBE		l		7:30AA	7	
806922		<2						
806224								
806234	4	•			<b>*</b>			-
8062203(1528)	< <u>1</u>	72	2-6-13	BE	y25		-	
80599611-10)	1		01/3 -13					
80 5995L1-9)			1					
306243	۷	٤2	2/8/13	or	'yes		-	
806244	41	12		,				1
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806267 BE	4	<b>C2</b>						
5062684-9	71	< 2	2-11-13	BE	Xes			·
886269614)	71		(	١				
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506296L1-4)	۲۱ .	<b>12</b>	2 12-13	32-				
80629661-41	72	12	2/12/13	ES	igis			
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806304	Zi	42	2/14/13	ES	yes	4	- Y	Y
*			-117117	<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	ا کی ک			
(M. 30)	, '							
506 305	1		<b>-</b>					
806 305 806 306 806 307								

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

## Sample Integrity & Analysis Discrepancy Form

Cli	ent: $\pm 2$	Lab #_ <u> </u>
Dat	te Delivered:ੴ21 <u>12</u> /13 Time: <u>᠘'´১</u> ੳ By: □Mail	Field Service
1.	Was a Chain of Custody received and signed?	Á Yes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÞÁN/A
<b>3</b> .	Are there any special requirements or notes on the COC?	□Yes □No 12n/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No □N/A
<b>5</b> .	Were all requested analyses understood and acceptable?	ØYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>3- 4 °C</u>	ÆAYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆYes □No □N/A
<b>8</b> .	Were sample custody seals intact?	□Yes □No ÞN/A
9.	Does the number of samples received agree with COC?	ØYes □No □N/A
10.	Did sample labels correspond with the client ID's?	ØYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑ Truesdail □ Client	ÆYes □No □N/A
12.	Were samples pH checked? pH = Sel 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
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ <b>RUSH</b> ☐ Std	ØYes □No □N/A
<b>5</b> .	Sample Matrix:       □Liquid       □Drinking Water       □Ground         □Sludge       □Soil       □Wipe       □Paint       □Solid       □	
6.	Comments:	
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	L'Stialeurin





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.

Hona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

#### TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 

Established 1931

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Laboratory No.: 806463

Date Received: February 20, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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



Lab Sample II	) 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.

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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

806463-004 Chromium, Hexavalent

806463-005 Chromium, Hexavalent

806463-007 Chromium, Hexavalent

806463-008 Chromium, Hexavalent

806463-009 Chromium, Hexavalent

806463-011 Chromium, Hexavalent

806463-014 Chromium, Hexavalent

Release Number:

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

Laboratory No. 806463

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	Samples Red	ceived on 2/20/2013 9:30:	UU PIVI			
Field ID		Lab ID	Col	llected	Mat	rix
MW-23-060-191		806463-001	02/18	/2013 13:46	Wa	ter
MW-23-080-191		806463-002	02/18	/2013 15:26	Wa	ter
MW-68BR-280-191		806463-003	02/18	/2013 11:41	Wa	ter
MW-227-191		806463-004	02/19	/2013 06:30	Wa	ter
MW-228-191		806463-005	02/19	/2013 06:35	Wa	ter
MW-229-191		806463-006	02/19	/2013 15:10	Wa	ter
MW-230-191		806463-007	02/19	/2013 15:15	Wa	ter
MW-35-060-191		806463-008	02/19	/2013 08:27	Wa	ter
MW-62-065-191		806463-009	02/19	/2013 14:52	Wa	ter
MW-65-160-191		806463-010	02/19	/2013 09:57	Wa	ter
MW-65-225-191		806463-011	02/19	/2013 13:23	Wa	ter
MW-70-105-191		806463-012	02/19	/2013 11:09	Wat	ter
MW-72-080-191		806463-013	02/19	/2013 12:21	Wa	ter
MW-73-080-191		806463-014	02/19	/2013 08:52	Wa	ter
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

ug/L

ug/L

ug/L

ug/L

ug/L

ug/L

ug/L

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.

02/25/2013 14:36

02/25/2013 14:47

02/25/2013 15:28

02/25/2013 15:39

02/25/2013 15:49

02/25/2013 16:10

02/25/2013 16:41

1.00

1.00

1.00

1.00

25.0

25.0

1.00

0.00920

0.00920

0.00920

0.00920

0.230

0.230

0.00920

0.20

0.20

0.20

0.20

5.0

5.0

0.20

ND

ND

ND

24.3

404

630

25.1



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 Chromium, Hexavalent Duplicate	Unit ug/L	DF 1.00	Result ND			Lab ID = 806463-008
Parameter Chromium, Hexavalent Low Level Calibration	Unit ug/L on Verification	DF 1.00	Result 24.6	Expected 24.3	RPD 1.29	Acceptance Range 0 - 20
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.203	Expected 0.200	Recovery 101	Acceptance Range 70 - 130
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.93	Expected 5.00	Recovery 98.7	Acceptance Range 90 - 110 Lab ID = 806431-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 9.56	Expected/Added 9.70(5.00)	Recovery 97.1	Acceptance Range 90 - 110 Lab ID = 806463-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 84.6	Expected/Added 83.7(50.0)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806463-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 36.3	Expected/Added 36.2(25.0)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806463-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 5.04	Expected/Added 5.00(5.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806463-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0	Expected/Added 1.00(1.00)	Recovery 0	Acceptance Range 90 - 110 Lab ID = 806463-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806463-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.00(1.00)	Recovery 106	Acceptance Range 90 - 110 Lab ID = 806463-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.04(1.00)	Recovery 100	Acceptance Range 90 - 110



Client: E2 Consulting Eng		roject Name: roject Numbe	Page 3 of 8 Printed 3/6/2013			
Matrix Spike						Lab ID = 806463-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 48.5	Expected/Added 49.3(25.0)	Recovery 97.0	Acceptance Range 90 - 110 Lab ID = 806463-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 25.0	Result 924	Expected/Added 904(500)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806463-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 25.0	Result 1270	Expected/Added 1260(625)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806463-014
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 49.5	Expected/Added 50.1(25.0)	Recovery 97.5	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.96	Expected 5.00	Recovery 99.2	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.0	Expected 10.0	Recovery 100	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.97	Expected 10.0	Recovery 99.7	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.86	Expected 10.0	Recovery 98.6	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.76	Expected 10.0	Recovery 97.6	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.GM

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Chrome VI by EPA 218.	.6		Batch	02CrH13T				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806463-006 Chromium, Hex	xavalent	ug/L	02/26	5/2013 14:03	1.00	0.00920	0.20	ND
806463-010 Chromium, Hex	xavalent	ug/L	02/26	5/2013 15:23	5.00	0.0460	1.0	78.8
806463-012 Chromium, Hex	xavalent	ug/L	02/26	6/2013 15:23	5.00	0.0460	1.0	93.2
806463-013 Chromium, Hex	xavalent	ug/L	02/26	5/2013 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	Accepta	ince Range
Chromium, Hexavalent	ug/L	5.00	95.0	93.2		1.89	0 - 20	
Low Level Calibratio	n Verification	l						
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200		106	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce 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/Add	ded	Recovery	Accepta	ince 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/Add	ded	Recovery	•	ince 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/Add	ded	Recovery	-	ince 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/Add	ded	Recovery	-	nce Range
Chromium, Hexavalent	ug/L	5.00	247	247(125)		99.9	90 - 110	)
MRCCS - Secondary	<b>y</b> :							
Parameter	Unit	DF	Result	Expected		Recovery		nce Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00		99.6	90 - 110	)



Parameter

Chromium

Unit

ug/L

DF

1.00

Report Continued

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

Project Number: 423575.MP.02.GM

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Printed 3/6/2013

Batch 022513A Metals by EPA 6020A, Dissolved DF Parameter Unit MDL RL Analyzed Result 806463-001 Chromium ug/L 02/25/2013 15:04 2.00 0.1841.0 34.8 806463-002 Chromium ug/L 02/25/2013 15:59 2.00 0.1841.0 10.6 806463-003 Chromium 02/25/2013 16:05 2.00 0.184 1.0 ND ug/L 806463-008 Chromium ug/L 02/25/2013 16:11 2.00 0.184 1.0 25.3 5.00 0.460 806463-009 Chromium 02/25/2013 16:23 1.0 406 ug/L 02/25/2013 16:29 2.00 77.1 806463-010 Chromium 0.1841.0 ug/L 10.0 0.920 627 806463-011 Chromium ug/L 02/25/2013 16:47 2.0 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 0.184 806463-014 Chromium 02/25/2013 17:24 2.00 1.0 25.8 ug/L Method Blank Parameter Unit DF Result ND Chromium ug/L 1.00 Lab ID = 806463-001 Duplicate Parameter Unit DF Result Expected **RPD** Acceptance Range 34.8 0 - 20Chromium ug/L 2.00 35.0 0.719 Low Level Calibration Verification Parameter Unit DF Result Expected Recovery Acceptance Range ug/L Chromium 1.00 0.232 0.200 116 70 - 130Lab Control Sample Unit DF Parameter Result Expected Recovery Acceptance Range Chromium ug/L 2.00 50.3 50.0 100 85 - 115 Lab ID = 806463-001 Matrix Spike Parameter Unit DF Expected/Added Result Recovery Acceptance Range 86.8 104 Chromium ug/L 2.00 84.8(50.0) 75 - 125 Lab ID = 806463-001 Matrix Spike Duplicate DF Parameter Unit Result Expected/Added Recovery Acceptance Range ug/L 86.0 102 75 - 125 Chromium 2.00 84.8(50.0) MRCCS - Secondary

Result

20.8

Expected

20.0

Recovery

104

Acceptance Range

90 - 110



Client: E2 Consulting Er	gineers, Inc		oject Name: oject Numbe	PG&E Topock   :: 423575.MP.02.	•	Page 7 of 8 Printed 3/6/2013
MRCVS - Primary						
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 19.7	Expected 20.0	Recovery 98.7	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 97.8	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.6	Expected 20.0	Recovery 103	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.5	Expected 20.0	Recovery 103	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 19.3	Expected 20.0	Recovery 96.7	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 19.7	Expected 20.0	Recovery 98.6	Acceptance Range 90 - 110
Parameter Chromium Interference Check S	Unit ug/L tandard A	DF 1.00	Result 19.3	Expected 20.0	Recovery 96.4	Acceptance Range 90 - 110
Parameter Chromium Interference Check S	Unit ug/L tandard A	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check S	Unit ug/L tandard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check S	Unit ug/L tandard AB	DF 1.00	Result 19.6	Expected 20.0	Recovery 98.1	Acceptance Range 80 - 120
Parameter Chromium Serial Dilution	Unit ug/L	DF 1.00	Result 19.2	Expected 20.0	Recovery 96.1	Acceptance Range 80 - 120 Lab ID = 806463-013
Parameter Chromium	Unit ug/L	DF 10.0	Result 120	Expected 119	RPD 0.555	Acceptance Range 0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.GM

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Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

CHAIN OF CUSTODY RECORD CH2MHILL 2/19/2013 3:56:42 PM Page 1 OF 1 250 ml 1x500 Project Name PG&E Topock Container Poly ml Poly Location Topock (NH4)2S HNO3. Preservatives Ò4/NH4O Project Manager Jay Piper H, 4°C For Sample Conditions

To form Attached Sample Manager Shawn Duffy Field Field **Holding Time** 180 Project Number 423575.MP.02.GM.0-3 Metals Cr6 (E218.6) Field Filtered Task Order s (6020AFF) Field I Chromium Project 2013-GMP-191-Q1 Number of Containers Turnaround Time 10 Days Shipping Date: 2/20/2013 COC Number: 7 Filtered DATE TIME Matrix COMMENTS NW-23-060-191 13:46 2 2/18/2013 Water X X MW-23-080-191 2 174=2 15:26 2/18/2013 Water X X MW-68BR-280-191 11:41 2 6020.7 2/18/2013 Water X X MW-227-191 and a 2/19/2013 6:30 Water x MW-228-191 N CO 2/19/2013 6:35 Water X MW-229-191 diese. 15:10 2/19/2013 Water X MW-230-191 Mark 2/19/2013 15:15 Water X MW-35-060-191 2/19/2013 8:27 Water 2 X X MW-62-065-191 2 2/19/2013 14:52 Water X X MW-65-160-191 2 2/19/2013 9:57 Water X X MW-65-225-191 2 2/19/2013 13:23 Water M=2 X X MW-70-105-191 2 2/19/2013 11:09 Water 60701 X X MW-72-080-191 1 12:21 2/19/2013 Water X X MW-73-080-191 2 2/19/2013 8:52 Water X Signatures Special Instructions:

Approved by Sampled by

Remodulished by Received by

Relinquished by

Received by

Date/Time 2-20-13

**Shipping Details** 

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc. Z O Lab Phone: (714) 730-6239

ATTN:

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	рΗ	Buffer /	Added (mL)	Fin	al pH	Time E	Buffered	Ini	tials
2/21/13	806461-4	7		2ml	/100ml	9,	٢_	9:0	OAM	70	4
	-5	7_						9:0	OAM	70	ч
	-6							9:0	5 AM	The	7
·	-7							9:0	5-AM	Th	1
	-8							9:0	SAM	TA	1
	-9							9:10	AM	T	y
·	-10							9:10	AM	1/1	1
	- (1							9:1.	5-AM	TV	4
	-(2							9:1	5-AM	TP	1
	-13							9:19	ARY	12	7
	-14								OAM	Th	1
	-15				,	J	, .		DAM	The	M
2/21/13	806462	7		2ml	100ml	9,	<u>_</u>	N/4: 20	3 Am	700	
2/21/13	806463-1	9,5		No	/A	N		NIE	1	70	4
	- 2										
	-3										
	-4					/					
	-5										
	-6										
	~ 7										
	-8										
	-9		_								
	-10		_							$\perp$	
	-11			and attenuated to a me	44-1 11111 11-4111 1 1-4-4-4-4			100 · 10 · 100 · 1		$\perp$	
	-/2		_							$\perp$	
	-13		_							$\bot \!\!\! \bot$	
↓	-14	·\	_	,/		1					
2/21/13 8	306464-1	9.5	-	NI	A	NIG	4	N/1	4.	The	<u>'</u>
	-2									$\perp$	
			-	· · · · · · · · · · · · · · · · · · ·						$\bot$	
	-4	-			<u> </u>	1		<u> </u>		<u>\psi}</u>	

M

2/2///

(W) (13 5/13 5/13





Turbidity/pH Check

			Turbic	dity/pH C	песк			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
806 209	41	<b>Z</b> 2	2/14/13	ES	yes			
806312	1	1	1	1	0			
806313								
806314								
806 315			1					
906369	71	<2	2-19-13	BZ	yes.			
806370	1							
80 6371								
808372								
80 6373								
806 374								
806375								
806378				,				
80 63400 (192)								
8063405	,							
8063406								
8063401	1	72				10 AM		
806411	71	<b>12</b>				· · · · · · · · · · · · · · · · · · ·	-	
805416 (19294)	۲۱	72	1.		~c	1 3000		
806427619394)	<u> </u>	72	2-20-13	BU	NO	8:20		
80643361-41	<b>&lt;</b> \	<2		1	xes			
80 6431 (10-11)		72				11:00		ACINITIEN CO
80 6432 (1-5)		<b>{2</b>					***************************************	peter 1-sa t
20646164-15)	<١	72 :	2-21-13	BG	Xes.			Acul after
806462 (+ = 18-19)	1	>2				13:Am		61160
806463(1-3,8-14)		<u>رء</u>					-	
806464C1-8)		1						
808465 (1-10)								
906467 (1-5)			+		1		,	
806 440	41	12	2/4/13	DC	Yes			
806456 (10-12)	41	72	2/21/19	ES	No	15:00	- "	
806 454(1-3)	V	+			J	1		
206438 (1-4)	71	12			yes			
806441	1	i			J			
806 442								
806 443								
806 444								
806 445						1		
806 468								
806474								
606469-2	۶ì	WOGE		1				
806482 (1,2)	>1	£2	2/25/13	DC	íjes V			
806 486	71	42	J J	U	,			
806522 (1-4)	21	>2	+	4	No	14:15	1-26-13	PHSZ

#### Notes:

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

## Sample Integrity & Analysis Discrepancy Form

Cli	ient: E2		8064	6
Da	te Delivered: <u>ℓ2</u> / <u>2</u> 0/13 Time: <u>2/∴3</u> 0 By: □Mail Æ	Field Service	□ <i>Client</i>	
1.	Was a Chain of Custody received and signed?	Tyes □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	<b>₽</b> ₩/Å	
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No	<b>B</b> N/A	
<b>5</b> .	Were all requested analyses understood and acceptable?	_ ⊿Yes □No	□N/A	
<b>6</b> .	Were samples received in a chilled condition? Temperature (if yes)? <u>3.9 °C</u>	✓ Yes □No	□N/A	
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc.)?	ÆYes □No	□N/A	
<b>8</b>	Were sample custody seals intact?	□Yes □No	ZEN/A	
9.	Does the number of samples received agree with CCC	Yes □No	□ <i>N</i> /A	
10.	Did sample labels correspond with the client ID's?	ØYes □No	□N/A	
<b>1</b> 1.	Did sample labels indicate proper preservation? Preserved (if yes) by:⊘ <b>△Truesdail</b> □Client	ØYes □No	□N/A	
12.	Were samples pH checked? pH = $\frac{\mathcal{C}}{\mathcal{C}} \mathcal{C} \cdot \mathcal{C}$ .	ÆYes □No	□N/A	
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	eryes □No	□ <i>N/A</i>	
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b> Æ Std	✓Yes □No	□N/A	er en en en en en en en en en en en en en
5.	Sample Matrix:		Water	
	□Sludge □Soil □Wipe □Paint □Solid 反	Other <u>Wat</u>	er_	
6.	Comments:	<del> </del>		
7	Sample Check in completed by Trucadail Log In/Passiving	dulla	_	

### TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

March 14, 2013



Established 1931

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 Styo

Michael Ngo

Quality Assurance/Quality Control Officer

#### TRUESDAIL LABORATORIES, INC.

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

Laboratory No.: 806555

Date Received: February 26, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.02.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
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
•									



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	FLDFL <b>T</b>	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.

## TRUESDAIL LABORATORIES, INC.

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Page 1 of 8

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

Printed 3/14/2013

Laboratory No. 806555

#### 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:

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



Client: E2 Consulting En	gineers, Ind	<b>:</b> .	Project Name: Project Number	PG&E Topock : 423575.MP.02	-		Printed 3	age 2 of 8 /14/2013
806555-010 Chromium, Hexa	avalent	ug/L	03/04/	2013 13:10	1.00	0.00920	0.20	1.2
806555-011 Chromium, Hexa	avalent	ug/L	03/04/	2013 14:12	500	4.60	100	6510
806555-012 Chromium, Hexa	avalent	ug/L	03/04/	2013 14:28	100	0.920	20.0	2190
806555-013 Chromium, Hexa	avalent	ug/L	03/04/	2013 15:10	200	1.84	40.0	3310
806555-014 Chromium, Hexa	avalent	ug/L	03/04/	2013 15:20	100	0.920	20.0	2130
806555-018 Chromium, Hexa	avalent	ug/L	03/04/	2013 15:52	1.00	0.00920	0.20	ND
Method Blank								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	806555-011
Parameter Chromium, Hexavalent	Unit ug/L	DF 500	Result 6540	Expected 6510		RPD 0.440	Accepta 0 - 20	nce Range
Low Level Calibration	Verification							
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.195	Expected 0.200		Recovery 97.4	Accepta 70 - 130	nce Range
Parameter	Unit	DF	Result	Expected		Recovery	•	nce Range
Chromium, Hexavalent Matrix Spike	ug/L	1.00	4.84	5.00		96.8	90 - 110 Lab ID =	806555-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 25.0	Result 647	Expected/Add 643(375)	ded	Recovery 101	90 - 110	nce Range 806555-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.11	Expected/Add 1.15(1.00)	ded	Recovery 95.5	Accepta 90 - 110	nce Range
Matrix Spike							Lab ID =	806555-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.988	Expected/Add 1.00(1.00)	ded	Recovery 98.8	Accepta 90 - 110	nce Range
Matrix Spike							Lab ID =	806555-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 25.0	Result 631	Expected/Add 647(375)	ded	Recovery 95.8	Accepta 90 - 110	nce Range
Matrix Spike							Lab ID =	806555-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 50.0	Result 2240	Expected/Add 2270(1250)	ded	Recovery 97.6	Accepta 90 - 110	nce Range
Matrix Spike							Lab ID =	806555-006
Parameter Chromium, Hexavalent	Unit ug/L	DF 50.0	Result 1330	Expected/Add 1390(750)	ded	Recovery 93.0	Accepta 90 - 110	nce Range



Client: E2 Consulting Eng	ineers, Inc		roject Name: roject Number:	PG&E Topock Pro 423575.MP.02.GM	•	Page 3 of 8 Printed 3/14/2013
Matrix Spike						Lab ID = 806555-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 3920	Expected/Added 3970(2000)	Recovery 97.4	Acceptance Range 90 - 110 Lab ID = 806555-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4590	Expected/Added 4680(2500)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 806555-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 5.99	Expected/Added 6.17(5.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 806555-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 500	Result 13700	Expected/Added 14000(7500)	Recovery 95.4	Acceptance Range 90 - 110 Lab ID = 806555-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4600	Expected/Added 4690(2500)	Recovery 96.6	Acceptance Range 90 - 110 Lab ID = 806555-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 200	Result 7290	Expected/Added 7310(4000)	Recovery 99.4	Acceptance Range 90 - 110 Lab ID = 806555-014
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4630	Expected/Added 4630(2500)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806555-018
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.09(1.00)	Recovery 93.4	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.86	Expected 5.00	Recovery 97.2	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.0	Expected 10.0	Recovery 100	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Chrome VI by EPA 218.0	<b>6</b> 0,500 yang		Batch	03CrH13C				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806555-008 Chromium, Hex	avalent	ug/L	03/05	/2013 12:22	50.0	0.460	10.0	909
806555-015 Chromium, Hex	avalent	ug/L	03/05	/2013 12:33	1000	9.20	200	17300
806555-017 Chromium, Hex	avalent	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	F	RPD	Accepta	ınce Range
Chromium, Hexavalent	ug/L	1000	17200	17300		0.314	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200		98.2	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince 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/Add	ded F	Recovery	-	nce 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/Add		Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1000	35700	37300(20000	)	91.8	90 - 110	
Matrix Spike							Lab ID =	806555-017
Parameter	Unit	DF	Result	Expected/Add	ded F	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.10(1.00)		98.2	90 - 110	)
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery		nce Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00		97.4	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	-	nce Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0		102	95 - 105	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery		nce 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

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

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Metals by EPA 6020A, Dis	ssolved		Batch	030413A				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
806555-001 Chromium		ug/L	03/04	1/2013 13:39	5.00	0.0950	1.0	376
806555-004 Chromium		ug/L	03/04	1/2013 13:45	5.00	0.0950	1.0	338
806555-005 Chromium		ug/L	03/04	1/2013 12:38	20.0	0.380	4.0	1000
806555-006 Chromium		ug/L	03/04	1/2013 13:57	10.0	0.190	2.0	613
806555-007 Chromium		ug/L	03/04	1/2013 14:03	50.0	0.950	10.0	2020
806555-008 Chromium		ug/L	03/04	1/2013 14:27	10.0	0.190	2.0	852
806555-009 Chromium		ug/L	03/04	1/2013 14:33	50.0	0.950	10.0	2110
806555-011 Chromium		ug/L	03/04	1/2013 14:39	100	1.90	20.0	6400
806555-012 Chromium		ug/L	03/04	1/2013 14:46	50.0	0.950	10.0	2100
806555-013 Chromium		ug/L	03/04	1/2013 14:52	50.0	0.950	10.0	3110
806555-014 Chromium		ug/L	03/04	1/2013 14:58	50.0	0.950	10.0	2060
806555-015 Chromium		ug/L	03/04	1/2013 15:04	200	3.80	40.0	15600
806555-016 Chromium		ug/L	03/04	1/2013 15:10	50.0	0.950	10.0	3060
806555-017 Chromium		ug/L	03/04	1/2013 15:22	1.00	0.0190	1.0	ND
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Low Level Calibration \	/erification	1						
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.180	0.200		90.0	70 - 130	כ
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	2.00	52.7	50.0		105	85 - 115	5
Matrix Spike							Lab ID =	806555-005
Parameter	Unit	DF	Result	Expected/A	.dded	Recovery	Accepta	ance Range
Chromium	ug/L	20.0	1430	1500(500)		85.8	75 - 125	5
Matrix Spike Duplicate							Lab ID =	806555-005
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	,	ance Range
Chromium	ug/L	20.0	1440	1500(500)		87.3	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	18.9	20.0		94.7	90 - 110	)



Client: E2 Consulting En	gineers, Inc		roject Name: roject Numbe	PG&E Topock r: 423575.MP.02	•	Page 7 of 8 Printed 3/14/2013
MRCVS - Primary						
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 18.2	Expected 20.0	Recovery 91.3	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 18.0	Expected 20.0	Recovery 90.1	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 18.8	Expected 20.0	Recovery 94.3	Acceptance Range 90 - 110
Parameter Chromium Interference Check St	Unit ug/L andard A	DF 1.00	Result 18.4	Expected 20.0	Recovery 91.8	Acceptance Range 90 - 110
Parameter Chromium Interference Check St	Unit ug/L andard A	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check St	Unit ug/L andard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check St	Unit ug/L andard AB	DF 1.00	Result 18.9	Expected 20.0	Recovery 94.5	Acceptance Range 80 - 120
Parameter Chromium Serial Dilution	Unit ug/L	DF 1.00	Result 18.8	Expected 20.0	Recovery 94.1	Acceptance Range 80 - 120 Lab ID = 806555-005
Parameter Chromium	Unit ug/L	DF 100	Result 1020	Expected 1000	RPD 1.92	Acceptance Range 0 - 10



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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Chromium, Hexavalent b	y SM 350	0-CrB	Batch	03CrH13A				
Parameter		Unit	Ana	lyzed [	)F	MDL	RL	Result
806555-016 Chromium, Hexa	valent	ug/L	03/01	1/2013 15:34 2	5.0	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	R	PD	Accepta	nce Range
Chromium, Hexavalent	ug/L	25.0	1040	1020		2.48	0 - 20	_
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	107	100		107	90 - 110	)
Matrix Spike							Lab ID =	806202-002
Parameter	Unit	DF	Result	Expected/Adde	d R	ecovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	25.0	3390	3520(2500)		94.9	85 - 115	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	107	100		107	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	63.2	60.0		105	90 - 110	)

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

**CH2MHILL** 

**CHAIN OF CUSTODY RECORD** 

2/26/2013 2:31:30 PM

Page 1 OF 2

Project Name PG		le (	Container:	250 ml	2x250	250 ml	2x500	1x500		<del></del>	
Location Topoc	-	n. `	Jointainei .	Poly (NH4)2S	ml Poly (NH4)2S	Poly (NH4)2S	mi Poly HNO3,	mi Poly HNO3,		l	
Project Manager		Pres	ervatives:	04/NH40 H, 4°C	04/NH40 H, 4°C	04/NH40 H, 4°C	4°C	4°C			·
Sample Manager	Shawn Dul	ffy	Filtered:		Field	Field	Field	Field		1	
		Hold	ing Time:		28	28	180	180			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 12	P-191-Q1 10 Days 2/26/2013	5	1.03 Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
MW-124-191	2/20/2013	10:10	Water	х			<u> </u>	Х		2	PH = 2
MW-231-191	2/20/2013	14:35	Water	Х						1	600
MW-232-191	2/20/2013	14:30	Water	Х	:					1	
MW-57-070-191	2/20/2013	9:01	Water	x				X		2	
MW-60-125-191	2/20/2013	13:06	Water	X				Х		2	<b> </b>
MW-66-165-191	<u> </u>	<u> </u>		X				X		2	l nu z
MW-68-240-191	2/20/2013	14:11	Water	X	.13			x	ALERT!!	2	1000c
7 MW-69-195-191		11:14	Water	X				X	Level III OC	2	1 602
MW-125-191	2/21/2013	9:30	Water	X				X		2	<i>   </i>
MW-233-191	2/21/2013	16:10	ļ	<del></del>				Α		1	<u> </u>
MW-66-230-191	<b> </b>	-		Х		[		N. of		<u> </u>	2
MW-67-185-191	<del> </del>	11:35		Х			······································	Х		2	-
4	2/21/2013	9:25	Water	Х				Х		2	1)4-2
9 MW-67-225-191	2/21/2013	10:25	Water	Х				Х		2	6020
MW-67-260-191	2/21/2013	8:39	Water	х				х		2	<u>/</u>

Approved by Sampled by

Received by

Relinquished by

Received by

Signatures

Date/Time 2-26-13

**Shipping Details** 

ATTN:

Special Instructions:

Method of Shipment:

Feb 4 - Feb 28, 2013

On Ice: yes / no

"Airbill No:

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

CH2MHILL	C	1-0	2	M	M	Н	١	ı	ı
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#### **CHAIN OF CUSTODY RECORD**

2/26/2013 2:31:31 PM

Page 2 OF 2

	Project Name PG Location Topocl Project Manager S Sample Manager S Project Number A Task Order	k Jay Piper Shawn Duf	Pres ffy Hold	Filtered: ling Time:	Poly (NH4)2S O4/NH4O H, 4°C Field	2x250 ml Poly (NH4)2S O4/NH4O H, 4°C Field 28	04/NH40 H, 4°C Field 28	2x500 ml Poly HNO3, 4°C Field 180	1x500 ml Poly HNO3, 4°C Field 180	*Where provided w/multiple Cr6 + diss. metals bottles, planse analyze 1 + hold 1		
	Project 2013-GMI Turnaround Time Shipping Date: 2 COC Number: 12	10 Days 2/26/2013		Matrix	6 (E218.6) Field Filtered	3 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	us (6020AFF) Field Filtered Chromium		ALERT !! Level III QC	Number of Containers	COMMENTS
15	MW-68-180-191	2/21/2013	14:06	Water	х				×		2	7
16	TW-01-191	2/21/2013	16:05	Water			x		×.		2	1 pii=2
17	MW-33-040-191	2/25/2013	10:47	Water		X		X.			4	\$ 6000
•	MW-33-040-191-EB	2/25/2013	8:09	Water	x				X		2	
18	MW-234-191	2/26/2013	7:40	Water	х						Ą	
" [							•			TOTAL NUMBER OF CONTAINERS	36	

Date/Time タ-26-13 /53ン Approved by Sampled by On ice: yes / no Refinquished by 2-26-13 15: 2 Airbill No: 2-26-73 2 Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239 Received by Relinquished by Received by

Signatures

**Shipping Details** 

Method of Shipment:

Special Instructions:

Feb 4 - Feb 28, 2013

Sample Custody

ATTN:

Report Copy to

Shawn Duffy (530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

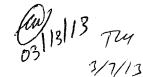
Date Lab Numbe		Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/21/13	906464-5	9.5	NIA	NA	NA	TAI
	-6					
	-7					
	-8					
2/21/13	806465-1	9,5	NA	NIA	NA	121
	-2				1	
·	3					
	-4					
	-5					
	-6					
	7					
	-8		·			
	-9					
	-10				<u> </u>	
2/27/13	806 552-	7	2mL	9.5	10:15	RR
	L. L. L. L. L. L. L. L. L. L. L. L. L. L	9.5	NA	NIA	NIA	RB
	12		1			
	-3					
	V -4		V	V	J	
2127,13	806554-1	9.5	NIA	NIA	NIA	R13
<u> </u>	-2			<u> </u>		
	3					
<u> </u>	4	<u> </u>			b	1
2/27/13	806555-1	9.5	N/A	NA	101/4	RB
	-2					
	-3		·			
	-4					
	-5					
	-6					
	7					
<u> </u>	8-	<u> </u>				

3/7/10

Гоз/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	NIA	iN/A	MA	RP3
	10					
	11					
	-12					
	_13					
	-14		-			
	<u>ک</u> ا-					
	~ 16					
	_17					
						. W
2/27/13	806573-1	7.0	1ml/50ml	9,5	4:30 16:30	74
	-2	7,0	Jul/ Soul	9.5	16:30	TM
2/28/13	806591-1	7.0	2ml /100.ml	9.5	15:00	TRY
	-2	· <u>/</u>	J	J.	15:00	121
3/4/13	806624-1	7.0	2 ml/100 m L	9.5	17:00	TU
	2	V	1	1	17:00	TM
3,5,13	806632-1	9.5	NA	NIA	NA	RB
	_3					
	-4					
	5					
	-6					
	-7					
	-3					
	-9					4
	-10					
	-/1			_		
	-/2	<u> </u>		<b>V</b>		4
3/5/13	806633-1	9.5	11/4	NIA	NA	KB
-	2					+
<u> </u>		<u> </u>		<i>y</i>	<u> </u>	k







Turbidity/pH Check

			lurbic	lity/pH C	песк			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41	12	2/25/13	DC	yes			
806520	- 71	42	,	1				
806493 (1-5)	71	' 12						
806494 (1-5)	>1	12	L L		t	-		
306552	<1	72	2-27-13	Br	×es	11-00		
806553L1-4)		<2						<u> </u>
80655441-4)		1		1				
806555 L194-1	T)	1						
206542(1-3)		72			~°C	12:00	2/28/13 2 15:35	
808545		1					J	
806537	41	42	1	or	yes			
806565	41	72	. 4	1	ges	14:00	2/28/13 20 15:30	
806562(1-14)	41	72	2/28/13	ES	No	9:30	3/11/3 0 600	DHZ 2
806567(10-12)	1	1		1	1	1	1	1 L
806570 (1-2)	71	ZZ			ye			
806 572 (1-2)	71	42			ijis			
806586 (1,2)	41	72	ì	0c	ges	15:30		
306617	7/20 3/4/12	.42	3/4/13	ov	izer			
\$06632 (1-12)			3-5-19	B.L-	9			
806633(1-12)								
8066344193-6	)						•	
806135 L1-598-14)					<b>,</b>			
806620(1-2,4)	21	72	315/13	ŁŚ	NÒ	12:00		
806627 (16,23)		Ì	1	. (		j		
80625		<b>Z</b> 2			Ges			
806626	1	1						
COE 68861-275.12	<1	<2	3-6-13	BE	χes			
806669 (1-2)		72						Lab filt
80667061-27								<u> </u>
806679(1-5)		くて	1		l	_		
806643	71	<b>42</b>	-	DC	ijes	_		
806651	41	J					-	
806688	71	>2	4	ı	y	12:30		
906667	<1	77		BI-	V	14:00		
80666361-3	+		d	4		15 may B	<i>C</i> -	
306694 Clo-12						15:00		
806682(4-6)				1				
80 6650	41	22	3/4/13	n	yes	4		
806649								
806648								
806647	_					-		
806646								
806652								
806671	./	<u>.</u>	.1	4	J			

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

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## Sample Integrity & Analysis Discrepancy Form

Clie	ent: <u>E</u> 2	Lab #	806555
Dat	te Delivered: <u>02 / 26 / 13</u> Time: <u>2/:30</u> By: □Mail Øi	Field Service	□ <i>Client</i>
1.	Was a Chain of Custody received and signed?	Ø Yes □ No	□ <i>N/A</i>
2.	Does Customer require an acknowledgement of the COC?	□Yes □No	₽\$NVA
3.	Are there any special requirements or notes on the COC?	□Yes □No	JUNA
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No	<b>Ģ</b> AV/A
<i>5</i> .	Were all requested analyses understood and acceptable?	⊈Yes □No	□ <i>N/A</i>
<i>6</i> ,	Were samples received in a chilled condition? Temperature (if yes)? <u>3.8°C</u>	ďYes □No	□ <i>N/A</i>
<b>7</b> .	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆLYes □No	□ <i>N/A</i>
<b>8</b> .	Were sample custody seals intact?	□Yes □No	DANA
9.	Does the number of samples received agree with COC?	<b>∄</b> Yes □No	□ <i>N/A</i>
10.	Did sample labels correspond with the client ID's?	ØrYes □No	□N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑ Truesdail ☐ Client	ØYes □No	□N/A
12.	Were samples pH checked? pH = Sel C. O. C.	AYes □No	□ <i>N/A</i>
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	⊈Yes □No	□ <i>N/A</i>
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b>	⊠(Yes □No	.□N/A
5.	<u>Sample Matrix:</u> □Liquid □Drinking Water □Ground		
	□Sludge □Soil □Wipe □Paint □Solid 💆	Other Water	<u>e</u>
6.	Comments:		
7. ·	Sample Check-In completed by Truesdail Log-In/Receiving:	L-Strace	Leeeiner
	ALERT!!		
Jsors\Test\F	Desktop/Forms A - D/Discre-FormBlack.doc Level III QC	ل	



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.

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

Laboratory No.: 806634

Date Received: March 4, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.02.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-465MD-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

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.

### TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



Established 1931

Page 1 of 12

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

Printed 3/15/2013

Laboratory No. 806634

#### 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:

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	7577
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 <del>-165MD</del> -19	MW-58BR-191		806634-012	02/28/2013 15:52	Water	
MW-64BR-255MD-19	MW-64BR-191	SPD	806634-013	03/01/2013 15:05	Water	
		04 10 13				

#### Chrome VI by EPA 218.6

Batch 03CrH13F

Unit	Analyzed	DF	MDL	RL	Result
ug/L	03/11/2013 17:07	5.00	0.0460	1.0	77.1
ug/L	03/11/2013 14:06	1.00	0.00920	0.20	ND
ug/L	03/11/2013 14:37	5.00	0.0460	1.0	1050
ug/L	03/11/2013 17:59	5.00	0.0460	1.0	ND
ug/L	03/11/2013 18:09	100	0.920	20.0	1960
ug/L	03/11/2013 15:44	1.00	0.00920	0.20	ND
ug/L	03/11/2013 15:54	1.00	0.00920	0.20	ND
ug/L	03/11/2013 16:04	1.00	0.00920	0.20	ND
ug/L	03/11/2013 16:15	1.00	0.00920	0.20	ND
ug/L	03/11/2013 16:25	1.00	0.00920	0.20	ND
ug/L	03/11/2013 16:46	5.00	0.0460	1.0	ND
ug/L	03/11/2013 18:30	5.00	0.0460	1.0	ND
	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	ug/L 03/11/2013 17:07 ug/L 03/11/2013 14:06 ug/L 03/11/2013 14:37 ug/L 03/11/2013 17:59 ug/L 03/11/2013 18:09 ug/L 03/11/2013 15:44 ug/L 03/11/2013 15:54 ug/L 03/11/2013 16:04 ug/L 03/11/2013 16:15 ug/L 03/11/2013 16:25 ug/L 03/11/2013 16:46	ug/L       03/11/2013 17:07       5.00         ug/L       03/11/2013 14:06       1.00         ug/L       03/11/2013 14:37       5.00         ug/L       03/11/2013 17:59       5.00         ug/L       03/11/2013 18:09       100         ug/L       03/11/2013 15:44       1.00         ug/L       03/11/2013 15:54       1.00         ug/L       03/11/2013 16:04       1.00         ug/L       03/11/2013 16:15       1.00         ug/L       03/11/2013 16:25       1.00         ug/L       03/11/2013 16:25       1.00         ug/L       03/11/2013 16:46       5.00	ug/L       03/11/2013 17:07       5.00       0.0460         ug/L       03/11/2013 14:06       1.00       0.00920         ug/L       03/11/2013 14:37       5.00       0.0460         ug/L       03/11/2013 17:59       5.00       0.0460         ug/L       03/11/2013 18:09       100       0.920         ug/L       03/11/2013 15:44       1.00       0.00920         ug/L       03/11/2013 15:54       1.00       0.00920         ug/L       03/11/2013 16:04       1.00       0.00920         ug/L       03/11/2013 16:15       1.00       0.00920         ug/L       03/11/2013 16:25       1.00       0.00920         ug/L       03/11/2013 16:25       1.00       0.00920         ug/L       03/11/2013 16:46       5.00       0.0460	ug/L       03/11/2013 17:07       5.00       0.0460       1.0         ug/L       03/11/2013 14:06       1.00       0.00920       0.20         ug/L       03/11/2013 14:37       5.00       0.0460       1.0         ug/L       03/11/2013 17:59       5.00       0.0460       1.0         ug/L       03/11/2013 18:09       100       0.920       20.0         ug/L       03/11/2013 15:44       1.00       0.00920       0.20         ug/L       03/11/2013 15:54       1.00       0.00920       0.20         ug/L       03/11/2013 16:04       1.00       0.00920       0.20         ug/L       03/11/2013 16:15       1.00       0.00920       0.20         ug/L       03/11/2013 16:25       1.00       0.00920       0.20         ug/L       03/11/2013 16:25       1.00       0.00920       0.20         ug/L       03/11/2013 16:25       1.00       0.00920       0.20



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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- III CALCIII	-0 (FEE)	(A. 100)			
Unit ug/L	DF 1.00	Result ND			n a We Calbeignich
					Lab ID = 806634-006
Unit ug/L	DF 100	Result 1980	Expected 1960	RPD 0.809	Acceptance Range 0 - 20
Verification					
Unit ug/L	DF 1.00	Result 0.201	Expected 0.200	Recovery 100	Acceptance Range 70 - 130
Unit ug/L	DF 1.00	Result 4.81	Expected 5.00	Recovery 96.2	Acceptance Range 90 - 110 Lab ID = 806634-001
Unit ug/L	DF 5.00	Result 176	Expected/Added 177(100)	Recovery 99.5	Acceptance Range 90 - 110 Lab ID = 806634-002
Unit ug/L	DF 1.00	Result 0.980	Expected/Added 1.04(1.00)	Recovery 93.8	Acceptance Range 90 - 110 Lab ID = 806634-004
Unit ug/L	DF 50.0	Result 2260	Expected/Added 2300(1250)	Recovery 96.5	Acceptance Range 90 - 110 Lab ID = 806634-005
Unit ug/L	DF 1.00	Result ND	Expected/Added 1.00(1.00)	Recovery	Acceptance Range 90 - 110 Lab ID = 806634-005
Unit ug/L	DF 5.00	Result 4.70	Expected/Added 5.00(5.00)	Recovery 94.0	Acceptance Range 90 - 110 Lab ID = 806634-006
Unit ug/L	DF 100	Result 3890	Expected/Added 3960(2000)	Recovery 96.7	Acceptance Range 90 - 110 Lab ID = 806634-007
Unit ug/L	DF 1.00	Result 1.16	Expected/Added 1.19(1.00)	Recovery 97.1	Acceptance Range 90 - 110 Lab ID = 806634-008
Unit ug/L	DF 1.00	Result 0.965	Expected/Added 1.01(1.00)	Recovery 95.4	Acceptance Range 90 - 110
	ug/L  Unit ug/L  Verification  Unit ug/L   ug/L 1.00  Unit DF ug/L 1.00  Verification  Unit DF ug/L 1.00  Unit DF ug/L 5.00  Unit DF ug/L 1.00  Unit DF ug/L 1.00  Unit DF ug/L 5.00  Unit DF ug/L 50.0  Unit DF ug/L 1.00  Unit DF ug/L 5.00  Unit DF ug/L 5.00  Unit DF ug/L 5.00  Unit DF ug/L 5.00  Unit DF ug/L 1.00  Unit DF ug/L 1.00	Unit DF Result ug/L 1.00 ND  Unit DF Result ug/L 1.00 0.201  Unit DF Result ug/L 1.00 4.81  Unit DF Result ug/L 5.00 176  Unit DF Result ug/L 1.00 0.980  Unit DF Result ug/L 1.00 ND  Unit DF Result ug/L 50.0 2260  Unit DF Result ug/L 50.0 2260  Unit DF Result ug/L 1.00 ND  Unit DF Result ug/L 1.00 3890  Unit DF Result ug/L 1.00 3890  Unit DF Result ug/L 1.00 1.16	Unit DF Result Expected 1,00 ND  Unit DF Result Expected 1,00 0,201 0,200  Unit DF Result Expected 0,200  Unit DF Result Expected 1,00 0,201 0,200  Unit DF Result Expected 1,00 4,81 5,00  Unit DF Result Expected/Added 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,0	ug/L         1.00         ND           Unit ug/L         DF (100) 1980 1960 1960 0.809           Verification         Unit DF (100) 0.201 0.200 100           Unit Ug/L 1.00 0.201 0.200 100         Recovery (100) 100           Unit DF (100) 0.201 0.200 100         Recovery (100) 100           Unit DF (100) 0.201 0.200 100         Recovery (100) 100           Unit DF (100) 176 177(100) 100         Recovery (100) 176 177(100) 100           Unit DF (100) 1.000 1.000         Result (100) 1.000           Unit DF (100) 1.000         Result (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (100) 1.000         Recovery (100) 1.000           Unit DF (1	



Client: E2 Consulting Eng	gineers, Inc		oject Name: oject Number	PG&E Topock Pro : 423575.MP.02.GM		Page 3 of 12 Printed 3/15/2013
Matrix Spike						Lab ID = 806634-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.968	Expected/Added 1.00(1.00)	Recovery 96.8	Acceptance Range 90 - 110 Lab ID = 806634-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.04(1.00)	Recovery 95.9	Acceptance Range 90 - 110 Lab ID = 806634-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.983	Expected/Added 1.02(1.00)	Recovery 96.8	Acceptance Range 90 - 110 Lab ID = 806634-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.87	Expected/Added 5.00(5.00)	Recovery 97.5	Acceptance Range 90 - 110 Lab ID = 806634-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.911	Expected/Added 1.00(1.00)	Recovery 91.1	Acceptance Range 90 - 110 Lab ID = 806634-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.96	Expected/Added 5.00(5.00)	Recovery 99.3	Acceptance Range 90 - 110 Lab ID = 806634-013
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 0.834	Expected/Added 1.00(1.00)	Recovery 83.4	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.84	Expected 5.00	Recovery 96.7	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.0	Expected 10.0	Recovery 100	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9,99	Expected 10.0	Recovery 99.9	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.96	Expected 10.0	Recovery 99.6	Acceptance Range 95 - 105

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Chrome VI by EPA 218.6

Batch 03CrH13H

Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result
806634-003 Chromium, Hexa	avalent	ug/L	03/13	3/2013 06:54	5.00	0.0460	1.0	76.8
Method Blank								
Parameter Chromium, Hexavalent Duplicate	Unit ug/L	DF 1.00	Result ND				Lab ID =	806632-003
ST.	l lmit	DE	Dogult	Eurostad	-	200		
Parameter Chromium, Hexavalent Low Level Calibration	Unit ug/L Verification	DF 100	Result 2590	Expected 2570	r	0.635	0 - 20	ance Range
			D#	C	-	Ç.,	^	
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.211	Expected 0.200	F	Recovery 105	70 - 130	ance Range
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.89	Expected 5.00	F	Recovery 97.8	90 - 110	ance Range 0 806632-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4460	Expected/Adde 4570(2000)	ed R	Recovery 94.6	90 - 110	ance Range ) 806632-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 175	Expected/Adde 176(100)	ed R	Recovery 99.4	90 - 110	ance Range ) 806632-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 45.4	Expected/Adde 46.0(25.0)	ed R	Recovery 97.7	90 - 110	ance Range 0 806632-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 8830	Expected/Adde 8920(5000)	ed R	Recovery 98.1	90 - 110	ance Range 0 806633-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4500	Expected/Adde 4560(2000)	ed R	Recovery 97.1	90 - 110	ance Range ) 806633-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 100	Result 4640	Expected/Adde 4660(2000)	ed R	Recovery 98.9	Accepta 90 - 110	ance Range )



Client: E2 Consulting En	gineers, Inc		roject Name: roject Numbe	PG&E Topock Pror: 423575.MP.02.GM		Page 6 of 12 Printed 3/15/2013
Matrix Spike						Lab ID = 806633-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4380	Expected/Added 4560(2000)	Recovery 91.0	Acceptance Range 90 - 110 Lab ID = 806633-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4590	Expected/Added 4650(2000)	Recovery 97.2	Acceptance Range 90 - 110 Lab ID = 806633-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 239	Expected/Added 245(125)	Recovery 95.0	Acceptance Range 90 - 110 Lab ID = 806633-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 188	Expected/Added 194(100)	Recovery 94.7	Acceptance Range 90 - 110 Lab ID = 806633-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 41.9	Expected/Added 43.3(25.0)	Recovery 94.6	Acceptance Range 90 - 110 Lab ID = 806633-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 45.1	Expected/Added 46.6(25.0)	Recovery 93.9	Acceptance Range 90 - 110 Lab ID = 806633-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 500	Result 22400	Expected/Added 23100(12500)	Recovery 94.4	Acceptance Range 90 - 110 Lab ID = 806633-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 500	Result 21900	Expected/Added 22700(12500)	Recovery 93.7	Acceptance Range 90 - 110 Lab ID = 806633-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 10500	Expected/Added 11000(6250)	Recovery 91.5	Acceptance Range 90 - 110 Lab ID = 806633-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 8840	Expected/Added 8980(5000)	Recovery 97.2	Acceptance Range 90 - 110 Lab ID = 806634-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 175	Expected/Added 177(100)	Recovery 98.1	Acceptance Range 90 - 110 Lab ID = 806670-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 5.07	Expected/Added 5.11(5.00)	Recovery 99.1	Acceptance Range 90 - 110

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Metals by EPA 6020A, D	Dissolved		Batch	030613A				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806634-001 Chromium		ug/L	03/06	5/2013 14:03	1.00	0.0920	1.0	71.2
806634-003 Chromium		ug/L	03/06	6/2013 14:09	1.00	0.0920	1.0	71.9
806634-004 Chromium		ug/L	03/06	6/2013 15:30	20.0	1.84	10.0	969
806634-005 Chromium		ug/L	03/06	6/2013 14:21	1.00	0.0920	1.0	ND
806634-006 Chromium		ug/L	03/06	8/2013 15:10	25.0	2.30	12.5	1880
806634-010 Chromium		ug/L	03/06	6/2013 14:46	1.00	0.0920	1.0	ND
806634-012 Chromium		ug/L	03/06	6/2013 14:52	1.00	0.0920	1.0	ND
806634-013 Chromium		ug/L	03/06	6/2013 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	ij						
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce 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	F	Recovery	Accepta	nce 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	j.
Manganese	ug/L	1.00	46.3	50.0		92.5	85 - 115	i
Molybdenum	ug/L	1.00	49.6	50.0		99.2	85 - 115	5



Client: E2 Consulting Eng	jineers, Inc		roject Name: roject Number:	PG&E Topock 423575.MP.02		Page 12 of 12 Printed 3/15/2013
Interference Check Sta	andard AB					
Parameter Chromium Interference Check Sta	Unit ug/L andard AB	DF 1.00	Result 18.5	Expected 20.0	Recovery 92.4	Acceptance Range 80 - 120
Parameter Chromium Selenium Interference Check Sta	Unit ug/L ug/L andard AB	DF 1.00 1.00	Result 19.7 ND	Expected 20.0 0	Recovery 98.6	Acceptance Range 80 - 120
Parameter Selenium Manganese	Unit ug/L ug/L	DF 1.00 1.00	Result ND 19.1	Expected 0 20.0	Recovery 95.6	Acceptance Range 80 - 120
Interference Check Sta Parameter Manganese Interference Check Sta	Unit ug/L	DF 1.00	Result 19.7	Expected 20.0	Recovery 98.3	Acceptance Range 80 - 120
Parameter Molybdenum Interference Check Sta	Unit ug/L andard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Molybdenum Serial Dilution	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range Lab ID = 806634-001
Parameter Chromium	Unit ug/L	DF 5.00	Result 74.9	Expected 71.2	RPD 5.12	Acceptance Range 0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

3/4/2013 3:02:33 PM

Page 1 OF 1

	Project Name PG Location Topock		К	Container:	250 ml Poly (NH4)2S	1x500 ml Poly HNO3.	Note the sample IDs were changed for MW-58BR and MW-64BR after the data was		
	Project Manager		Pres	ervatives:	04/NH40 H. 4°C	4°C	received from the laboratory to correct for the changes that had occurred to		
	Sample Manager S	shawn Dut	ffy	Filtered:		Field	the well build prior to sample collection.		
			Holo	ding Time:	28	180	8hm P. Daff 04-19-13		
	Project Number 4	23575.MP	.02.G	1.03					
	Task Order				Cr6	Metals			
	Project 2013-GMF				(E2:		and the second s	Number	
	Turnaround Time		8		18.6	20AI Chr		nbe	
	Shipping Date: 2/				) Fie	omii	Attacharl	, 호	pHfor
	COC Number: 15				Id F	(6020AFF) Field Chromium	For Sample Conditions See Form Attached	Cor	1) 1
					(E218.6) Field Filtered	Filtered		of Containers	6020/1
		DATE	TIME	Matrix	۵	ered		ıers	COMMENTS
١	MW-122-191	2/26/2013	17:12	Water		~			
<b>S</b>	NW-235-191	2/26/2013	15:45	Water	X	X	LAID	2	DH=2
	MW-34-100-191				Х	:	TUED	3	
5		2/26/2013	<del> </del>	Water	Х	X	Levol	2	
	MW-62-110-191	2/26/2013	15:59	Water	Х	X		2	9.
	MW-62-190-191	2/26/2013	16:05	Water	Х	Х	4007	2	1 m-2
6	MW-70BR-225-191	2/26/2013	11:16	Water	Х	x		2	
7	MW-236-191	2/27/2013	10:16	Water	х			1	
3	MW-237-191	3/1/2013	9:10	Water	Х			1	
1	MW-238-191	3/1/2013	13:10	Water	Х			1	
9	MW-74-240-191	3/1/2013	8:15	Water	Х	X		2	m1-2
I	MW-239-191	3/4/2013	16:00	Water	Х			1	1
	HW 5880-165MD (		1553	Water	K	X	MW-58BR-191 TOTAL NUMBER OF CONTAINERS	29	2 m=
P	W CIBR 255MD 19	34-13	1505	Water	X	x	MW-64BR-191 04-19-13		/m-2.
)	SPD						1,900	21	. 11 -2
	04-19-13							Λ (	
		/	/Signa	atures		Date	Time Shipping Details Special Instructions:		

Approved by

Simpled by Resynquished by

Received by

Relinquished by Received by

Lab Name: Truesdail Laboratories, Inc.

courier

Lab Phone: (714) 730-6239

Method of Shipment:

On Ice: yes / no

ATTN:

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
3,5/13	806633-3	9.5	NIA	NIA	NA	pro
1	4				i	
	-5					
	-6		5.1			
	-7					
	-3					
	-9					1.
	10					
	11					
	-12	Ą	Į.		,	
3/5/13	8066341	9.5	NIA	MA	NIA	Rn
	-2	1		1	1	1
	-3					
	.4					
	-5		-			
	-6					
	-7					
	3					
	-9	-				
	-10					
1	-11					
	-12			1		
1	_13	4	4	6	<u> </u>	7
3,5,13	806635-1	9.5	NIA	N/A	NIO	RR
	-2	1		-		
	-3					
	-4	-				
	~5			-		$\perp$
-	_6			-		
	-7					-
-	8-	y	<i>y</i>	<i>y</i>	y	V

2/14/13

03/15/13





Turbidity/pH Check

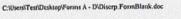
			Turbio	dity/pH C	neck			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41	12	2/25/13	DC	yes			
806520	71	42		1	1		70.0	
806493 (1-5)	71	12						
806494(1-5)	71	(2	1		L			
306552	<1	72	2-27-13	BI	Xes	11:00		
80655361-4)		<2						
8165544-4)	+			,				
806555 L194-1	T)			V				
806542(1-3)		72			NO	12:00	2/28/13 2 15:35	
808545							J	
806537	41	42	*	or	yes			
806565	41	72	L	4	ges	14:00	2/28/13 20 15:30	
206562 (1-19)	41	72	2/28/13	ES	no	9:30	3/1/13 0 16:01	PHZ 2
806567(10-12)	1	1		1	J	1	1	L
806570 (1-2)	71	ZZ			yes			
806 572 (1-2)	ブー	12			egys			
806586 (1,2)	41	72	l	DC	igis iges	15:30		
306617	71 5 3 NO	.42	3/4/13	or	yes			
506632 (1-12)	<1		3-5-18	B.C-	9			
8066336-12								
8066344133-6								
806435 [1-508-14)					1			
806620(1-2,4)	< i	72	3/5/13	ts	NÒ	12:00		
806627 (16,23)		1	1	.	1	1		
816625		<b>Z</b> 2			ijes			
800626	1	1	1	1	1			
CUE 8881-53213	<1	<2	3-6-13	BE	xes			
806669 (1-2)		72						A CICH FIN
80667061-27					-			1
80 6679 (1-5)		<2	\					
806643	71	42	-	DC	yes			
806651	41							
806688	71	>2	4	1	V	12:30		
906667	<1	72		BI-	V	14100	-	
89666361-3	+		*	4		15:00	C.	
306694610-12	$\rightarrow$	-	-	-1		1 3 100		
806688(4-6)					11.	4		
80 6650	41	42	3/4/13	or	yes			
806649	-	_						
806648		-						
8016647								
806646								
806652								
8106671	V	.J	.1	4	.5			

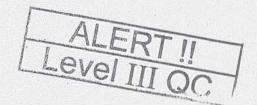
- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
   All Total Recoverable Analytes must be pH adjusted and digested.
   Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

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## Sample Integrity & Analysis Discrepancy Form

Cli	ent: <u>E 2</u>	Lab#
Da	te Delivered: ②3/ ②4/ 13 Time: ②2 '30 By: □Mail 🗵	Field Service
1.	Was a Chain of Custody received and signed?	ÆYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÞAN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ØA/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes ☐No ☐N/A
5.	Were all requested analyses understood and acceptable?	ØYes □No □N/A
6.	Were samples received in a chilled condition?  Temperature (if yes)? 3 · C · C	2 Yes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	Ø≪es □No □N/A
8.	Were sample custody seals intact?	□Yes □No din/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	ØYes □No □N/A
12.	Were samples pH checked? pH = See C. O. e	des ONO ONA
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	Yes ONO ON/A
14.	Have Project due dates been checked and accepted?  Turn Around Time (TAT): □ RUSH ☑ Std	ØYes □No □N/A
5.	Sample Matrix: □Liquid □Drinking Water □Ground □Sludge □Soil □Wipe □Paint □Solid №	Water
6.	Comments:	10.0
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	L. Strabuur





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.

for Mona Nassimi

Manager, Analytical Services

Michael Z

Michael Ngo

Quality Assurance/Quality Control Officer

#### TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 

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

Laboratory No.: 806827

Date Received: March 12, 2013

Client: E2 Consulting Engineers, Inc.

155 Grand Ave. Suite 1000 Oakland, CA 94612

Attention: Shawn Duffy

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

#### **Analytical Results Summary**

		Analysis	Extraction		Sample				
Lab Sample II	D Field ID	Method	Method	Sample Date	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.

#### TRUESDAIL LABORATORIES, INC.

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Page 1 of 9

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

Printed 3/22/2013

Laboratory No. 806827

#### 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:

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

Field ID				Lab ID	Co	ollected	Matr	rix
MW-57-070-191a				806827-001		1/2013 15:05	Wat	-
MW-240-191				806827-002	03/1	2/2013 06:00	Wat	er
Chrome VI by EPA 218	1.6		Batch	03CrH13J				
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result
806827-001 Chromium, He	exavalent	ug/L	03/14	1/2013 09:23	25.0	0.230	5.0	594
806827-002 Chromium, He	exavalent	ug/L	03/14	1/2013 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	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	1.38	1.39		1.02	0 - 20	
Low Level Calibration	on Verification							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	0.212	0.200		106	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce 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/Ad	lded	Recovery	Accepta	nce 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/Ad	lded	Recovery	Accepta	ince 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 principles. authorization from Truesdail Laboratories.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 3/22/2013

Page 4 of 9

Parameter	an an earling termination and termination	Unit	Ana	lyzed	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	Accepta	ance 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 Calibratio	n Verification							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince 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	ı	Recovery	Accepta	ince 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	5
Selenium	ug/L	1.00	45.0	50.0		90.0	85 - 115	5
Manganese	ug/L	1.00	47.0	50.0		93.9	85 - 115	5
Molybdenum	ug/L	1.00	49.2	50.0		98.4	85 - 115	)



Client: E2 Consulting Engineers, Inc.			oject Name: oject Number	oject 1.03	Page 5 of 9 Printed 3/22/2013	
Matrix Spike						Lab ID = 806827-001
Parameter Arsenic	Unit ug/L	DF 2.00	Result 53.8	Expected/Added 51.5(50.0)	Recovery 104	Acceptance Range 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	<b>F</b> errago					Lab ID = 806827-001
Parameter Arsenic	Unit ug/L	DF 2.00	Result 50.3	Expected/Added 51.5(50.0)	Recovery 97.6	Acceptance Range 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						and the second second second second second second second second second second second second second second second
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

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.			oject Name: oject Number:	PG&E Topock 423575.MP.02	-	Page 8 of 9 Printed 3/22/2013
Interference Check Sta	ndard A					
Parameter Molybdenum	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Interference Check Sta	ndard AB					
Parameter Arsenic	Unit ug/L	DF 1.00	Result 19.4	Expected 20.0	Recovery 96.8	Acceptance Range 80 - 120
Interference Check Sta	ndard AB					
Parameter Arsenic	Unit ug/L	DF 1.00	Result 20.0	Expected 20.0	Recovery 100	Acceptance Range 80 - 120
Interference Check Sta	ndard AB					
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.2	Expected 20.0	Recovery 96.0	Acceptance Range 80 - 120
Interference Check Sta	ndard AB					
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 98.1	Acceptance Range 80 - 120
Selenium	ug/L	1.00	ND	0		
Interference Check Sta					_	
Parameter Selenium	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.0	20.0	95.3	80 - 120
Interference Check Sta	ndard AB					
Parameter Manganese	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 98.2	Acceptance Range 80 - 120
Interference Check Sta	ndard AB					
Parameter Molybdenum	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Interference Check Sta	ndard AB					
Parameter Molybdenum	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Serial Dilution						Lab ID = 806827-001
Parameter Chromium	Unit ug/L	DF 50.0	Result 548	Expected 562	RPD 2.52	Acceptance Range 0 - 10



Client: E2 Consulting Engineers, Inc.		Project Name: Project Number	PG&E Topock :: 423575.MP.02	•	Page 9 of 9 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.

Mona Nassimi

Manager, Analytical Services

806827

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

3/12/2013 9:33:32 AM

Page 1 OF 1

							·	_	
	Project Name PG Location Topock Project Manager J	C	-	ontainer: ervatives:	Poly (NH4)2S O4/NH4O	1x500 ml Poly HNO3, 4°C			я
	Sample Manager 5		ity	Filtered:	H, 4°C Field	Field			٨
			Holdi	ing Time:	28	180			
	Project Number 4 Task Order Project 2013-GMF Turnaround Time Shipping Date: 3/ COC Number: 18	P-191-Q1 10 Days /12/2013	3	Matrix	Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium	ALERT !! Level III QC	Number of Containers	COMMENTS
7	MW-57-070-191A	3/11/2013	15:05	Water	Х	х		2	m-2
2	MW-240-191	3/12/2013	6:00	Water	х			1	60201
						,	TOTAL NUMBER OF CONTAINERS	3	

Approved by
Sampled by
Remoquished I
- C

Received by Relinquished by Received by

Signatures

**Shipping Details** 

Method of Shipment:

On Ice: yes / no

Davila 3/12/13 15:35 Airbill No:
Davila 3-12-13 21:3 Lab Name: Truesdail Laboratories, Inc.

3/12/13 2/:30 Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

Sample Custody

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
3/2/13		9.5	WA	NA	NA	724
	2					
	-3					
	-4				·	
	-2-					
3/12/13	806791-1	9.5	NA	NA	NA	424
	_2					
	-3					
	-4		·			
	-5					
	-6					
	-7					
	-8					
	-9		<u></u>			
3/12/13	806805	7.0	2mc/100ml	9-5	16:50	Try
3/13/13	806824-1	9.0 9,5	NA	NA	NA	Tay
	-2					
	-3					
	-4					
	-5					
	-6					
	7		<u> </u>	J		
	806825	9.5	N/A	NA	NA	Try
3/12/13	806826	7.0	2 ml/100 ml	9.5	11:10	424
3/13/13	806827-1	9,5	NA	NA	WA	TAY
	-2					1
GO683/14/13	806828-1	9.5	NA	NA	NA	Try
	- 2					
	- 3				4	4
3/13/13	806829-1	9.5	NA	NA	NA	try
<u> </u>	-2		<u> </u>	V		1

Tu

3/15/13

(av) 03/15/1<mark>641</mark>



#### TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Turbidity/pH Check												
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments				
806861	4	12	314/13	oc	- gue							
806862	4	42	3/4/13	n	ger							
806848 Un-12	<b>&lt;</b> \	72	1	BG	NC	13:39						
80 6849 (1-1)				1	No							
406726(1-5)	41	12	3/8/13	BE.	yes.							
206826	41	72	3 15 13	ES	yes	9:00						
806827-1	41	12	í	1	J <sub>i</sub>							
806828(1-3)	i	1										
506829(1-4)	;	1			1							
806877L1-6)	Ž1	¥2	3/19/13	ES	yes							
806908(1-4)	1		1	1	1							
806909(1-12)												
806910(1-12)	1											
806933 (1-7)				1	L							
806965	41	72	3/20/13	ES	y-es	9:30						
906966 (1,3)	1	12	1	J	1/							
806963	41	72	3/20/13	n	NO	12:10						
806918 (1,2,4)	41	72		ì	No	12:10						
S06958(1,2,3)	j	1			No	12:00		211 JUNE 1911				
806953(1,3,4)	L	U		1	Νo	L						
806903	<1	£2		ĺ	yes			,				
806904	1	1 .			ı							
806923												
806925												
806926								-				
806939												
806959												
806960												
806961												
806962												
806963	4											
806964	71											
806897	41											
806899	U	J.										
806873	71	42	1	J	J.							
						· _						
							<del></del>					

- 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

Cli	ient: <u>E2</u>	Lab # _	8068
Da	te Delivered:03/2/13 Time: <u>ଥ/30</u> By: □Mail Ø	Field Service	□ <i>Client</i>
1.	Was a Chain of Custody received and signed?	ØYes □No	
2.	Does Customer require an acknowledgement of the COC?	□Yes □No	OZINIA
3.	Are there any special requirements or notes on the COC?	□Yes □No	ANIA
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No	<b>≱</b> N/A
<b>5</b> .	Were all requested analyses understood and acceptable?	<b>∄</b> Yes □No	□ <i>N/A</i>
6.	Were samples received in a chilled condition? Temperature (if yes)? $\frac{3 \cdot 4 \circ C}{}$	ÁYes □No	□N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	∕dYes □No	□N/A
8.	Were sample custody seals intact?	□Yes □No	<b>∌</b> N/A
9.	Does the number of samples received agree with COC?	∕ Yes □No	□ <i>N/A</i>
10.	Did sample labels correspond with the client IP's?	ØYes □No	□ <i>N/A</i>
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ДTruesdail □ Client	ØYes □No	□ <i>N/A</i>
12.	Were samples pH checked? pH = <u>See</u> C. Que	☑Yes □No	□N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	Yes INo	□ <i>N/A</i>
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b> Ø Std	Yes □No	□N/A
5.	Sample Matrix:		
	□Sludge □Soil □Wipe □Paint □Solid 🗡	Otner <u>W</u>	u
6.	Comments:	· / ·	
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	dude	





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

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Laboratory No.: 806908

Date Received: March 15, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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

### **Analytical Results Summary**

Lab Sample ID	rield ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
		E040.0	FLOCIT	3/12/2013	8:25	Chromium, Hexavalent	ND	ug/L	1.0
806908-001	MW-66BR-270-191	E218.6	FLDFLT			•		•	1.0
806908-001	MW-66BR-270-191	SW6020	FLDFLT	3/12/2013	8:25	Chromium	ND	ug/L	
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
			FLDFLT	3/14/2013	8:02	Chromium, Hexavalent	90.6	ug/L	1.0
806908-003	MW-60BR-245-191	E218.6		•		•	125	ug/L	1.0
806908-003	MW-60BR-245-191	SW6020	FLDFLT	3/14/2013	8:02	Chromium		٠	
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.

#### TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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Page 1 of 5

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Printed 3/26/2013

Laboratory No. 806908

#### 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:

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

Field ID			Lab ID	C	ollected	ollected Matrix		
MW-66BR-270-191				806908-001		2/2013 08:25	Wat	ter
MW-24BR-191				806908-002		4/2013 14:58	Wat	
MW-60BR-245-191			806908-003		03/14/2013 08:02		Wat	
MW-126-191				806908-004	03/1	4/2013 13:13	Wat	ter
Chrome VI by EPA 218.0	8		Batch	03CrH13M				
Parameter		Unit	Ana	llyzed	DF MDL		RL	Result
806908-001 Chromium, Hex	avalent	ug/L	03/19	9/2013 16:44	5.00	0.0460	1.0	ND
806908-002 Chromium, Hex	avalent	ug/L	03/19	9/2013 16:54	5.00	0.0460	1.0	ND
806908-003 Chromium, Hexavalent		ug/L	03/19	9/2013 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	<b>Verification</b>	ı,						
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200		106	70 - 130	כ
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance 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/Ad	dded	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.00(5.00)		99.3	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.			roject Name: roject Number	nject 1.03	Page 2 of 5 Printed 3/26/2013		
Matrix Spike						Lab ID = 806908-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806908-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.96	Expected/Added 5.00(5.00)	Recovery 99.2	Acceptance Range 90 - 110 Lab ID = 806908-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.00(1.00)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806908-003	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 195	Expected/Added 191(100)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806908-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 198	Expected/Added 194(100)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806909-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 7050	Expected/Added 6740(3750)	Recovery 108	Acceptance Range 90 - 110 Lab ID = 806910-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 10.0	Result 467	Expected/Added 454(250)	Recovery 105	Acceptance Range 90 - 110 Lab ID = 806910-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 7260	Expected/Added 6910(3750)	Recovery 109	Acceptance Range 90 - 110 Lab ID = 806910-003	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 3930	Expected/Added 3820(2000)	Recovery 105	Acceptance Range 90 - 110 Lab ID = 806910-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 6670	Expected/Added 6920(3750)	Recovery 93.4	Acceptance Range 90 - 110 Lab ID = 806910-005	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.46	Expected/Added 1.48(1.00)	Recovery 98.6	Acceptance Range 90 - 110 Lab ID = 806910-007	
Parameter Chromium, Hexavalent	Unit ug/L	DF 500	Result 20300	Expected/Added 19900(10000)	Recovery 104	Acceptance Range 90 - 110	

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 3/26/2013

Page 4 of 5

Metals by EPA 6020A, Dis	solved		Batch	032113C-ICPMS-	1			
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806908-001 Chromium		ug/L	03/22	2/2013 00:59	2.00	0.184	1.0	ND
806908-002 Chromium		ug/L	03/22	2/2013 01:57	2.00	0.184	1.0	ND
806908-003 Chromium		ug/L	03/22	2/2013 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	Accepta	ince Range
Chromium	ug/L	2.00	ND	0	0		0 - 20	
Low Level Calibration V	erification							
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	Accepta	nce Range
Chromium	ug/L	2.00	52.6	50.0		105	85 - 115	5
Matrix Spike							Lab ID =	806908-001
Parameter	Unit	DF	Result	Expected/Add	ed	Recovery	Accepta	ince Range
Chromium	ug/L	2.00	55.9	50.0(50.0)		112	75 - 125	5
Matrix Spike Duplicate							Lab ID =	806908-001
Parameter	Unit	DF	Result	Expected/Add	ed	Recovery	Accepta	nce Range
Chromium	ug/L	2.00	55.4	50.0(50.0)		111	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	-	Recovery	•	nce Range
Chromium	ug/L	1.00	19.8	20.0		99.0	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Chromium	ug/L	1.00	18.7	20.0		93.7	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	l	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	19.6	20.0		97.8	90 - 110	)



Client: E2 Consulting Eng	ineers, Inc.		Project Name: Project Number:	ect Name: PG&E Topock Project ect Number: 423575.MP.02.GM.03		Page 5 of 5 Printed 3/26/2013
Interference Check Sta	indard A					į
Parameter Chromium Interference Check Sta	Unit ug/L indard A	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check Sta	Unit ug/L indard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check Sta	Unit ug/L indard AB	DF 1.00	Result 19.4	Expected 20.0	Recovery 97.0	Acceptance Range 80 - 120
Parameter Chromium Serial Dilution	Unit ug/L	DF 1.00	Result 20.6	Expected 20.0	Recovery 103	Acceptance Range 80 - 120 Lab ID = 806908-004
Parameter Chromium	Unit ug/L	DF 10.0	Result 99.4	Expected 110	RPD 10.1	Acceptance Range 0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

206 908

CH2MHILL			CHAIN OF CUSTODY RECORD 3/15/2013 12:16:44 PM Page 1	OF	_1_	
Project Name PG&E Topock Container: Location Topock Project Manager Jay Piper Preservatives:	Poly (NH4)2S	1x500 mi Poly HNO3, 4°C				
Sample Manager Shawn Duffy Filtered:	ļ	Field				
Holding Time:	28	180				
Project Number 423575.MP.02.GM.0.3 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 3/19/2013 COC Number: 21  DATE TIME Matrix	Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium	ALERT !! Level III QC	Number of Containers	COMMENTS	
MW-66BR-270-191 3/12/2013 8:25 Water	x	х		2		7
MW-24BR-191 3/14/2013 14:58 Water	х	х		2		In
MW-60BR-245-191 3/14/2013 8:02 Water	х	х		2		pi
MW-126-191 3-14-13 1313 Water	×	X	TOTAL NUMBER OF CONTAINERS	28	2	60
	, 1			8	BEC	,

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	41	1230	Method of Shipment: courier
Reliminished by			On ice: yes / no
Received by	alaste Davida	3/10/13/12:	Airbill No: Lab Name: Truesdail Laboratories, Inc.
Relinquished by	Later Davida	3-15-13 6(00	Lab Name: Truesdail Laboratories, Inc.
Received by	uda TIT	3/15/13 6:00p	Lab Phone: (714) 730-6239
and the second of the second o	mun , 161	Supply & Collection	<del> </del>

Special Instructions:

ATTN:

Feb 4 - Feb 28, 2013

Sample Custody

Report Copy to Shawn Duffy (530) 229-3303

	CH	<b>2</b> W	HILL
--	----	------------	------

#### **CHAIN OF CUSTODY RECORD**

3/15/2013 12:16:44 PM

Page 1 OF 1

			370/2010 12.10.74 1 W	-	
Project Name PG&E Topock Containe Location Topock Project Manager Jay Piper Preservatives	Poly (NH4)2S	1x500 ml Poly HNO3, 4°C			
Sample Manager Shawn Duffy Filtered	l: Field	Field			
Holding Time	: 28	180			
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  DATE TIME Matrix	Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENT
MW-66BR-270-191 3/12/2013 8:25 Water	X	Х		2	
MW-24BR-191 3/14/2013 14:58 Water	х	х		2	
MW-60BR-245-191 3/14/2013 8:02 Water	х	х		2	
MW-126-191 3-14-13 1313 Water	×	X	TOTAL NUMBER OF CONTAINERS	æ	2
	1				BEC

Signatures Approved by Sampled by Received by Relinquished by Received by

Date/Time 3-15-13 1230

**Shipping Details** 

ATTN:

Special Instructions:

Method of Shipment:

courier

Feb 4 - Feb 28, 2013

On Ice: yes / no

Sample Custody

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

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	4.5-	NA	MA	NA	TZY
1	-4	L	1	L	L L	Ţ
3/13/13	806855-1	7-0	2ml/100ml	9-5	17:15	Tay
J	-2	1	J		₩.	$\mathcal{L}$
3/14/13	806858-1	9.5	IVIA	NIA	NIA	HAV
	. 2					
·	-3					<i></i>
	/ -4					
	1 -5		1,		Ţ	-L
3/14/12	806872-1	8.0	1ml/100ml	9.5	18:15	THI
	1 -2	7.0	2ml/100ml	9-5		J.
3/18/13	806908-1	9.5	N/4	10/4	NIT	KB
	j -2		· · · · · · · · · · · · · · · · · · ·			
	-3					
ل	1 -4	J	<u> </u>		<u> </u>	
3/18/13	806909-1	9.5	NA	NA	N/A	RB
	-2	<u> </u>				
	-3				·	
	-4					
	-5				<u> </u>	
	-6	.				
	-7					
	-3					
	9					
	(0					
	-1/					
	910	- Jr -	4	<u></u>	+	14-
3/13/15	3069 <del>6</del> -1	9.5	N/A	NIA	N/A	RB
	410-6					<del>-/- </del>
	410 -3			1		
	910 -4					

RB 3/18/13

> 8n 3,21/13

03/22/13





Turbidity/nH Check

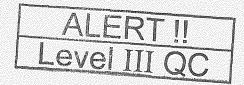
			Turbic	lity/pH C	heck			
Sample Number	Turbidity	рН	Date			Date/Time of 2nd pH check	Comments	
806861	4	12	3/14/13	oc	- yu			
806862	4	42	3/4/13	n	igre			
806848 U0-12	<1	72	) .	BG	No	13:30		
80 (849 (1-7)			( )	1	No		-	
406726(1-5)	41	(2	3/8/13	BE.	yes.			
206826	41	72	3/15/13	ES	yes	9:00		
806827-1	41	<b>42</b>	(		اً			
806828(1-3)								
806829(1-4)		$\downarrow$			1			
806877L1-6)	Ž1	F2	3/19/13	ES	1 yes			
806908(1-4)			1	Ì.	j			
806909(1-12)								
806910(1-12)	1							
806933 (1-7)		1		1	4			
806965	41	72	3/20/13	Es	yes	9:30		
206966 (1,3)	1	22	1/	l_	1			
806963	41	72	3/20/13	pc	NO	12:10	3/20/13 1:00	M L2
806918 (1,2,4)	41	72			No	12:10		
806953(1,2,3)	1	1			No	12:00		
806953(1,3,4)		$\nu$	L	1	No	L	V	
806903	<1	22			yes			
806904	1	1			1			
806923			·			,		
806925								
806926								
806939								
806959								
806960								
806961								
806962								
806963	1							
806964	71							
806847	41							
806899	U	¥						
806873	71	۷2	1		J			
806985	41	42	3/21/13	pc	ye.			
806999	>1	72	V	ı	V	14:25		
606987	<b>≺\</b>	<2	3-22-13	Bi	Xes	1		
80898811-3		72			No	9:30	3/16/13 10:00	PH L2
806983Cx-12)								
807008	Į .		ال	_ J	4			
806994	41	72	ال	n	No	12:10		
807029(1-8)	4	72	3/22/13	n	No	le:05	J	1
807011	41	42	3/25/13	W	yes	-		

#### Notes:

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

## Sample Integrity & Analysis Discrepancy Form

Clic	ent: E2	Lab #	030
Dat	te Delivered: <u>Ø</u> / <u>/</u> 5/13 Time: <u>/8: Ø</u> By: □Mail ⊠	Field Service	Client
1.	Was a Chain of Custody received and signed?	A Yes □No	□ <i>N/A</i>
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ,	ØN/A
<b>3</b> .	Are there any special requirements or notes on the COC?	□Yes □No	<b>□</b> Λ/ΛΑ
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No	ŹN/A
5.	Were all requested analyses understood and acceptable?		⊃ <i>N/A</i>
6.	Were samples received in a chilled condition? Temperature (if yes)? <u> </u>	ØYes □No	⊃ <i>N/A</i>
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆQYes □No I	⊃ <i>N/A</i>
	Were sample custody seals intact?	□Yes □No ↓	ŹN/A
•	Does the number of samples received agree with COC?	ДYes □No [	⊃ <i>N/A</i>
0.	Did sample labels correspond with the client ID's?	ÁYes □No [	IN/A
1.	Did sample labels indicate proper preservation?  Preserved (if yes) by:   ▼Truesdail □Client	ØYes □No □	I <i>N/A</i>
2.	Were samples pH checked? pH = \( \frac{\mathcal{L}}{\mathcal{L}} \), \( \mathcal{U} \), \( \mathcal{U} \),	✓ Yes □No □	IN/A
3.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	⊈Yes □No □	IN/A
l.,	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b>	⊄d(Yes □No □	IN/A
5.	Sample Matrix: □Liquid □Drinking Water □Ground □Sludge □Soil □Wipe □Paint □Solid ☒	111 4	Vater 
5.	Comments:	<u> </u>	
7.	Sample Check-In completed by Truesdail Log-In/Receiving: _	L. Shabi	will



### **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:

Laboratory Project Manager

Kothy Mckincey

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		Date/Time	Date
Sample ID	Client Sample ID	Collected	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 Na	me: <u>Cl</u>	<u>H2M HILL/LAB/CVO</u>	ASL SDG#	: <u>M1209</u>	
Project:	PGE	Topock	Project #:	423575.M	P.02.GM.03
I.	_	I(s): is: E353.2 t/Holding Times:			
		eptance criteria were met.			
III.	<u>Analys</u>	<u>is:</u>			
	A.	Initial Calibration(s): All acceptance criteria were met.			
	В.	Calibration Verification(s): All acceptance criteria were met.			
	C.	Blanks: All acceptance criteria were met.			
	D.	Laboratory Control Sample(s): All acceptance criteria were met.			
	E.	Matrix Spike/Matrix Spike Duplicate San MS and MSD recovery of Nitrate/Nitrite (M120910) did not meet acceptance crite	-N (115% and	•	MW-72BR-200-191
	F.	Analytical Exception(s): None.			
IV.	Docum None.	entation Exception(s):			
V.	CH2M the data	y that this data package is in compliance with HILL, both technically and for completent a contained in this hardcopy data package has verified by the following signatures.	ess, except for	r the conditi	ons detailed above. Release of
Prepare	ed by:	Emily Cle		Date:	3/11/13
Review	ed by:	Kastley mclany		Date:	3/11/15

## 1A-WC GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-121-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120901

Date Received: 02/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/12/13
		-								
		-								
		-								
		-								
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## 1A-WC GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-060-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120902

Date Received: 02/12/13

NO3NO2N Nitrate/Nitrite-N	lysis Date thod Analyzed	Analysis Method	Sample Amount	DF	Units	Q	Result	PQL	DL	Analyte	CAS No.
	53.2 02/12/13	E353.2	3 ML	1	MG/L	U	0.0100	0.0100	0.00280	Nitrate/Nitrite-N	NO3NO2N
									<del>                                     </del>		
									<del>                                     </del>		
									<del>                                     </del>		
									<del>                                     </del>		
										1	
									<del>                                     </del>	+	
									<del>                                     </del>	1	
									<del>                                     </del>		
									<del>                                     </del>		

Field Sample ID:

MW-27-085-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120903

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/12/13

Field Sample ID:

MW-28-090-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120904

NO3NO2N Nitrate/Nitrite-N	lysis Date thod Analyzed	Analysis Method	Sample Amount	DF	Units	Q	Result	PQL	DL	Analyte	CAS No.
	53.2 02/12/13	E353.2	3 ML	1	MG/L	U	0.0100	0.0100	0.00280	Nitrate/Nitrite-N	NO3NO2N
									<del>                                     </del>		
									<del>                                     </del>		
									<del>                                     </del>		
									<del>                                     </del>		
										1	
									<del>                                     </del>	+	
									<del>                                     </del>	1	
									<del>                                     </del>		
									<del>                                     </del>		

Field Sample ID:

MW-33-150-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120905

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.60		MG/L	5	3 ML	E353.2	02/12/13

Field Sample ID:

MW-33-210-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120906

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.72		MG/L	5	3 ML	E353.2	02/12/13

Field Sample ID:

MW-57-185-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120907

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0119		MG/L	1	3 ML	E353.2	02/12/13

Field Sample ID:

MW-63-065-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120908

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.07		MG/L	5	3 ML	E353.2	02/12/13

Field Sample ID:

MW-71-035-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120909

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	1.63		MG/L	20	3 ML	E353.2	02/12/13

Field Sample ID:

MW-72BR-200-191

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M120910

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.141		MG/L	1	3 ML	E353.2	02/12/13

Field Sample ID:

WB1-021213

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB1-021213

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/12/13
		-								
		-								
		-								
		-								
										I

#### 7-WC

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1209 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS1W0212

Initial Calibration ID: 012813NO32SMcal Date Analyzed: 02/12/13

Matrix: (Soil/Water) WATER Time Analyzed: 1900

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.905	103	90-110	
·					
			+		
			+		
			+		
			1		

<sup>\*</sup> Values outside of QC limits

Comments:

12			
 _	TV.	м	

#### **CHAIN OF CUSTODY RECORD**

2/5/2013 4.06:08 PM

Page 1 OF 1

O						
Project Name F	G&E Topoc	:k	Container:	1 Liter Poly		
ocation Topo	ick			H2S04	1	1
roject Manage	r Jay Piper	Pres	ervatives:	pH<2. 4°C		
Sample Manage	r Shawn Du	ffy	Filtered:	NA		
		Hold	ling Time:	28	1	
Project Number	423575.MF	02.GM	1.03		1	
ask Order				Nitra	1	i
Project 2013-G	MP-191-Q1			ate/l	Z	1
furnaround Tim	e 10 Day	\$		Nitrate/Nitrite (SM4500NO3) Nitrate	Number	1
Shipping Date:	2/5/2013			Nitr.		1
COC Number:	3			SM4 ate	오	1
				500	Contain	l
				NO	ain	
	DATE	TIME	Matrix	ω,	ers	COM
MV-121-191						1
The Control of the Co	2/4/2013	7:02	Water	Х	1	
NW-27-060-191	2/4/2013	11:26	Water	X	1	2
AW-27-085-191	2/4/2013	12:50	Water	х	1	.3
AW-28-090-191	2/5/2013	12:41	Water	X	1	4
IW-33-150-191	2/5/2013	14:44	Water	X	1	5
AW-33-210-191	2/5/2013	15:55	Water	Х	1	6
						-

Approved by Sampled by

Relingue hed by

Received by Relinquished by Receive@by

Signatures

Date/Time

Shipping Details

Method of Shipment: courier

On Ice: yes I no 28 ICE

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

Ruman Bell Yours 1000

Lab Phone: (541) 752-4271

ATTN:

Special Instructions:

Feb 4 - Feb 28, 2013

Sample Custody and

Kathy McKinley

Report Copy to

Shawn Duffy (530) 229-3303

CH2MHILL		CHAIN OF CUSTODY RECORD	2/7/2013 1:15.38 PM	Page:
Project Name PG&E Topock Container: Location Topock Project Manager Jay Piper Preservatives:	Poly H2SO4, pH<2. 4°C			
Sample Manager Shawn Duffy Filtered: Holding Time:				
Project Number 423575.MP.02.GM.0 5 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/7/2013 COC Number: 5	Nitrate/Nitrite (SM4500NO3) Nitrate			

DATE

2/6/2013

2/6/2013

2/7/2013

MW-57-185-191

MW-63-065-191

MW-71-035-191

TIME Matrix

Water

Water

Water

X

X

X

14:25

10:58

8:05

191 2-7-13 1ラル WGM メ MW-72BR-200-191 TOTAL NUMBER OF CONTAINERS 日本 5PD 4

Date/Time Shipping Details
2-7-13 (17)

Method of Shipment: courier

On Ice: (2) I no 3.4 (6)

2/7/13 (4.50)

Airbill No:

Lab Name: CH2M HILL Applied Sci Special Instructions: Approved by ATTN: Feb 4 - Feb 28, 2013 Sampled by Relinquighed by Received by Relinguighed by Sample Custody and Lab Name: CH2M HILL Applied Sciences Lab

/### Lab Phone: (541) 752-4271 Report Copy to Kathy McKinley Shawn Duffy Received by (530) 229-3303 Common Bell Work

4

Number of Containers

COMMENTS

#### McKinley, Kathy/CVO

From:

Contreras, Erlene/RDD

Sent:

Tuesday, March 05, 2013 5:03 PM

To:

McKinley, Kathy/CVO Duffy, Shawn/RDD

Cc: 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



#### Sample Receipt Record

Batch Number: MC209	e.	Date received:	24	12/13	
Client/Project:		Checked by:		Cuz	
1		Checked by:			
VERIFICATION OF SAMPLE CONDITIONS (verify a	Hitems), HD = Client Hand deliver	ed Samples	NA	YES	NO
Radiological Screening for DoD			./		
Were custody seals intact and on the outside of th	e cooler?			1	
Type of packing material: lce Blue ice Bubble w	rap?		1	1	
Was a Chain of Custody (CoC) Provided?				V	
Was the CoC correctly filled out (If No, document i	n the SRER)			1/	
Did the CoC list a correct bottle count and the pres	servative types (Y=OK,	N≈Corrected on CoC)			
Were the sample containers in good condition (bro	ken or leaking)?			V	
Containers supplied by ASL?					
Any sample with < 1/2 holding time remaining? If	so contact LPM				1
Samples have multi-phase? If yes, document on S	RER				1
Was there ice in the cooler? Enter temp. If >6°C c	ontact client/SRER	(.8 ℃		1/	
All VOCs free of air bubbles? No, document on SI	RER	-	1/		
pH of all samples checked and met requirements?	No, then document in	SRER		$\vee$	
Enough sample volume provided for analysis? No,	, document in SRER			4	
Did sample labels agree with COC? No, document	t in SRER			V	
Dissolved/Soluble metals filtered in the field?			V	1	
Dissolved/Soluble metals have sediment in bottom	of container? Docume	ent in SRER			
Sample ID	Reagent	Reagent Lot Number	Volume	e Added	Initials
E					
	1				
					5-11-
		A TOTAL TO THE STATE OF THE			Page 3



#### Sample Receipt Exception Report

	Sample Batch Number: M1209	Client/Project PGE Topock
Tha f	ollowing exceptions were noted:	
ine i	Thomas were noted.	Comments (write number of exception description and the impacted sample numbers)
	No custody seal as required by project	11) COC requests SM4500NO3. ASL only performs by E353.2
	2. No chain-of-custody provided	
	Analysis, description, date of collection not provided	
	Samples broken or leaking on receipt.	
	Temperature of samples inappropriate for analysis requested	
	Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	Preservation inappropriate for analysis requested	
	Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
X	11. Other.	
ACT	ION TAKEN:	
	Notify client. Proceed with analysis.	
Origi	nator: Kathy McKinley/CVO	Date: February 12, 2013
	nt was notified on: 2/12/2013 (Date/Time)	Client Contact: Shawn Duffy/RDD, Data Center/RDD
_		
+		
		——————————————————————————————————————
Clier	nt Services:	<del></del>

### **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:

Laboratory Project Manager

Kothy Mckincey

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.

#### **Sample Receipt Comments**

We certify that the test results meet all standard ASL requirements.

#### **Sample Cross-Reference**

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
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 Na	ıme: <u>C</u>	H2M HILL/LAB/CVO	ASL SDG#:	<u>M1279</u>	
Project	: <u>PGE</u>	<u>Topock</u>	Project #:	<u>423575.MP</u>	.02.GM.03
I.	Method Analys	d(s): is: E353.2			
II.	Receip	t/Holding Times:			
	All acc	eptance criteria were met.			
III.	Analys	is:			
	A.	Initial Calibration(s): All acceptance criteria were met.			
	В.	Calibration Verification(s): All acceptance criteria were met.			
	C.	Blanks: All acceptance criteria were met.			
	D.	<u>Laboratory Control Sample(s):</u> All acceptance criteria were met.			
	E.	Matrix Spike/Matrix Spike Duplicate San Analyzed in accordance with standard op		lure.	
	F.	Analytical Exception(s): None.			
IV.	Docum None.	entation Exception(s):			
V.	CH2M the data	y that this data package is in compliance we HILL, both technically and for completent a contained in this hardcopy data package bee, as verified by the following signatures.	ess, except for	the conditio	ns detailed above. Release of
Prepare	d by: _			Date: _	3/26/2013
Review	ed by:	Katley mcken		Date: _	3/28/13

Field Sample ID:

MW-68BR-280-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127901

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	Ü	MG/L	1	3 ML	E353.2	03/04/13
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						- 				
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#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-35-060-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127902

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0140				MG/L	5	3 ML	E353.2	03/04/13
	-				-					
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			-							
	-									
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						_				

Field Sample ID:

MW-65-160-191

SDG No.: <u>M1279</u>

Lab Name: CH2M HILL/LAB/CVO

 $\texttt{Matrix:} \ \ \underline{\texttt{WATER}} \qquad \qquad \qquad \texttt{Lab Sample ID:} \ \underline{\texttt{M127903}}$ 

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	10.8		MG/L	20	3 ML	E353.2	03/04/13
	- " ''									
						_				
						_				

Field Sample ID:

MW-65-225-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127904

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560				MG/L	20	3 ML	E353.2	03/04/13
						l				
	_									
										,
								-		

Field Sample ID:

MW-70-105-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127905

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0140	0.0500	2.55		MG/L	5	3 ML	E353.2	03/04/13
	-									
			-							
						-				
						_				
					<b>'</b>					
									`	

#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID: MW-72-080-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127906

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.15		MG/L	5	3 ML	E353.2	03/04/13
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Field Sample ID:

MW-73-080-191

SDG No.: <u>M1279</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M127907

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.0280		<b></b> .	_	MG/L	10	3 ML	E353.2	03/04/13
NOSNOZN	Transfer in the second	0.0200	01200	1101		110,72	~*	3 1.2		03/01/13
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#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60-125-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127908

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
	Nitrate/Nitrite-N	0.0280	0.100			MG/L	10	3 ML	E353.2	03/04/13
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Field Sample ID:

MW-66-165-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127909

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.224	0.800			MG/L	80	3 ML		03/04/13
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Field Sample ID:

MW-68-240-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127910

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.58		MG/L	10	3 ML	E353.2	03/04/13
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#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-69-195-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127911

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.224	0.800	22.4		MG/L	80	3 ML	E353.2	03/04/13
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#### IA-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-125-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127912

CAS No.	Analyte	DL	PQL,	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.224	0.800	22.5		MG/L	80	3 ML	E353.2	03/04/13
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Field Sample ID:

MW-66-230-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127913

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	<del></del>		MG/L	20	3 ML	E353.2	03/04/13
NOSNOZN	Wichael Wichiel	0.0500	0.200	44,4				3 1,13	2333.2	05/01/15
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Field Sample ID:

MW-67-185-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127914

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200			MG/L	20	3 ML		03/04/13
NOSNOZN	NICIACO, NICIIO		01200	23.0		1, _			200015	05/01/20
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Field Sample ID:

MW-67-225-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127915

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.224	0.800	23.1		MG/L	80	3 ML	E353.2	03/04/13
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#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-260-191

SDG No.: <u>M1279</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M127916

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.49		MG/L	5	3 ML	E353.2	03/04/13
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#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-180-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127917

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	27.3		MG/L	50	3 ML	E353.2	03/04/13
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Field Sample ID:

TW-01-191

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M127918

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0606				MG/L	20	3 ML	E353.2	03/13/13
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#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field	Sample	ID:	
WE	32-0304		

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB2-0304

Date Received: \_\_/\_/

CAS No.	Analyte	Dī	PQL	Result	Q	Units	ÐF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00280				MG/L	1	3 ML	E353.2	03/04/13
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Field Sample	ID:
WB3-0313	

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB3-0313

Date Received: \_\_/\_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/13/13
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Field	Sample	ID:
WI	35-0304	

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB5-0304

Date Received: //

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/04/13
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### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Fi	eld	Sample	ID:	
	WI	36-0304		

SDG No.: <u>M1279</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB6-0304

Date Received: \_\_/\_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/04/13
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#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS2W0304

Initial Calibration ID: 012813NO32SMcal Date Analyzed: 03/04/13

Matrix: (Soil/Water) WATER Time Analyzed: 1607

Instrument: SMARTCHEM Concentration Units: MG/L

		_	2.5	QC Limits	
Analyte	Expected	Found	%R	%R	Q
Nitrate/Nitrite-N	0.876	0.863	98	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments:		

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS5W0304

Initial Calibration ID: <a href="https://doi.org/10.103/01/13">012813NO32SMcal</a> Date Analyzed: <a href="https://doi.org/10.103/01/13">03/04/13</a>

Matrix: (Soil/Water) WATER Time Analyzed: 1814

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.910	104	90-110	
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<sup>\*</sup> Values outside of QC limits

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Analysis Method:  $\underline{\text{E353.2}}$  LCS ID:  $\underline{\text{BS6W0304}}$ 

Initial Calibration ID: 012813NO32SMcal Date Analyzed: 03/04/13

Matrix: (Soil/Water) WATER Time Analyzed: 1845

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	T
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Nitrate/Nitrite-N	0.876	0.954	109	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments:		
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#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1279 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS3W0313

Initial Calibration ID: 031313NO3CAL Date Analyzed: 03/13/13

Matrix: (Soil/Water) WATER Time Analyzed: 1357

Instrument: LACH8500 Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	1.10	1.19	109	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments:	:
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CH2MHIL	L				CHAIN OF CUSTODY RECORD 2/19/2013 3:36:18 PM Page 1	OF .	1
Project Name PG Location Topoc Project Manager	k	.,	Container: ervatives;	Poly H2SO4,			36
Sample Manager	Shawn Dut	-	Filtered: ling Time:	NA			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 8	P-191-Q1 10 Days 2/19/2013	5	1.03 Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
MW-68BR-280-191	2/18/2013	11:41	Water	х		1	1
MW-35-060-191	2/19/2013	8:27	Water	х		1	Z
MW-65-160-191	2/19/2013	9:57	Water	х		1	3
MW-65-225-191	2/19/2013	13:23	Water	ж		1	4
MW-70-105-191	2/19/2013	11:09	Water	х		1	.5
MW-72-080-191	2/19/2013	12:21	Water	х		1	6
MW-73-080-191	2/19/2013	8:52	Water	х		1	7
				-	TOTAL NUMBER OF CONTAINERS	7	

Approved by Sampled by Relinquished by Receixed by Relin@ished by Received by

Signatures

**Shipping Details** 

Lab Name: CH2M HILL Applied Sciences Lab

On Ice: (ves 1) no 4.6

courier Method of Shipment:

iGE

ATTN: Sample Custody

and

Kathy McKinley

Report Copy to

Special Instructions:

Feb 4 - Feb 28, 2013

Shawn Duffy (530) 229-3303

/%/5 Lab Phone: (541) 752-4271 Elaf 2/25/13 81705

Carmen Bell

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СН2МНІ	LL				CHAIN OF CUSTODY RECORD         2/21/2013 4:19:16 PM         Page 1	OF .	1_
Project Name P Location Topo Project Manage	ck		Container: servatives:	H2SO4			
Sample Manage	r Shawn Du		Filtered: ding Time:				
Project Number Task Order Project 2013-G Turnaround Tim Shipping Date: COC Number:	MP-191-Q1 e 10 Day 2/21/2013		и.03	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	
	DATE	TIME	Matrix	3)		ers	COMMENTS
MW-60-125-191	2/20/2013	13:06	Water	х		1	8
MW-66-165-191	2/20/2013	10:23	Water	х		1	9
MW-68-240-191	2/20/2013	14:11	Water	х		1	to
MW-69-195-191	2/20/2013	11:14	Water	х		1	11
MW-125-191	2/21/2013	9:30	Water	х		1	12
MW-66-230-191	2/21/2013	11:35	Water	х		1	13
MW-67-185-191	2/21/2013	9:25	Water	х		1	14
MW-67-225-191	2/21/2013	10:25	Water	х		1	15
MW-67-260-191	2/21/2013	8:39	Water	х		1	16
MW-68-180-191	2/21/2013	14:06	Water	х		1	17

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Relinquished by

Received by

2/21/2013

16:05 Water

Signatures

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TW-01-191

Date/Time 2-21-13 1620

Shipping Details

Method of Shipment: courier

On Ice: (8) / no 2.8 IR1 KE

2-26-13 1/020 Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

2-21-13 1838 Lab Phone: (541) 752-4271
24 2/25/13 61705

and

ATTN:

Sample Custody

Report Copy to

**Special Instructions:** 

Feb 4 - Feb 28, 2013

Kathy McKinley

Shawn Duffy (530) 229-3303

TOTAL NUMBER OF CONTAINERS

Merman Bt. 11 2/26/13 @10/0



## Sample Receipt Record

Batch Number: <u>M279</u>	_	Date received:	2/26/	13	
Batch Number: <u>M1279</u> Client/Project: <u>To Pock</u>	_	Checked by:	CB		
,		Checked by:			<del></del>
VERIFICATION OF SAMPLE CONDITIONS (verify a	all items), HD = Client Hand delivere	ed Samples	NA	YES	NO
Radiological Screening for DoD			1		
Were custody seals intact and on the outside of the	ne cooler?			/	
Type of packing material Ice Blue Ice Subble w	viap>				
Was a Chain of Custody (CoC) Provided?				<u></u>	
Was the CoC correctly filled out (If No, document	in the SRER)			-	
Did the CoC list a correct bottle count and the pre-	servative types (Y=OK,	N=Corrected on CoC)	:		
Were the sample containers in good condition (bro	oken or leaking)?				
Containers supplied by ASL?				L	
Any sample with < 1/2 holding time remaining? If					
Samples have multi-phase? If yes, document on S			W		
Was there ice in the cooler? Enter temp. If >6°C of		1			
All VOCs free of air bubbles? No, document on S	RED		سا		
pH of all samples checked and met requirements?		QDED.			
Enough sample volume provided for analysis? No		ONLIN			
Did sample labels agree with COC? No, documen			f		
Dissolved/Soluble metals filtered in the field?	THI OTTELL				<del>-</del>
Dissolved/Soluble metals have sediment in botton	n of container? Docume	nt in SRER			
	1				
Sample ID	Reagent	Reagent Lot Number	Volume	e Added	Initials
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## **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:

Laboratory Project Manager

Kothy Mckincey

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.

## **Sample Receipt Comments**

We certify that the test results meet all standard ASL requirements.

## **Sample Cross-Reference**

ASL		Date/Time	Date	
Sample ID	Client Sample ID	Collected	Received	
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 Na	me: <u>C</u>	H2M HILL/LAB/CVO	ASL SDG#	: <u>M1333</u>	
Project:	<u>PGE</u>	Topock	Project #:	423575.MP.0	2.GM.03
I.	Method Analys	<u>d(s):</u> is: E353.2			
П.	_	t/Holding Times: eptance criteria were met.			
III.	<u>Analys</u>	is:			
	Α.	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 Sa Analyzed in accordance with standard op		edure.	
	F.	Analytical Exception(s): None.			
IV.	Docum None.	entation Exception(s):			
V.	CH2M the data	y that this data package is in compliance w HILL, both technically and for completen a contained in this hardcopy data package ee, as verified by the following signatures.	ess, except fo	r the condition	s detailed above. Release of aboratory Manager or
Prepare	d by:	2 2;		Date:	3/26/2013
Review	ed by:	Katuy maken		Date:	3/29/13

Field Sample ID:

MW-46-175-191

SDG No.: M1333 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M133301

CAS No.	/ Analyte	DL		Result	Units	DF	Sample Amount	Analysis Method	Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	1.08	 MG/L	1	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-61-110-191

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID:  $\underline{\text{M133302}}$ 

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозиози	Nitrate/Nitrite-N	0.00303	0.0100	0.999		MG/L	1	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-110-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133303

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0303	0.100	12.7		MG/L	10	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-12-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133304

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	0.100	12.5		MG/L	10	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-44-115-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133305

CAS No.	. Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.374		MG/L	1	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-33-040-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133316

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00303	0.0100	0.0291		MG/L	1	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-62-110-191

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133317

CAS No.	Analyte	DL	PQL		Q	Units	DF	Sample Amount	Analysis Method	Analyzed
иозио2и	Nitrate/Nitrite-N	0.0152	0.0500	4.26		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-62-190-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133318

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	ซ	MG/L	1	3 ML	E353.2	03/22/13
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Field Sample ID:

MW-70BR-225-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133319

CAS No:	Analyte	DL.	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0152	0.0500	4.13		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-47-115-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID:  $\underline{\text{M133320}}$ 

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	0.0500	2.32		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-50-200-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID:  $\underline{\text{M133321}}$ 

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CAS No.	Analyte	Dr	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	0.0500	5.94		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-59-100-191

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133322

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.0152	0.0500	4.02		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-74-240-191

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133329

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CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Amount	Method	Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.159		MG/L	1	2 ML	E353.2	03/13/13
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SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-0313

Date Received: \_\_/\_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	Ū	MG/L	1	3 ML	E353.2	03/13/13
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WB1-0322
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SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-0322

Date Received: \_ / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyze
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/22/13
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SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB2-0313

Date Received: \_ / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	Ū	MG/L	1	2 ML	E353.2	03/13/13
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#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1333 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS1W0313

Initial Calibration ID: 031313NO3CAL Date Analyzed: 03/13/13

Matrix: (Soil/Water) WATER Time Analyzed: 1205

Instrument: <u>LACH8500</u> Concentration Units: <u>MG/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.469	0.513	109	90-110	
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<sup>\*</sup> Values outside of QC limits '

Comments:		•	

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1333 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS2W0313

Initial Calibration ID: 031313NO3Cal Date Analyzed: 03/13/13

Matrix: (Soil/Water) WATER Time Analyzed: 1318

Instrument: <u>LACH8500</u> Concentration Units: <u>MG/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.469	0.508	108	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments:	:
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#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1333 Lab Name: CH2M HILL/LAB/CVO

Analysis Method:  $\underline{\text{E353.2}}$  LCS ID:  $\underline{\text{BS1W0322}}$ 

Matrix: (Soil/Water) WATER Time Analyzed: 1542

Instrument: LACH8500 Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.862	98	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments:			

**CH2M**HILL

### **CHAIN OF CUSTODY RECORD**

2/26/2013 5:01:36 PM

Page 1 OF 1

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Project Name PC Location Topoc Project Manager	:k	••	Container: ervatives:	H2SO4,			
Sample Manager	Shawn Du	fy	Filtered:	NA			
		Hold	ing Time:	28			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 16	¶P-191SAMi ⇒ 10 Days 2/26/2013	.02.€1 PLEME ;	1.03	te/Nitrite (E353.3)		Number of Containers	COMMEN
MW-46-175-191	2/25/2013	16:24	Water	х		1	1
MW-61-110-191	2/25/2013	15:23	Water	х		1	7
MW-110-191	2/26/2013	15:03	Water	Х		1	13
MW-12-191	2/26/2013	14:58	Water	х		1	4
MW-44-115-191	2/26/2013	12:35	Water	х		1	3
	•	·			TOTAL NUMBER OF CONTAINERS	5	920

Amproved by	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by		<u> 2-26-13</u> 1705	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Relinguished by	D/h		On Ice: -yee-1 no 1 .6 °C Airbill No: 1 EH	Sample Custody	
Received by	Donaly	2/46/13 1705	•	and	Report Copy to
Relinguished by	London	1/26/3 / A/A	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Shawn Duffy
Received by		2/26/0 6/0	Lab Phone: (541) 752-4271		(530) 229-3303
REC:	mystat 3/4/	120/750	Camen Bell 3/5/13 103	30	

**CHAIN OF CUSTODY RECORD** 

2/26/2013 5:00:49 PM

Page 1 OF 1

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Turnaround Time	_	S		Nitrate/Nitrite		Number	İ
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COC Number: 11				(E353.3)		လ	
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MW-46-175MD-1919-	2/25/2013	14:13	Water	х		1	18
MW-61-110H-191SMT		13:00	Water	х	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1	4
MW-61-110MD-1918-	2/25/2013	14:31	Water	х	9	1	(0)
MW-110H-191SMT	2/26/2013	15:03	Water	х	lo	1	ιį
MW-110MD-191SMT	2/26/2013	14:20	Water	х	II.	1	12
MW-12H-191SMT	2/26/2013	13:26	Water	х	. 12	1	t3
MW-12MD-191SMT	2/26/2013	14:18	Water	х	13	1	14
MW-44-115H-191SMT	2/26/2013	9:15	Water	х	الإ	1	1\$
MW-44-115MD-1918-	2/26/2013	10:55	Water	х	(5)	1	16
					TOTAL NUMBER OF CONTAINERS	10	ran .
					TOTAL NUMBER OF CONTAINERS	10	<u>)</u>

Ammunus d bu	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by		2-26-13	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Sampled by	//)-//		On Ice: vest/ no 1.6 C	Sample Createdu	
_	Ca	- T . La 13 55	Airbill No:	Sample Custody	
Received by	M pmall	2/2/0/13/201	Lab Name: CH2M HILL Applied Sciences Lab	and	Report Copy to
Relinguished by	phyders	-424/13 /9/17	• • • • • • • • • • • • • • • • • • • •	Kathy McKinley	Shawn Duffy
Received by	The sale ages		Lab Phone: (541) 752-4271		(530) 229-3303
PEL: /	-18/X = 3/4	4/13@1700	Jamen Bell 3/05/13 103-8		

TOTAL NUMBER OF CONTAINERS

CH2MHILI	L				CHAIN OF CUSTODY RECORD	2/26/2013 4:26:35 PM	Page _1_	OF	1
Project Name PGo Location Topock Project Manager J Sample Manager S	ay Piper	Pres	Container: ervatives: Filtered: ling Time:	Poly H2SO4, pH<2, 4°C					
Project Number 4 Task Order Project 2013-GMF Turnaround Time Shipping Date: 2/ COC Number: 14	P-191-Q1 10 Days 26/2013	<b>;</b>	M.03	Nitrate/Nitrite (SM4500NO3) Nitrate				Number of Containers	COMMENT
MW-33-040-191	2/25/2013	10:47	Water	х			16	1	1/7
MW-62-110-191	2/26/2013	15:59	Water	х			17	1	8
MW-62-190-191	2/26/2013	16:05	Water	Х			18	1	191
MW-70BR-225-191	2/26/2013	11:16	Water	Х			19	1	80

Approved by	Signatures	Date/Time 2 26-13 1705	Shipping Details  Method of Shipment: courier	ATTN:	Special Instructions: Feb 4 - Feb 28, 2013
Relinguished by Received by Relinguished by	Polyney	2/34/13 1705	On Ice: _ves-1 no   / ("C Airbill No: Lab Name: CH2M HILL Applied Sciences Lab	Sample Custody and Kathy McKinley	Report Copy to Shawn Duffy
Received by	hong als		Lab Phone: (541) 752-4271  Carrier Bell 3/5/12	1632	(530) 229-3303

3

TOTAL NUMBER OF CONTAINERS

**CHAIN OF CUSTODY RECORD CH2MHILL** 3/1/2013 4:28:38 PM Page 1 OF 1 250 ml Project Name PG&E Topock Container: Poly Location Topock H2SQ4, Preservatives: pH<2, Project Manager Jay Piper Sample Manager Shawn Duffy Filtered: NA Holding Time: 28 Project Number 423575.MP.00.75
Task Order .02. GNN.03 Task Order Nitrate/Nitrite (E353.3) Number of Containers Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/1/2013 COC Number: 17 COMMENTS DATE TIME Matrix 70 MW-47-115-191 2/27/2013 | 15:09 Water Х MW-50-200-191 2/27/2013 15:53 Water Х MW-59-100-191 2/27/2013 10:25 Water Х

Approved by	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by	<i>[-]</i> [	3-1-13	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Relinguished by	)//-	1675	On Ice: ages / no 3-47	Sample Custody	
Received by	madely	3/1/13/64	Airbill No: (EH)	and	Report Copy to
Relinguished by P	wyalay	3/0/15 /MIN	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Shawn Duffy
Recegyed by	gradin	3/1/13 ///0	Lab Phone: (541) 752-4271	, , , , , , , , , , , , , , , , , , , ,	(530) 229-3303
PEL: /min	19-12-314/1.	76/70	M. M. DA ROU 3/5/12 V	530	···

CH2MHILL		CHAIN OF CUSTODY RECORD 3/1/2013 4:40:12 PM Page 1	OF .	1
Project Name PG&E Topock Containe Location Topock Project Manager Jay Piper Preservatives	Poly H2SO4,			
Sample Manager Shawn Duffy Filtered Holding Time				
Project Number 423575.MP.0 <del>6.T3</del> Task Order , のの、の例、ゆう Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/1/2013 COC Number: 18			Number of Containers	
DATE TIME Matrix			ners	СОММІ
MW-47-115H-191SMT 2/27/2013 12:05 Water	х	23	1	24
WW-47-115MD-1919 2/27/2013 13:11 Water	х	24	1	(25
NW-50-200H-191SMT 2/27/2013 11:30 Water	х	25	1	20
W-50-200MD-1918 2/27/2013 13:30 Water	х	25,	1	27
/W-59-100H-191SMT 2/27/2013 8:26 Water	х	2)	1	2/8
1W-59-100MD-1918 2/27/2013 9:47 Water	х	is	1	29
		TOTAL NUMBER OF CONTAINERS	6	
·				Uhd K

	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by		3-1-13	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Sampled by Relinguished by		1645	On Ice: yee-/ no 3-4-0	Sample Custody	
, A	Dugalay	3/1/3/641	Airbill No: 1 PH		:
received by	poyalas)	011112 6041	Lab Name: CH2M HILL Applied Sciences Lab	and	Report Copy to
Received by	showing elan	- 3 (1/3 / // / / / / / / / / / / / / / / / /	Lab Phone: (541) 752-4271	Kathy McKinley	Shawn Duffy (530) 229-3303
PEL Mul	Q/Y-/-/1-1	2/200	Norman sell 3/5/13	08 O	(330) 223-3303

CH2MHILL		CHAIN OF CUSTODY RECORD 3/1/2013 4:44:53 PM Page 1	OF .	1_
Project Name PG&E Topock Container Location Topock Project Manager Jay Piper Preservatives Sample Manager Shawn Duffy Filtered	Poly H2SO4, pH<2, 4°C NA			
Holding Time 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  DATE TIME Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
MW-74-240-191 3/1/2013 8:15 Water	х	29	1	30
		TOTAL NUMBER OF CONTAINERS	1	01/200 5

	Signatures	Date/Time	Shipping Details	İ	Special Instructions:
Approved by		3-1-13	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Sampled by	K //	1645	·		1 65 4 - 7 65 20, 2010
Relinguished by	$\mathcal{Y}$		On Ice: yes / no 3 44	Sample Custody	
- m	sugates	3/1/13 /645	Airbill No:	and	Report Copy to
Relinguished by		3/1/13 100	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Shawn Duffy
Receixed by	a syring	3/1/13 /1/00	Lab Phone: (541) 752-4271		(530) 229-3303
per: mil	80 + 3/4/13 C	1700	(ansign Boll 3/5/13 1030	<u></u>	<u></u>



# Sample Receipt Record

Batch Number: M\333	Date received:	3/5/	13		
Batch Number:		<u>CB</u>			
l		Checked by:			
VERIFICATION OF SAMPLE CONDITIONS (verify a		10	. NA	VEO	110
	NA	YES	NO		
Radiological Screening for DoD					
Were custody seals intact and on the outside of the					
Type of packing material: (ice Blue Ice Bubble w	лар				
Was a Chain of Custody (CoC) Provided?				<u> </u>	
Was the CoC correctly filled out (If No, document	in the SRER)			V	
Did the CoC list a correct bottle count and the pres	servative types (Y=OK, N	i=Corrected on CoC)	_	<i>i</i>	
Were the sample containers in good condition (bro	oken or leaking)?			<u></u>	
Containers supplied by ASL?		·			
Any sample with < 1/2 holding time remaining? If	so contact LPM			<u></u>	レ
Samples have multi-phase? If yes, document on S	SRER				$\nu$
Was there ice in the cooler? Enter temp. If >6°C of	contact client/SRER	2.8 °c		$\nu$	
All VOCs free of air bubbles? No, document on S	RFR				
pH of all samples checked and met requirements?		RER		V	
Enough sample volume provided for analysis? No.				V	
Did sample labels agree with COC? No, document					-
Dissolved/Soluble metals filtered in the field?			V	·	
Dissolved/Soluble metals have sediment in bottom	n of container? Documer	t in SRER	V		
Samula ID	Paggant	Reagent Lot Number	Volume	Addad	Initials
Sample ID	Reagent	Reagent Lot Number	Volume	Auueu	Initials
				<u> </u>	
		<del></del>			
		<u> </u>			_

February 21, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000 Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: 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,

or geogrammedo

Jose Tenorio Jr.

Laboratory Director

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



### Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

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

**Date:** 21-Feb-13

Lab Order: N009541

#### 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.



# Advanced Technology Laboratories, Inc.

**CLIENT:** CH2M HILL

**Work Order Sample Summary Project:** PG&E Topock, 423575.MP.02.GM.03

Date: 21-Feb-13

Lab Order: N009541 **Contract No:** 2013-GMP-191-

Lab Sample ID Client Sample ID	Matrix	<b>Collection Date</b>	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

Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-123-191

**Lab Order:** N009541 **Collection Date:** 2/4/2013 5:54:00 PM

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

**Lab ID:** N009541-002

**CLIENT:** 

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
 8500
 0.10
 0.10
 umhos/cm
 1
 2/6/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

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 Analy

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

SPECIFIC CONDUCTANCE

**EPA 120.1** 

 RunID:
 WETCHEM\_130206A
 QC Batch:
 R87512
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 11000
 0.10
 umhos/cm
 1
 2/6/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

N009541-005

**CLIENT:** CH2M HILL Client Sample ID: MW-42-055-191 N009541

Lab Order: Collection Date: 2/4/2013 3:37:00 PM

**Project:** PG&E Topock, 423575.MP.02.GM.03 Matrix: WATER Lab ID:

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

**SPECIFIC CONDUCTANCE EPA 120.1** 

QC Batch: R87512 RunID: WETCHEM\_130206A PrepDate: Analyst: QBM Specific Conductance 2600 0.10 0.10 umhos/cm 2/6/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-42-065-191

**Lab Order:** N009541 **Collection Date:** 2/4/2013 2:39:00 PM

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

 Lab ID:
 N009541-006

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
 8700
 0.10
 umhos/cm
 1
 2/6/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM\_130206A
 QC Batch:
 R87512
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 7000
 0.10
 umhos/cm
 1
 2/6/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

1

Advanced Technology Laboratories, Inc.

**CLIENT:** CH2M HILL Client Sample ID: MW-33-150-191

Lab Order: N009541 Collection Date: 2/5/2013 2:44:00 PM

**Project:** PG&E Topock, 423575.MP.02.GM.03 Matrix: WATER Lab ID: N009541-008

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

**SPECIFIC CONDUCTANCE EPA 120.1** 

RunID: WETCHEM\_130206A PrepDate: Analyst: QBM QC Batch: R87512 Specific Conductance 16000 0.10 0.10 umhos/cm 2/6/2013

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

**CLIENT:** CH2M HILL Client Sample ID: MW-33-210-191 Lab Order: N009541

Collection Date: 2/5/2013 3:55:00 PM

**Project:** PG&E Topock, 423575.MP.02.GM.03 Matrix: WATER Lab ID: N009541-009

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

**SPECIFIC CONDUCTANCE EPA 120.1** 

QC Batch: R87512 RunID: WETCHEM\_130206A PrepDate: Analyst: QBM Specific Conductance 18000 0.10 0.10 umhos/cm 2/6/2013 1

Qualifiers:

Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130206A
 QC Batch:
 R87512
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 7000
 0.10
 umhos/cm
 1
 2/6/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Date: 21-Feb-13

RPDLimit Qual

10

%RPD

1.71

TestCode: 120.1\_WPGE

CLIENT: CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT N009541

%REC

106

LowLimit HighLimit RPD Ref Val

125

20860

75

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

Sample ID: LCS-R87512	SampType: LCS	TestCode: 120.1_WPGE Units: umhos/cm	Prep Date:	RunNo: 87512
Client ID: LCSW	Batch ID: R87512	TestNo: <b>EPA 120.1</b>	Analysis Date: 2/6/2013	SeqNo: <b>1520688</b>
Analyte	Result	PQL SPK value SPK Ref Val %	REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qua
Specific Conductance	10260.000	0.10 9992 0	03 85 115	
Sample ID: N009541-004B-DUP	SampType: <b>DUP</b>	TestCode: 120.1_WPGE Units: umhos/cm	Prep Date:	RunNo: <b>87512</b>
Client ID: ZZZZZZ	Batch ID: R87512	TestNo: <b>EPA 120.1</b>	Analysis Date: 2/6/2013	SeqNo: <b>1520693</b>
Analyte	Result	PQL SPK value SPK Ref Val %	REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qua
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: <b>87512</b>
Client ID: ZZZZZZ	Batch ID: R87512	TestNo: <b>EPA 120.1</b>	Analysis Date: 2/6/2013	SeqNo: <b>1520694</b>
Analyte	Result	PQL SPK value SPK Ref Val %	REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qua
Specific Conductance	20860.000	0.20 9992 10620	02 75 125	
Sample ID: N009541-004BMSD	SampType: MSD	TestCode: 120.1_WPGE Units: umhos/cm	Prep Date:	RunNo: <b>87512</b>
Client ID: ZZZZZZ	Batch ID: R87512	TestNo: <b>EPA 120.1</b>	Analysis Date: 2/6/2013	SeqNo: <b>1520695</b>

10620

#### Qualifiers:

Analyte

Specific Conductance

B Analyte detected in the associated Method Blank

Result

21220.000

PQL

0.20

ND Not Detected at the Reporting Limit

E Value above quantitation range

SPK value SPK Ref Val

9992

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

RPD outside accepted recovery limits

Calculations are based on raw values



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

Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified



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

Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-33-150-191

 Lab Order:
 N009541
 Collection Date: 2/5/2013 2:44:00 PM

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

**Lab ID:** N009541-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-33-210-191

 Lab Order:
 N009541
 Collection Date: 2/5/2013 3:55:00 PM

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

**Lab ID:** N009541-009

Analyses Result MDL PQL Qual Units DF Date Analyzed

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 21-Feb-13

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009541

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

TestCode: 300\_W\_FPGE

Sample ID: MB-R87659_F	SampType: MBLK	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: <b>87659</b>
Client ID: PBW	Batch ID: R87659	TestNo: EPA 300.0	Analysis Date: 2/13/2013	SeqNo: <b>1527343</b>
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: <b>87659</b>
Client ID: LCSW	Batch ID: R87659	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/13/2013	SeqNo: <b>1527344</b>
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: <b>DUP</b>	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: <b>87659</b>
Client ID: ZZZZZZ	Batch ID: R87659	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/13/2013	SeqNo: <b>1527355</b>
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: <b>87659</b>
Client ID: ZZZZZZ	Batch ID: R87659	TestNo: EPA 300.0	Analysis Date: 2/13/2013	SeqNo: <b>1527356</b>
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: <b>87659</b>
Client ID: ZZZZZZ	Batch ID: R87659	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/13/2013	SeqNo: <b>1527357</b>
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

ND Not Detected at the Reporting Limit

E Value above quantitation range

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

R RPD outside accepted recovery limits

Calculations are based on raw values



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

Print Date: 21-Feb-13

1

#### Advanced Technology Laboratories, Inc.

CH2M HILL

Client Sample ID: MW-121-191

Collection Date: 2/4/2013 7:02:00 AM

Matrix: WATER

μg/L

**Project:** PG&E Topock, 423575.MP.02.GM.03 Lab ID: N009541-001

N009541

**CLIENT:** 

Lab Order:

Result MDL **PQL** Units DF Analyses Qual **Date Analyzed DISSOLVED METALS BY ICP-MS EPA 3010A EPA 6020** QC Batch: 42091 PrepDate: RunID: ICP7\_130209C 2/6/2013 Analyst: CEI Arsenic 7.3 0.035 0.10 2/9/2013 12:33 PM μg/L Manganese 130 0.16 0.50 1 2/9/2013 12:33 PM μg/L Molybdenum 0.074 0.50 3.8 1 2/9/2013 12:33 PM μg/L Selenium ND 0.084 0.50 2/9/2013 12:33 PM

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 21-Feb-13

#### Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-123-191

**Lab Order:** N009541 **Collection Date:** 2/4/2013 5:54:00 PM

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

**Lab ID:** N009541-002

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A	A EPA 6020				
RunID: ICP7_130209C	QC Batch: 420	91		PrepDate:	2/6/2013	Analyst: 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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

#### Advanced Technology Laboratories, Inc.

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	<b>Date Analyzed</b>
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	EPA 6020		
RunID: ICP7_130209C	QC Batch: 420	91		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

#### Advanced Technology Laboratories, Inc.

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	<b>Qual</b> Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	EPA 6020		
RunID: ICP7_130209C	QC Batch: 420	91		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-42-055-191

 Lab Order:
 N009541
 Collection Date: 2/4/2013 3:37:00 PM

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

**Lab ID:** N009541-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

25

μg/L

2/9/2013 02:36 PM

### Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-42-065-191

**CLIENT:** Lab Order: N009541 Collection Date: 2/4/2013 2:39:00 PM

4.0

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

1300

Lab ID: N009541-006

Manganese

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS				
	EPA 3010A	EPA	6020		
RunID: ICP7_130209C	QC Batch: 42091		PrepDate:	2/6/2013	Analyst: CEI
Arsenic	2.3 0.035	0.10	ua/L	1	2/9/2013 01:15 PM

12

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 21-Feb-13

#### Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130209C	QC Batch: 420	91		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

5

μg/L

2/9/2013 02:42 PM

### Advanced Technology Laboratories, Inc.

Selenium

CLIENT: CH2M HILL Client Sample ID: MW-33-150-191

**Lab Order:** N009541 **Collection Date:** 2/5/2013 2:44:00 PM

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

 Lab ID:
 N009541-008

ND

0.42

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130209C	QC Batch: 420	91		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

2.5

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

#### Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-33-210-191

 Lab Order:
 N009541
 Collection Date: 2/5/2013 3:55:00 PM

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

**Lab ID:** N009541-009

11007541 007							
Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed	
DISSOLVED METALS BY I	CP-MS						
	EPA 3010A		EP	A 6020			
RunID: ICP7_130209C	QC Batch: 420	91		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 21-Feb-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Date: 21-Feb-13

CLIENT: CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT

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

N009541

TestCode: 6020\_DIS

Sample ID: MB-42091	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/6/2013	RunNo: <b>87615</b>
Client ID: PBW	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: <b>1525315</b>
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: <b>LCS</b>	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/6/2013	RunNo: <b>87615</b>
Client ID: LCSW	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: <b>1525316</b>
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: <b>87615</b>
Client ID: ZZZZZZ	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: <b>1525320</b>
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: <b>87615</b>
Client ID: ZZZZZZ	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: <b>1525321</b>
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
					<del></del>

#### Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

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

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



CLIENT: CH2M HILL Work Order: N009541

ANALYTICAL QC SUMMARY REPORT

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

TestCode:	6020	DIS

Sample ID: N009539-001B-MSD	SampType: MSD	TestCode: 6020_DIS		Units: µg/L	Prep Date: 2/6/2013			RunNo: <b>87615</b>			
Client ID: ZZZZZZ	Batch ID: 42091	TestN	lo: <b>EPA 6020</b>	EPA 3010A	EPA 3010A Analysis Date		e: <b>2/9/201</b>	<b>2/9/2013</b> SeqNo: <b>1525321</b>		25321	
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



CH <sub>2</sub>	<b>M</b> ⊦	HLL
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#### **CHAIN OF CUSTODY RECORD**

2/5/2013 4:05:26 PM

Page 1 OF 1

CHZIVII IIL								<u> </u>	23/20/13 4.03.20 FW Fage 1	UF _	<u>.</u>
Project Name Po Location Topod Project Manager	k		Container: servatives:	mi Poly HNO3,	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x1 Liter 4°C	1x1 Liter 4°C			
Sample Manager	•	ıffv	Filtered:	Field	Field	Field	NA	NA			
<b>-</b>		_	rincereu. ding Time:	180	180	180	14	14			İ
Project Number Task Order Project 2013-GN Turnaround Time Shipping Date: 2	IP-191-Q1 • 10 Day 2/5/2013	P.02.GM s	•	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mn	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Fluoride		Number of Containers	COMMENT
MW-121-191	2/4/2013	7:02	Water	Х		Х	х	х	N009541-1	2	
MW-123-191	2/4/2013	17:54	Water	Х	х		х		1 -2	2	
MW-27-060-191	2/4/2013	11:26	Water	х		х	х	х	-3	2	
MW-27-085-191	2/4/2013	12:50	Water	×		х	х	х	-4	2	
MW-42-055-191	2/4/2013	15:37	Water	х			х		-5	2	
MW-42-065-191	2/4/2013	14:39	Water	X	х		х	-	-6	2	
MW-28-090-191	2/5/2013	12:41	Water	Х		х	х	х	-7	2	•
MW-33-150-191	2/5/2013	14:44	Water	х		х	х	х	- B	2	
MW-33-210-191	2/5/2013	15:55	Water	Х		х	х	х	-9	2	
							х		10	2	
MW-34-080-191	2/5/2013	11:03	Water	Х		1	~	1	I IO	~	,

Approved by	Signatures	Date/Time					
Sampled by	$\mathcal{K}/\mathcal{I}$	1615					
Relinquished by	05/	- Company of the Comp					
Received by	<del>Top</del>	215/13 1415					
Refinquished by	7.00	2/5/13 1856					
Received by		2/3/13 1856					
to the particular programment and the territories of the control o		and the second s					

**Shipping Details** Method of Shipment: courier

On Ice: Ses / no 28 ICE

Lab Phone: (702) 307-2659

Airbill No:

Lab Name: ADVANCED TECHNOLOGY LABORATO

ATTN:

**Special Instructions:** Feb 4 - Feb 28, 2013

Sample Custody

and Marlon

Report Copy to Shawn Duffy (530) 229-3303

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions of	or further instruction, please	e contact our Pr	oject Coordinate	or at (702	2) 307-2659.		
Cooler Received/Opened On:	2/5/2013		W	orkorder:	N009541		
Rep sample Temp (Deg C):	2.8		, and	R Gun ID:	.1		
Temp Blank:	Yes V No						
Carrier name:	ATL						
Last 4 digits of Tracking No.:	NA .		Packing Mate	rial Used:	None		
Cooling process:	✓ Ice ☐ Ice Pack	☐ Dry Ice	Other	☐ None			
			Obsablist				
Shipping container/cooler in		ample Receipt	<u>Cnecklist</u> Yes		No 🗌	Not Present	
Custody seals intact, signed		r/cooler?	Yes		No 🗆	Not Present	<b>✓</b>
Custody seals intact on same			Yes		No 🗀	Not Present	<u></u>
4. Chain of custody present?			Yes		No 🗆	HOLT TOOUNE	
5. Sampler's name present in	COC?				No 🗆		
6. Chain of custody signed who		· •	Yes		No 🗆		
7. Chain of custody agrees wit				· 🗹	No 🗀		
8. Samples in proper container			1.5	· 🔽	No 🗆		
9. Sample containers intact?				ş 🗹	No □		
10. Sufficient sample volume f	or indicated test?			· 🗹	No □		
11. All samples received within	n holding time?			; <b>V</b>	No 🗔		
12. Temperature of rep sample	e or Temp Blank within accep	table limit?		; <b></b>	No 🗀	NA	
13. Water - VOA vials have ze	ero headspace?		Yes	з 🗆	No 🗆	NA	V
14. Water - pH acceptable upo Example: pH > 12 for (C			Yes	<b>.</b>	No 🗀	NA	
15. Did the bottle labels indica	te correct preservatives used	?	Yes	ş 🗹	No 🗆	NA	
16. Were there Non-Conforma	nnce issues at login? /as Client notified?		Yes Yes		No □ No □	1.77	
Comments:							
Checklist Completed B	MBC 2/6/13				Reviewed By:	OFT	

# **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:

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,

Fluoride

Nitrate, mg/L

0.79

Mola

# **Sample Calculation**

METHOD: EPA 6020

**TEST NAME:** Heavy Metals by ICP-MS

**MATRIX:** Aqueous

FORMULA:

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

Arsenic, ug/L = A \* DF \* PF

where:

A = ug/L, calculated concentration

DF = dilution factor

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

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

Arsenic, ug/L = 2.3908428961418 \* 1 \* (25/25)

= 2.3908428961418

Reporting results in two significant figuresL,

Arsenic, ug/L = 2.4

13 fn 111/3

#### ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.:

N009541

Test Method: Analysis Date: EPA 6020 02/09/13

Matrix: Batch No.:

Water 42091

Instrument ID:

Comments:

Instrument Description:

ICP-MS #2 Agilent 7700x

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

	the second of the second of	· 我们的 "我们 我们 "我们 " "我们	<u> Palencia de Perendên de escr</u>				<u> Parkadak da Atrik</u>
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

Date: 15-Feb-13

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_DIS

Sample ID: N009539-001B-PS	SampType: <b>PS</b>	TestCo	de: <b>6020_DIS</b>	Units: µg/L		Prep Da	e:		RunNo: 876	15
Client ID: ZZZZZZ	Batch ID: 42091	Testi	No: <b>EPA 6020</b>	EPA 3010A		Analysis Da	te: <b>2/9/201</b>	3	SeqNo: <b>152</b>	5319
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 CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000 Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: 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.



CLIENT: CH2M HILL

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

**Date:** 26-Feb-13

Lab Order: N009566

#### 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.



# **Revision 1, 03/06/13**

# Advanced Technology Laboratories, Inc.

**CLIENT:** CH2M HILL

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

**Lab Order:** N009566

**Contract No:** 2013-GMP-191-

# **Work Order Sample Summary**

**Date:** 06-Mar-13

Lab Sample ID Client Sample ID	Matrix	<b>Collection Date</b>	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

Print Date: 26-Feb-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-57-185-191

**Lab Order:** N009566 **Collection Date:** 2/6/2013 2:25:00 PM

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

**Lab ID:** N009566-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130208B
 QC Batch:
 R87541
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 17000
 0.10
 umhos/cm
 1
 2/8/2013

Qualifiers:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Feb-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Feb-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-21-191

**Lab Order:** N009566 **Collection Date:** 2/7/2013 9:05:00 AM

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

**Lab ID:** N009566-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

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



Print Date: 26-Feb-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-48-191

**Lab Order:** N009566 **Collection Date:** 2/7/2013 8:35:00 AM

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

**Lab ID:** N009566-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Feb-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



# **Revision 1, 03/06/13**

### **ANALYTICAL RESULTS**

Advanced Technology Laboratories, Inc.

**Print Date:** 06-Mar-13

CLIENT: CH2M HILL
Lab Order: N009566

N009566 Collection Da

**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

**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

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified



Fax: 702-307-2691

**CLIENT:** CH2M HILL

ANALYTICAL QC SUMMARY REPORT Work Order: N009566

TestCode: 120.1\_WPGE **Project:** PG&E Topock, 423575.MP.02.GM.03

Sample ID: LCS-R87541 Client ID: LCSW	SampType: LCS  Batch ID: R87541	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87           TestNo: EPA 120.1         Analysis Date: 2/8/2013         SeqNo: 15	
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 Client ID: ZZZZZZ	SampType: DUP Batch ID: R87541	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87           TestNo: EPA 120.1         Analysis Date: 2/8/2013         SeqNo: 15	
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: 87	541
Sample ID: N009566-001B MS Client ID: ZZZZZZ	SampType: MS Batch ID: R87541	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87           TestNo: EPA 120.1         Analysis Date: 2/8/2013         SeqNo: 15	
·	1 21		
Client ID: ZZZZZZ	Batch ID: <b>R87541</b>	TestNo: <b>EPA 120.1</b> Analysis Date: <b>2/8/2013</b> SeqNo: <b>15</b>	21437
Client ID: ZZZZZZ Analyte	Batch ID: R87541  Result	TestNo: EPA 120.1 Analysis Date: 2/8/2013 SeqNo: 15  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD	21437 RPDLimit Qual
Client ID: ZZZZZZ Analyte Specific Conductance	Batch ID: <b>R87541</b> Result  93800.000	TestNo: EPA 120.1         Analysis Date:         2/8/2013         SeqNo:         15           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD           0.20         99740         17490         76.5         75         125	RPDLimit Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009566-001B MSD	Batch ID: R87541  Result  93800.000  SampType: MSD	TestNo: EPA 120.1         Analysis Date: 2/8/2013         SeqNo: 15           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD           0.20         99740         17490         76.5         75         125         TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87	RPDLimit Qual

#### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

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

Date: 26-Feb-13

DO Surrogate Diluted Out

RPD outside accepted recovery limits Calculations are based on raw values



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

Print Date: 26-Feb-13

#### Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-57-185-191

 Lab Order:
 N009566
 Collection Date: 2/6/2013 2:25:00 PM

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

**Lab ID:** N009566-001

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130219B	QC Batch: 421	52		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Feb-13

#### Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130219B	QC Batch: 421	52		PrepDate:	2/12/2013	Analyst: CEI
Arsenic	1.6	0.035	0.10	μg/L	1	2/19/2013 01:46 PM
Manganese	3.4	0.16	0.50	μg/L	1	2/19/2013 01:46 PM
Molybdenum	22	0.15	1.0	μg/L	2	2/19/2013 03:06 PM
Selenium	0.81	0.084	0.50	μg/L	1	2/19/2013 01:46 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Feb-13

#### Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-71-035-191

 Lab Order:
 N009566
 Collection Date: 2/7/2013 8:05:00

 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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130219B	QC Batch: 42	152		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



# **Revision 1, 03/06/13**

## **ANALYTICAL RESULTS**

Advanced Technology Laboratories, Inc.

Print Date: 06-Mar-13

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-72BR-200-191

 Lab Order:
 N009566
 Collection Date: 2/7/2013 3:10:00 PM

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

**Lab ID:** N009566-006

Analyses	Result	MDL	PQL	Qual Unit	s DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130219B	QC Batch: 421	52		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

E Value above quantitation range

ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



Fax: 702-307-2691

**CLIENT:** CH2M HILL

Work Order:

N009566

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

# ANALYTICAL QC SUMMARY REPORT

Date: 26-Feb-13

TestCode: 6020\_DIS

Sample ID: MB-42152	SampType: MBLK	TestCod	de: <b>6020_DIS</b>	Units: µg/L	Prep Date: 2/12/2013			RunNo: <b>87744</b>			
Client ID: PBW	Batch ID: 42152	TestN	lo: <b>EPA 6020</b>	EPA 3010A		Analysis Dat	e: <b>2/19/201</b>	3	SeqNo: 153	0585	
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: <b>LCS</b>	TestCod	le: <b>6020_DIS</b>	Units: µg/L		Prep Dat	e: <b>2/12/201</b>	3	RunNo: <b>877</b>	44	
Client ID: LCSW	Batch ID: 42152	TestN	lo: <b>EPA 6020</b>	EPA 3010A		Analysis Dat	e: <b>2/19/201</b>	3	SeqNo: <b>153</b>	0586	
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	TestCod	le: <b>6020_DIS</b>	Units: µg/L		Prep Dat	e: <b>2/12/201</b>	3	RunNo: 877	44	
Client ID: ZZZZZZ	Batch ID: 42152	TestN	lo: <b>EPA 6020</b>	EPA 3010A		Analysis Dat	e: <b>2/19/201</b>	3	SeqNo: 153	0590	
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				
					30.7	, ,					
Molybdenum	12.622	0.50	10.00	2.855	97.7	75	125				
Molybdenum Selenium	12.622 9.330	0.50 0.50	10.00 10.00	2.855 0.1205							
•		0.50			97.7	75 75	125	3	RunNo: <b>877</b>	44	
Selenium	9.330	0.50	10.00	0.1205	97.7 92.1	75 75	125 125 e: <b>2/12/201</b>		RunNo: <b>877</b> SeqNo: <b>153</b>		
Sample ID: N009581-001B-MSD	9.330 SampType: MSD	0.50	10.00 de: <b>6020_DIS</b> lo: <b>EPA 6020</b>	0.1205 Units: μg/L	97.7 92.1	75 75 Prep Dat Analysis Dat	125 125 e: <b>2/12/201</b> e: <b>2/19/201</b>				Qual

#### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference





CH2M HILL **CLIENT:** N009566

Work Order:

ANALYTICAL QC SUMMARY REPORT

**Project:** PG&E Topock, 423575.MP.02.GM.03 TestCode: 6020\_DIS

Sample ID: N009581-001B-MSD	SampType: MSD	TestCod	de: <b>6020_DIS</b>	Units: µg/L		Prep Da	te: <b>2/12/20</b>	13	RunNo: <b>877</b>	'44	
Client ID: ZZZZZZ	Batch ID: 42152	TestN	lo: EPA 6020	EPA 3010A	010A Analysis Date: 2/19/2013			13	SeqNo: <b>1530591</b>		
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

RPD outside accepted recovery limits Calculations are based on raw values

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



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	<b>29W</b>		

### CHAIN OF CUSTODY RECORD

2/7/2013 1:16:11 PM

Page 1 OF 1

CHZIVINIL	_							THAIN OF COSTOD RECORD 2/1/2013 1:16:11 PM Page 1	OF.	1	
Project Name PG	&E Topoc	:k	Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1Liter Poly				
Location Topock Project Manager		Pres	servatives:	HNO3,	HNO3, 4°C	4°C	4°C	Please change sample ID MW-72-200-191 to MW-72BR-200-191			
Sample Manager S	Shawn Du	ffy	Filtered:	Field	Field	NA	NA	36-7. Deff			
		Hold	ding Time:	180	180	14	30				
Project Number 4 Task Order Project 2013-GMI Turnaround Time Shipping Date: 2 COC Number: 6	P-191-Q1 10 Days	S	M.0°3	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)		Number of Containers	CON	MINE
MW-57-185-191	2/6/2013	14:25	Water	Х	х	х	x	N009566-1	3		No.
VW-63-065-191	2/6/2013	10:58	Water	х	х	X	X		3		E
WW-21-191	2/7/2013	9:05	Water			X	X		2		
MW-48-191	2/7/2013	8:35	Water			Х	х		2		-
MW-71-035-191	2/7/2013	8:05	Water	х	x	х	х		Tol	2	Ç
4W-72-200-191	2-7-13	1510	witer	X	X	×	×	MW-72BR-200-191 TOTAL NUMBER OF CONTAINERS	Pie	3	- C
SPD	-					77	111		16	500	Ī

2-7-13 |650 Signatures **Shipping Details** Special Instructions: Approved by ATTN: Feb 4 - Feb 28, 2013 Method of Shipment: courier Sampled by On Ice: Tes Relinquished by Sample Custody Received by 1650 Airbill No: and Report Copy to Lab Name: ADVANCED TECHNOLOGY LABORATO Marlon Shawn Duffy Received by Lab Phone: (702) 307-2659 (530) 229-3303

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions 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 Cother None
Sample R	eceipt Checklist
Shipping container/cooler in good condition?	Yes ✓ No ☐ Not Present ☐
Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐ No ☐ Not Present ☑
Custody seals intact on sample bottles?	Yes ☐ No ☐ Not Present 🗹
4. Chain of custody present?	¥05 ₩ No 🗆
5. Sampler's name present in COC?	YES V No 🗆
6. Chain of custody signed when relinquished and received?	¥es ✓ No □
7. Chain of custody agrees with sample labels?	Yes ✓ No 🗆
8. Samples in proper container/bottle?	Yes ✓ No 🗆
9. Sample containers intact?	Yes ☑ No ☐
10. Sufficient sample volume for indicated test?	Yes ☑ No ☐
11. All samples received within holding time?	
12. Temperature of rep sample or Temp Blank within acceptable limit	No No NA
13. Water - VOA vials have zero headspace?	Yes No No NA M
14. Water - pH acceptable upon receipt?	No □ NA □
Example: pH > 12 for (CN,S); pH<2 for Metals	
15. Did the bottle labels indicate correct preservatives used?	Yes V No L NA L
16. Were there Non-Conformance issues at login?  Was Client notified?	Yes No No NA V
Commerits:	
Checklist Completed B MBC 2/a/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:

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:

Arsenic, ug/L

13.231031035 \* 1 \* (25/25)

= 13.231031035

Reporting results in two significant figures,

Arsenic, ug/L

13

wholiz

#### ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.:

N009566

Test Method: Analysis Date: EPA 6020 02/19/13

Matrix: Batch No.:

Water 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

Date: 25-Feb-13

**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	TestCo	de: <b>60</b>	20_DIS	Units: µg/L		Prep Da	te:		RunNo: <b>877</b>	44	
Client ID: ZZZZZZ	Batch ID:	42152	Test	No. EP	A 6020	EPA 3010A		Analysis Da	te: <b>2/19/20</b>	013	SeqNo: <b>153</b>	0589	
Analyte		Result	PQL	SP	( 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 CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

TEL: (530) 229-3303

Oakland, CA 94612

FAX: (530) 339-3303 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.



CLIENT: CH2M HILL

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

**Date:** 05-Mar-13

Lab Order: N009637

#### 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.



CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.02.GM.03 Work Order Sample Summary

**Date:** 05-Mar-13

Lab Order: N009637

Contract No: 2013-GMP-191-

Lab Sample ID Client Sample ID	) Matrix	<b>Collection Date</b>	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-280-19	1 Water	2/18/2013 11:41:00 AM	2/19/2013	3/5/2013
N009637-003B MW-68BR-280-19	1 Water	2/18/2013 11:41:00 AM	2/19/2013	3/5/2013
N009637-003C MW-68BR-280-19	1 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



Page 1 of 1

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Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

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

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM\_130220B
 QC Batch:
 R87713
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 17000
 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



Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

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

SPECIFIC CONDUCTANCE

**EPA 120.1** 

 RunID:
 WETCHEM\_130220B
 QC Batch:
 R87713
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 17000
 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



Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

**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

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

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

QC Batch: R87713 RunID: WETCHEM\_130220B PrepDate: Analyst: QBM Specific Conductance 10000 0.10 0.10 umhos/cm 2/20/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified



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Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

**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

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

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

QC Batch: R87713 RunID: WETCHEM\_130220B PrepDate: Analyst: QBM Specific Conductance 16000 0.10 0.10 umhos/cm 2/20/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 05-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 05-Mar-13

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: <b>EPA 120.1</b> Analysis Date: <b>2/20/2013</b> SeqNo: <b>1529624</b>	
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLim	t Qual
Specific Conductance	98600.000	0.10 99800 0 98.8 85 115	
Sample ID: N009637-002A-DUP	SampType: <b>DUP</b>	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 RPDLim	t Qual
Specific Conductance	16880.000	0.10 16760 0.713 1	)
Sample ID: N009637-002A MS	SampType: MS	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 87713	
Sample ID: N009637-002A MS Client ID: ZZZZZZ	SampType: MS Batch ID: R87713	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87713           TestNo: EPA 120.1         Analysis Date: 2/20/2013         SeqNo: 1529628	
	1 31	- · · · · · · · · · · · · · · · · · · ·	t Qual
Client ID: ZZZZZZ	Batch ID: <b>R87713</b>	TestNo: <b>EPA 120.1</b> Analysis Date: <b>2/20/2013</b> SeqNo: <b>1529628</b>	t Qual
Client ID: ZZZZZZ	Batch ID: R87713	TestNo: EPA 120.1 Analysis Date: 2/20/2013 SeqNo: 1529628  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLim	t Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance	Batch ID: <b>R87713</b> Result  122600.000	TestNo: EPA 120.1         Analysis Date: 2/20/2013         SeqNo: 1529628           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLim           0.20         99800         16760         106         75         125	t Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009637-002A MSD	Batch ID: R87713  Result  122600.000  SampType: MSD	TestNo: EPA 120.1         Analysis Date: 2/20/2013         SeqNo: 1529628           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLim           0.20         99800         16760         106         75         125         RunNo: 87713	

#### 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



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

**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 Unit	s DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130224A	QC Batch: 42	233		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: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY IC	P-MS				
	EPA 3010A	El	PA 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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

 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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A	3010A EPA 6020				
RunID: ICP7_130224A	QC Batch: 422	33		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130224A	QC Batch: 422	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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A	010A EPA 6020				
RunID: ICP7_130224A	QC Batch: 422	233		PrepDate:	2/20/2013	Analyst: CEI
Arsenic	0.83	0.035	0.10	μg/L	1	2/24/2013 09:17 PM
Manganese	26	0.16	0.50	μg/L	1	2/24/2013 09:17 PM
Molybdenum	28	0.074	0.50	μg/L	1	2/27/2013 01:10 PM
Selenium	7.7	0.084	0.50	μg/L	1	2/24/2013 09:17 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130224A	QC Batch: 422	233		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130224A	QC Batch: 422	233		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
EPA 3010A			EP.	A 6020		
RunID: ICP7_130224A	QC Batch: 422	233		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A	A EPA 6020				
RunID: ICP7_130224A	QC Batch: 422	233		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CH2M HILL

N009637

Advanced reciniology Laboratories, me

ANALYTICAL QC SUMMARY REPORT

**Date:** 05-Mar-13

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

TestCode: 6020\_DIS

Sample ID: MB-42233	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/20/2013	RunNo: <b>87798</b>		
Client ID: PBW	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: <b>1535228</b>		
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: <b>LCS</b>	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/20/2013	RunNo: <b>87798</b>		
Client ID: LCSW	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: <b>1535229</b>		
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: <b>87798</b>		
Client ID: ZZZZZZ	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: <b>1535245</b>		
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: <b>87798</b>		
Client ID: ZZZZZZ	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: <b>1535246</b>		
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:

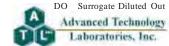
**CLIENT:** 

Work Order:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

- 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



CH2M HILL **CLIENT:** 

ANALYTICAL QC SUMMARY REPORT TestCode: 6020\_DIS

N009637 Work Order:

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

Sample ID: N009640-001B-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: 42233		de: 6020_DIS	Units: µg/L EPA 3010A	Prep Date: 2/20/2013 Analysis Date: 2/24/2013			RunNo: <b>87798</b> SeqNo: <b>1535246</b>			
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

RPD outside accepted recovery limits Calculations are based on raw values

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



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

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## **CHAIN OF CUSTODY RECORD**

2/19/2013 3:45:06 PM

Page 1 OF 1

CHZIVINIL	· <b>L</b>							OI.	2/19/2013 3.45.06 PM Page 1	Ur _	
Project Name Po Location Topod Project Manager	k		Container: ervatives:	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x1 Liter 4°C	1Liter Poly 4°C			
Sample Manager	Shawn Du	ffy	Filtered:	Field	Field	Field	NA	NA			
			ing Time:		180	180	14	30			
Project Number Task Order Project 2013-GN Turnaround Time Shipping Date: 3 COC Number: 9	IP-191-Q1 10 Days			Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mn	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)		Number of Containers	COMMENT
MW-23-060-191	2/18/2013	13:46	Water	х	х		Х	х	N009637-1	3	
MW-23-080-191	2/18/2013	15:26	Water	х	Х		х	х	, -2	3	
MW-68BR-280-191	2/18/2013	11:41	Water	x		х	х	х	- 3	3	
MW-35-060-191	2/19/2013	8:27	Water	х		х	Х		- 4	2	
MW-62-065-191	2/19/2013	14:52	Water				х	х	- 2	2	
MW-65-160-191	2/19/2013	9:57	Water	X		х	х	х	- 6	3	
MW-65-225-191	2/19/2013	13:23	Water	X		х	Х	х	- 7	3	
MW-70-105-191	2/19/2013	11:09	Water	x		x	х	х	_ 8	3	
MW-72-080-191	2/19/2013	12:21	Water	х		x	х	х	- 9	3	<u> </u>
MW-73-080-191	2/19/2013	8:52	Water	X		х	Х	х	- 10	3	
: :		l			2			-	TOTAL NUMBER OF CONTAINERS	28	

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

Date/Time *名-19-1*ろ Signatures 1550

2-19-13 1550

2-/9-/3 1815 Lab Phone: (702) 307-2659

On Ice: Ves no 46 IR1 ICE Airbill No:

Lab Name: ADVANCED TECHNOLOGY LABORATO

Method of Shipment: courier

**Shipping Details** 

ATTN:

**Special Instructions:** Feb 4 - Feb 28, 2013

Sample Custody

and Marlon

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	lce Pack	Dry Ice	Other	[] None				
		S	ample Receip	nt Checklist					
1. Shipping container/cooler in	good condit	tion?			Yes 🗹	No 🗆	Not Present		
2. Custody seals intact, signed	, dated on s	shippping containe	er/cooler?		Yes 🗌	No 🗆	Not Present	$\checkmark$	
3. Custody seals intact on sam	ple bottles?	•			Yes	No 🗔	Not Present	$\checkmark$	
4. Chain of custody present?					Yes 🗹	No 🗌			
5. Sampler's name present in (	COC?				Yes 🗹	No 🗆			
6. Chain of custody signed who	en relinquist	ned and received	?		Yes 🗹	No 🗌			
7. Chain of custody agrees with	h sample lai	bels?			Yes 🗹	No 🗔			
8. Samples in proper container	/bottle?				Yes 🗹	No 🗀			
9. Sample containers intact?					Yes 🗸	No 🗆			
10. Sufficient sample volume for	or indicated	test?			Yes 🗹	No 🗆			
11. All samples received within	holding tim	ne?			Yes 🗹	No 🗀			
12. Temperature of rep sample	e or Temp B	lank within accep	table limit?		Yes 🗹	No 🗆	NA		
13. Water - VOA vials have ze	ro headspac	ce?			Yes	No 🗔	NA	$\checkmark$	
14. Water - pH acceptable upo Example: pH > 12 for (C	-	for Metals			Yes 🗹	No 🗀	NA		
15. Did the bottle labels indicate	te correct pr	reservatives used	?		Yes 🗹	No 🗀	NA		
16. Were there Non-Conforma W	nce issues : as Client no	=			Yes	No 🗀 No 🗀			
Comments:					:				
Checklist Completed B	MBC /	دراء داد				Reviewed By:	HT	نند	

# **Sample Calculation**

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

**MATRIX:** Aqueous

FORMULA:

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

Arsenic, ug/L

A \* DF \* PF

where:

A = ug/L, calculated concentration

DF = dilution factor

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

For Sample N009637-001B, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

5.49889883512474 \* 1 \* (25/25)

= 5.49889883512474

Reporting results in two significant figures,

Arsenic, ug/L = 5.5

13 fr 3 15 frz

#### Advanced Technology Laboratories, Inc.

ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.: Test Method: Analysis Date: N009637 EPA 6020 02/24/13 Matrix: Batch No.:

Water 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

# Advanced Technology Laboratories, Inc.

**CLIENT:** 

CH2M HILL

Work Order:

N009637

Project:

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

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_DIS

Date: 04-Mar-13

Sample ID: N009640-001B-PS Client ID: ZZZZZZ	SampType: <b>PS</b> Batch ID: <b>42233</b>	TestCode: 6020_DIS TestNo: EPA 6020		Prep Date: Analysis Date: 2/24/2013	RunNo: 87798 SeqNo: 1535244
Analyte	Result	PQL SPK value	SPK Ref Val %REC	C 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

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

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

March 11, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612 TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: 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.

CLIENT: CH2M HILL

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

**Date:** 11-Mar-13

Lab Order: N009678

#### SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020\_Dissolved

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



# Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.02.GM.03 Work Order Sample Summary

**Date:** 11-Mar-13

**Lab Order:** N009678 **Contract No:** 2013-GMP-191-

Lab Sample ID Client Sam	ple 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-	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-	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



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

Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-124-191

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

**Lab ID:** N009678-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130222B
 QC Batch:
 R87767
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 2100
 0.10
 umhos/cm
 1
 2/22/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-57-070-191

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

**Lab ID:** N009678-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130222B
 QC Batch:
 R87767
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 2100
 0.10
 umhos/cm
 1
 2/22/2013

Qualifiers: B Analyte d

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

**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

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

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

QC Batch: R87767 RunID: WETCHEM\_130222B PrepDate: Analyst: QBM Specific Conductance 8400 0.10 0.10 umhos/cm 2/22/2013 1

Qualifiers:

Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range

Not Detected at the Reporting Limit Results are wet unless otherwise specified



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

Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

**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

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

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

QC Batch: R87767 RunID: WETCHEM\_130222B PrepDate: Analyst: QBM Specific Conductance 4300 0.10 0.10 umhos/cm 2/22/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

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

**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 Analyt

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-69-195-191

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

**Lab ID:** N009678-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

**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 de

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-125-191

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

**Lab ID:** N009678-007

Analyses Result MDL PQL Qual Units DF Date Analyzed

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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-66-230-191

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

**Lab ID:** N009678-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

**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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

**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

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

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

QC Batch: R87767 RunID: WETCHEM\_130222B PrepDate: Analyst: QBM Specific Conductance 4300 0.10 0.10 umhos/cm 2/22/2013 1

Qualifiers:

Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-225-191

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

**Lab ID:** N009678-010

Analyses Result MDL PQL Qual Units DF Date Analyzed

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130222B
 QC Batch:
 R87767
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 7000
 0.10
 umhos/cm
 1
 2/22/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

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

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130222C
 QC Batch:
 R87768
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 17000
 0.10
 umhos/cm
 1
 2/22/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: TW-01-191

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

**Lab ID:** N009678-013

Analyses Result MDL PQL Qual Units DF Date Analyzed

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

 RunID:
 WETCHEM\_130222C
 QC Batch:
 R87768
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 7200
 0.10
 umhos/cm
 1
 2/22/2013

Qualifiers: B

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



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

**Date:** 11-Mar-13

CLIENT: CH2M HILL

Work Order:

**Project:** 

N009678

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: 2/22/2	013 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: <b>DUP</b>	TestCode: 120.1_WPGE Units: umhos/cm Prep Date:	RunNo: <b>87767</b>
Client ID: ZZZZZZ	Batch ID: R87767	TestNo: EPA 120.1 Analysis Date: 2/22/2	013 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: <b>87767</b>
	1 71		
Client ID: ZZZZZZ	Batch ID: <b>R87767</b>	TestNo: EPA 120.1 Analysis Date: 2/22/2	013 SeqNo: 1531252
		TestNo: EPA 120.1 Analysis Date: 2/22/2 PQL SPK value SPK Ref Val %REC LowLimit HighLimit	·
Client ID: ZZZZZZ	Batch ID: <b>R87767</b>		RPD Ref Val %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte	Batch ID: R87767 Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit	RPD Ref Val %RPD RPDLimit Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance	Batch ID: <b>R87767</b> Result  119400.000	PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit           0.20         99800         17990         102         75         125	RPD Ref Val %RPD RPDLimit Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009678-008A-MSD	Batch ID: R87767  Result  119400.000  SampType: MSD	PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit           0.20         99800         17990         102         75         125           TestCode: 120.1_WPGE Units: umhos/cm         Prep Date:           TestNo: EPA 120.1         Analysis Date: 2/22/2	RPD Ref Val %RPD RPDLimit Qual

### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

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



CH2M HILL **CLIENT:** 

ANALYTICAL QC SUMMARY REPORT

N009678 Work Order:

**Project:** 

TestCode: 120.1\_WPGE PG&E Topock, 423575.MP.02.GM.03

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 Q	Qual
Specific Conductance	97700.000	0.10 99800 0 97.9 85 115	
Sample ID: N009678-011A-DUP	SampType: <b>DUP</b>	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 Q	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	
Sample ID: N009678-011A MS Client ID: ZZZZZZ	SampType: MS Batch ID: R87768	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87768           TestNo: EPA 120.1         Analysis Date: 2/22/2013         SeqNo: 1531262	
		TestNo: EPA 120.1 Analysis Date: 2/22/2013 SeqNo: 1531262	Qual
Client ID: ZZZZZZ	Batch ID: <b>R87768</b>	TestNo: EPA 120.1 Analysis Date: 2/22/2013 SeqNo: 1531262	Qual
Client ID: ZZZZZZ	Batch ID: R87768 Result	TestNo: EPA 120.1 Analysis Date: 2/22/2013 SeqNo: 1531262  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q	Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance	Result 121800.000	TestNo: EPA 120.1 Analysis Date: 2/22/2013 SeqNo: 1531262  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q 0.20 99800 16940 105 75 125	Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009678-011A MSD	Result 121800.000 SampType: MSD	TestNo: EPA 120.1 Analysis Date: 2/22/2013 SeqNo: 1531262  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q  0.20 99800 16940 105 75 125  TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 87768  TestNo: EPA 120.1 Analysis Date: 2/22/2013 SeqNo: 1531263	Qual Qual

#### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



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

Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-60-125-191

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

**Lab ID:** N009678-003

Analyses	Result	MDL	PQL	<b>Qual</b> Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130310A	QC Batch: 424	102		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-66-165-191

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

**Lab ID:** N009678-004

Analyses	Result N	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130310A	QC Batch: 42402	2		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130310A	QC Batch: 424	402		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-69-195-191

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

**Lab ID:** N009678-006

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130310A	QC Batch: 424	02		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-125-191

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

**Lab ID:** N009678-007

**CLIENT:** 

Analyses	Result	MDL	PQL	<b>Qual</b> Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130310A	QC Batch: 424	102		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-66-230-191

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

**Lab ID:** N009678-008

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130310A	QC Batch: 424	02		PrepDate:	3/9/2013	Analyst: CEI
Arsenic	6.6	0.17	0.50	μg/L	5	3/10/2013 05:38 PM
Manganese	ND	0.80	2.5	μg/L	5	3/10/2013 05:38 PM
Molybdenum	87	0.37	2.5	μg/L	5	3/10/2013 05:38 PM
Selenium	11	0.42	2.5	μg/L	5	3/10/2013 05:38 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130310A	QC Batch: 424	102		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-225-191

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

**Lab ID:** N009678-010

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130310A	QC Batch: 424	02		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-260-191

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

**Lab ID:** N009678-011

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130310A	QC Batch: 424	402		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130310A	QC Batch: 424	102		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 11-Mar-13

## Advanced Technology Laboratories, Inc.

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	Resu	ult	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS							
	EPA 3010A			EP	A 6020			
RunID: ICP7_130310A	QC Batch:	424	102		PrepD	ate:	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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 11-Mar-13

CLIENT: CH2M HILL

Work Order:

**Project:** 

N009678

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

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_DIS

Sample ID: MB-42402	SampType: MBLK	TestCode: 60	20_DIS	Units: µg/L		Prep Dat	e: <b>3/9/201</b>	3	RunNo: <b>87</b> 9	)77	
Client ID: PBW	Batch ID: 42402	TestNo: EF	A 6020	EPA 3010A		Analysis Dat	e: <b>3/10/2</b> 0	13	SeqNo: 153	88355	
Analyte	Result	PQL SPI	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: 60	20_DIS	Units: µg/L		Prep Dat	e: <b>3/9/201</b>	3	RunNo: 879	77	
Client ID: LCSW	Batch ID: 42402	TestNo: EF	A 6020	EPA 3010A		Analysis Dat	e: <b>3/10/2</b> 0	13	SeqNo: 153	88356	
Analyte	Result	PQL SPI	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: 60	20_DIS	Units: µg/L		Prep Dat	e: <b>3/9/201</b>	3	RunNo: 879	)77	
Client ID: ZZZZZZ	Batch ID: 42402	TestNo: EF	A 6020	EPA 3010A		Analysis Dat	e: 3/10/20	13	SeqNo: 153	88370	
Analyte	Result	PQL SPI	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: 60	20_DIS	Units: µg/L		Prep Dat	e: <b>3/9/201</b>	3	RunNo: 879	)77	·
Client ID: ZZZZZZ	Batch ID: 42402	TestNo: EF	A 6020	EPA 3010A		Analysis Dat	e: <b>3/10/2</b> 0	13	SeqNo: 153	88371	
Analyte	Result	PQL SPI	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	

#### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

Calculations are based on raw values





CH2M HILL **CLIENT:** N009678 Work Order:

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 6020\_DIS

Sample ID: N009678-003B-MSD	SampType: MSD	TestCod	de: <b>6020_DIS</b>	Units: µg/L		Prep Dat	te: <b>3/9/201</b>	3	RunNo: <b>87</b> 9	)77	
Client ID: ZZZZZZ	Batch ID: 42402	TestN	No: EPA 6020	EPA 3010A		Analysis Da	te: 3/10/20	13	SeqNo: <b>153</b>	88371	
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

RPD outside accepted recovery limits Calculations are based on raw values

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference



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

				1	
		78			

## **CHAIN OF CUSTODY RECORD**

2/21/2013 4:18:34 PM

Page 1 OF 1

Project Name PG	&E Topod	k (	Container:	1x500 ml Poly	1x500 ml Poly	1x500 mi Poly	1x1 Liter	1Liter Poly			
Location Topocl	k	_		HNO3,	HNO3,	HNO3,	4°C	4°C			
Project Manager 、	Jay Piper	Pres	ervatives:	4°C	4°C	4°C				1	
Sample Manager S	Shawn Du	ffy	Filtered:	Field	Field	Field	NA	NA		l	l
			ling Time:	180	180	180	14	30			
Project Number 4	423575.MF	.02.GN	1.03	Ars	Met	Met	Spe				
Task Order Project 2013-GMI	D_101_∩1			Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific			z	
Turnaround Time		s		: (60	6020	6020	Cor	_		Number	
Shipping Date: 2	-			20A)	Mo.	)AFF //o,S	Conductance	Extra			
COC Number: 10	)			Fie	Se Fie	e, Mr	tanc	€		of Containers	İ
				ld Fil	id F	) id F				onte	
				tere	iltere	iltere	(E120.			liner	
	DATE	TIME	Matrix		ے	اة	.1)			S	COMMENTS
MW-124-191	2/20/2013	10:10	Water	1,14,27,44			х		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	х		х	х	х	- 3	3	
MW-66-165-191	2/20/2013	10:23	Water	х		х	х	х	- 4	3	
MW-68-240-191	2/20/2013	14:11	Water	х		X	х	Х	- 5	3	-
MW-69-195-191	2/20/2013	11:14	Water	х		х	х	х	- C	3	
MW-125-191	2/21/2013	9:30	Water	х		х	х	Х	- 7	3	
MW-66-230-191	2/21/2013	11:35	Water	х		х	х	х	~ 8	3	
MW-67-185-191	2/21/2013	9:25	Water	х		х	X	Х	- 9	3	
MW-67-225-191	2/21/2013	10:25	Water	х		х	х	Х	- 10	3	
MW-67-260-191	2/21/2013	8:39	Water	х		х	х	Х	- 11	3	
MW-68-180-191	2/21/2013	14:06	Water	Х		х	х	х	- 12	3	
		40.05	Water		х		х		1 - 13	2	
TW-01-191	2/21/2013	16:05	Asarci								

Approved by

Sampled by Relinquished by

Received by

Relinquished by Reived by

Signatures

Date/Time 2-21-13 1620

2-21-13 1630 2-21-13 1838

**Shipping Details** 

Method of Shipment: courier

On Ice: ( ) 1 no 2, 8 121 CE

Airbill No:

Lab Name: ADVANCED TECHNOLOGY LABORATO

Lab Phone: (702) 307-2659

ATTN:

**Special Instructions:** Feb 4 - Feb 28, 2013

Sample Custody

and

Marlon

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 of	or further in	struction, pleas	se contact our l	Project Coord	dinator 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	<b>✓</b> No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	lce	lce Pack	Dry Ice	Other	☐ None			
		<u>s</u>	ample Recei	ot Checklis	ţ			
1. Shipping container/cooler in	good condi	tion?			Yes 🗹	No 🗀	Not Present	
2. Custody seals intact, signed	i, dated on s	shippping contain	er/cooler?		Yes	No 🗆	Not Present	V
3. Custody seals intact on sam	nple bottles?	,			Yes 🗌	No 🗆	Not Present	✓
4. Chain of custody present?					Yes 🗹	No 🗌		
5. Sampler's name present in	COC?				Yes 🗹	No 🗆		
6. Chain of custody signed wh	en relinquis	hed and received	?		Yes 🗹	No 🗆		
7. Chain of custody agrees wit	h sample la	bels?		*	Yes 🗹	No 🗀		
8. Samples in proper containe	r/bottle?				Yes 🗹	No 🗀		
9. Sample containers intact?					Yes 🗹	No 🗔		
10. Sufficient sample volume t	for indicated	test?			Yes 🗹	No 🗔		
11. All samples received within	n holding tim	ne?			Yes 🗹	No 🗆		
12. Temperature of rep sample	e or Temp E	Blank within accep	otable limit?		Yes 🗹	No 🗆	NA	
13. Water - VOA vials have ze	ero headspa	ce?			Yes	No 🗔	NA	<b>Y</b>
14. Water - pH acceptable upon Example: pH > 12 for (C	,	for Metals			Yes 🗹	No 🗔	NA	
15. Did the bottle labels indica	te correct p	reservatives used	1?		Yes 🗹	No 🗔	NA	
16. Were there Non-Conforma W	ince issues /as Client no	-			Yes ☐ Yes ☐	No 🗆 No 🗆	NA NA	V
Comments:								
Checklist Completed B	мвс	72213				Reviewed By:	46h	Morry

# **Sample Calculation**

METHOD: EPA 6020

**TEST NAME:** Heavy Metals by ICP-MS

**MATRIX:** Aqueous

FORMULA:

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

Arsenic, ug/L

A\*DF\*PF

where:

A = ug/L, calculated concentration

DF = dilution factor

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

For Sample N009678-003B, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

1.608\* 1 \* (25/25)

= 1.608

Reporting results in two significant figures,

Arsenic, ug/L

1.6

15 for 3/11/13

## Advanced Technology Laboratories, Inc.

ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.:

N009678

Test Method: Analysis Date: EPA 6020 03/10/13

Matrix:

Water

Batch No.: 42402

Instrument ID:

Comments:

ICP-MS #2

Instrument Description:

Agilent 7700x

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 PASSA	D 18.83691394	4.87%	10
N009661-001A-DT 5X	Selenium	μg/L	6.805512781	NA	6.117227712	11.25%	10

m 3/11/13

# Advanced Technology Laboratories, Inc.

Date: 11-Mar-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 Client ID: ZZZZZZ	SampType: PS Batch ID: 42402		de: 6020_DIS No: EPA 6020	. •		Prep Da Analysis Da		13	RunNo: <b>879</b> SeqNo: <b>153</b>		
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

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.

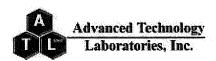
Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.

Laboratory Director

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



CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

Workorder No.: N009706

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

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

**Date:** 12-Mar-13

Lab Order: N009706

### 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.

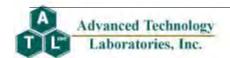
Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

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.



## Advanced Technology Laboratories, Inc.

**CLIENT:** CH2M HILL

**Work Order Sample Summary Project:** PG&E Topock, 423575.MP.02.GM.03

**Date:** 12-Mar-13

N009706 Lab Order: **Contract No:** 2013-GMP-191-

Lab Sample ID Client Sample ID	Matrix	<b>Collection Date</b>	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



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-040-191

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

**Lab ID:** N009706-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

 RunID:
 WETCHEM\_130227C
 QC Batch:
 R87836
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 17000
 0.10
 umhos/cm
 1
 2/27/2013

Qualifiers:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130227C
 QC Batch:
 R87836
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 17000
 0.10
 umhos/cm
 1
 2/27/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**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 de

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified



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

Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130227C
 QC Batch:
 R87836
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 17000
 0.10
 umhos/cm
 1
 2/27/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified



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

Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

CH2M HILL

**CLIENT:** 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

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

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

QC Batch: R87836 RunID: WETCHEM\_130227C PrepDate: Analyst: QBM Specific Conductance 13000 0.10 0.10 umhos/cm 2/27/2013

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



**Date:** 12-Mar-13

TestCode: 120.1\_WPGE

**CLIENT:** CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT N009706

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

roject.	ock, 423373.WII .02.GWI	restcode: 120t1_W1 GE						
Sample ID: LCS-R87836 Client ID: LCSW	SampType: LCS Batch ID: R87836	TestCode: 120.1_WPGE Units: umhos/cm TestNo: EPA 120.1	Prep Date: Analysis Date: 2/27/2013	RunNo: <b>87836</b> SeqNo: <b>1533461</b>				
Analyte	Result	PQL SPK value SPK Ref Val %RE	C LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual				
Specific Conductance	1443.000	0.10 1412 0 10	2 85 115					
Sample ID: N009705-012A-DUP Client ID: ZZZZZZ	SampType: DUP  Batch ID: R87836	TestCode: 120.1_WPGE Units: umhos/cm TestNo: EPA 120.1	Prep Date: Analysis Date: 2/27/2013	RunNo: <b>87836</b> SeqNo: <b>1533464</b>				
Analyte	Result	PQL SPK value SPK Ref Val %RE	C LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual				
Specific Conductance	4770.000	0.10	4810	0.835 10				
Sample ID: N009705-012A MS Client ID: ZZZZZZ	SampType: MS Batch ID: R87836	TestCode: 120.1_WPGE Units: umhos/cm TestNo: EPA 120.1	Prep Date: Analysis Date: 2/27/2013	RunNo: <b>87836</b> SeqNo: <b>1533465</b>				
Analyte	Result	PQL SPK value SPK Ref Val %RE	C LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual				
Specific Conductance	6260.000	0.20 1412 4810 10	3 75 125					
Sample ID: N009705-012A MSD	SampType: MSD	TestCode: 120.1 WPGE Units: umhos/cm	Prep Date:	RunNo: <b>87836</b>				

Sample ID: N009705-012A MSD	SampType: <b>MSD</b>	TestCo	de: <b>120.1_WP</b>	GE Units: umhos/c	m	Prep Dat	te:		RunNo: <b>878</b>	36	
Client ID: ZZZZZZ	Batch ID: <b>R87836</b>	TestN	lo: <b>EPA 120.1</b>			Analysis Da	te: <b>2/27/20</b>	13	SeqNo: <b>153</b>	3466	
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

ND Not Detected at the Reporting Limit

E Value above quantitation range

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

RPD outside accepted recovery limits Calculations are based on raw values





Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-040-191

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

**Lab ID:** N009706-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

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 A

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 12-Mar-13

CLIENT: CH2M HILL

Work Order:

N009706

ANALYTICAL QC SUMMARY REPORT

TestCode: 300\_W\_FPGE

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

Data	D No 07040

Sample ID:	MB-R87949_F PBW	SampType: MBLK Batch ID: R87949	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 3/1/2013	RunNo: <b>87949</b> SeqNo: <b>1537535</b>
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: <b>87949</b>
Client ID:	LCSW	Batch ID: R87949	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537536</b>
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: <b>DUP</b>	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: <b>87949</b>
Client ID:	ZZZZZZ	Batch ID: <b>R87949</b>	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: <b>1537538</b>
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: <b>87949</b>
Client ID:	ZZZZZZ	Batch ID: <b>R87949</b>	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: <b>1537539</b>
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: <b>87949</b>
Client ID:	ZZZZZZ	Batch ID: <b>R87949</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537540</b>
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

ND Not Detected at the Reporting Limit

E Value above quantitation range

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

DO Surrogate Diluted Out

Advanced Technology

Laboratories, Inc.

RPD outside accepted recovery limits

Calculations are based on raw values



Print Date: 12-Mar-13

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-040-191

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

**Lab ID:** N009706-001

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EPA 6020			
RunID: ICP7_130311B	QC Batch: 423	C Batch: <b>42369</b>		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified



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

Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130311B	QC Batch: 42	369		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130311B	QC Batch: 423	69		PrepDate:	3/6/2013	Analyst: CEI
Arsenic	5.9	0.17	0.50	μg/L	5	3/11/2013 05:09 PM
Manganese	620	0.80	2.5	μg/L	5	3/11/2013 05:09 PM
Molybdenum	81	0.37	2.5	μg/L	5	3/11/2013 05:09 PM
Selenium	ND	0.42	2.5	μg/L	5	3/11/2013 05:09 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

## Advanced Technology Laboratories, Inc.

 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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130311B	QC Batch: 423	69		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 12-Mar-13

**CLIENT:** CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT

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

N009706

TestCode: 6020\_DIS

Sample ID: MB-42369	SampType: MBLK	TestCode: 6020_DI	S Units: μg/L	Prep Date: 3/6/2013	RunNo: <b>87990</b>
Client ID: PBW	Batch ID: 42369	TestNo: EPA 602	0 EPA 3010A	Analysis Date: 3/11/201	3 SeqNo: <b>1539161</b>
Analyte	Result	PQL SPK valu	e 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: <b>LCS</b>	TestCode: 6020_DI	S Units: µg/L	Prep Date: 3/6/2013	RunNo: <b>87990</b>
Client ID: LCSW	Batch ID: 42369	TestNo: EPA 602	0 EPA 3010A	Analysis Date: 3/11/201	3 SeqNo: 1539162
Analyte	Result	PQL SPK valu	e SPK Ref Val	%REC LowLimit HighLimit	RPD Ref Val %RPD RPDLimit Qual
Arsenic	8.720	0.10 10.0	0	87.2 85 115	
Manganese	97.495	0.50 100.	0	97.5 85 115	
Molybdenum	9.981	0.50 10.0	0	99.8 85 115	
Selenium	9.086	0.50 10.0	0	90.9 85 115	
Sample ID: N009706-001A-MS	SampType: MS	TestCode: 6020_DI	S Units: µg/L	Prep Date: 3/6/2013	RunNo: <b>87990</b>
Client ID: ZZZZZZ	Batch ID: 42369	TestNo: EPA 602	0 EPA 3010A	Analysis Date: 3/11/201	3 SeqNo: 1539164
Analyte	Result	PQL SPK valu	e SPK Ref Val	%REC LowLimit HighLimit	RPD Ref Val %RPD RPDLimit Qual
Arsenic	26.108	0.10 10.0	13.73	124 75 125	
Manganese	105.224	0.50 100.	0	105 75 125	
Molybdenum	167.524	0.50 10.0	) 156.1	114 75 125	
Selenium	8.561	0.50 10.0	0.3303	82.3 75 125	
Sample ID: N009706-001A-MSD	SampType: MSD	TestCode: 6020_DI	S Units: µg/L	Prep Date: 3/6/2013	RunNo: <b>87990</b>
Client ID: ZZZZZZ	Batch ID: 42369	TestNo: EPA 602	0 EPA 3010A	Analysis Date: 3/11/201	3 SeqNo: <b>1539165</b>
Analyte	Result	PQL SPK valu	e SPK Ref Val	%REC LowLimit HighLimit	RPD Ref Val %RPD RPDLimit Qual
Arsenic	25.541	0.10 10.0	13.73	118 75 125	26.11 2.20 20

#### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

Spike/Surrogate outside of limits due to matrix interference





Calculations are based on raw values



CH2M HILL **CLIENT:** 

ANALYTICAL QC SUMMARY REPORT

N009706 Work Order:

TestCode: 6020\_DIS **Project:** PG&E Topock, 423575.MP.02.GM.03

Sample ID: N009706-001A-MSD	SampType: MSD	TestCoo	le: <b>6020_DIS</b>	Units: µg/L	Prep Date: 3/6/2013			3	RunNo: <b>87990</b>		
Client ID: ZZZZZZ	Batch ID: 42369	TestN	lo: <b>EPA 6020</b>	EPA 3010A	EPA 3010A Analysis Date: 3/11/2013			SeqNo: <b>1539165</b>			
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

ND Not Detected at the Reporting Limit

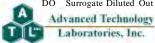
DO Surrogate Diluted Out

E Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference



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## **CHAIN OF CUSTODY RECORD**

2/26/2013 4:23:17 PM

Page 1 OF 1

CHZIVINIL	- <b>L</b>							0,	220/2013 4.23.17 FW Fage 1	Oг.	<u> </u>
Project Name Po	-	k	Container	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1Liter Poly			
Location Topoc Project Manager		Pres	ervatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
Sample Manager	Shawn Du	ffy	Filtered:	Field	Field	NA	NA	NA			
		Holo	ding Time:	180	180	14	14	30			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 13	IP-191-Q1 10 Days 2/26/2013	6	M.03 Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Fluoride	Extra (*)	X0097-06	Number of Containers	COMMENT:
MW-33-040-191	2/25/2013	10:47	Water	х	х	х	х			2	
MW-122-191	2/26/2013	17:12	Water	х		х			-2	2	
MW-34-100-191	2/26/2013	14:52	Water	х		х			-3	2	
MW-62-110-191	2/26/2013	15:59	Water	x	х	х		х	-4	3	
MW-62-190-191	2/26/2013	16:05	Water	х	X	х		х	- S	3	
MW-70BR-225-191	2/26/2013	11:16	Water	х	х	х		х	- 6	3	
					,				TOTAL NUMBER OF CONTAINERS	15	

Date/Time 2-26-/3 1 705 Signatures **Shipping Details** Special Instructions: Approved by ATTN: Feb 4 - Feb 28, 2013 Method of Shipment: courier Sampled by Sample Custody Relinquished by Airbill No: Received by and Report Copy to Lab Name: ADVANCED TECHNOLOGY LABORATO Relinquished by Marion Shawn Duffy Received by Lab Phone: (702) 307-2659 (530) 229-3303

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions o		.,	se contact our i	Project Coord	,	,		
Cooler Received/Opened On:	2/26/2013	3			Workorder:			
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	lce Pack	Dry Ice	Other	□ None			
		<u>s</u>	ample Recei	pt Checklis	<u>t</u>			
1. Shipping container/cooler in	good condi	ition?			Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	l, dated on s	shippping contain	er/cooler?		Yes 🗌	No 🗌	Not Present	V
3. Custody seals intact on sam	nple bottles?	?			Yes 🗌	No 🗔	Not Present	V
4. Chain of custody present?					Yes 🗹	No 🗔		
5. Sampler's name present in	COC?				Yes 🗹	No 🗔		
6. Chain of custody signed who	en relinquis	hed and received	?		Yes 🗹	No 🗌		
7. Chain of custody agrees wit	h sample la	bels?			Yes 🗸	No 🗌		
8. Samples in proper containe	r/bottle?				Yes 🗹	No 🗔		
9. Sample containers intact?					Yes 🗹	No 🗀		
10. Sufficient sample volume t	for indicated	I test?			Yes 🗹	No 🔲		
11. All samples received within	n holding tin	ne?			Yes 🗹	No 🗆		
12. Temperature of rep sample	e or Temp E	Blank within accep	ptable limit?		Yes 🗸	No 🗆	NA	
13. Water - VOA vials have ze	ero headspa	ce?			Yes 🔲	No 🗌	NA	<b>✓</b>
14. Water - pH acceptable upo	-	i fan Adalaia			Yes 🗹	No 🗌	NA	Access
Example: pH > 12 for (C			-10		Yes 🗹	N- [7]	<b>A1</b> 0	
15. Did the bottle labels indica	·		3?			No 🗔	NA NA	
16. Were there Non-Conforma  W	ance issues /as Client n	=			Yes ∐ Yes ∐	No ∐ No ☐	NA NA	<b>✓</b>
Comments:								
Checklist Completed B	мвс	-2/27/13				Reviewed By:	&	<b>t</b>

# **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:

where:

A = mg/L, IC calculated concentration DF = dilution factor

For N009706-001B, concentration in mg/L are calculated as follows:

Fluoride, mg/L = 1.173 \* 10

= 11.73 mg/L

Az 111/13

Reporting N009706-001B results in two significant figures,

Fluoride, mg/L = 12 /

## **Sample Calculation**

METHOD: EPA 6020

**TEST NAME:** Heavy Metals by ICP-MS

**MATRIX:** Aqueous

FORMULA:

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

Arsenic, ug/L

= A \* DF \* PF

where:

A = ug/L, calculated concentration

DF = dilution factor

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

For Sample N009706-001A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

13.7331\* 1 \* (25/25)

= 13.7331

Reporting results in two significant figures,

Arsenic, ug/L

14

#### ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.:

N009706

Test Method: Analysis Date: EPA 6020 03/11/13

Matrix:

Water

Batch No.:

42369

Instrument ID:

Instrument Description:

ICP-MS #2 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	%DIFFlimit
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	160.9026527	PASSED	156.1074427	3.07%	10
N009706-001A-DT 5X	Selenium	μg/L	0.443152859	NA	0.330299091	34.17%	10

Date: 12-Mar-13

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 Client ID: ZZZZZZ	S SampType: PS  Batch ID: 42369		de: 6020_DIS No: EPA 6020			Prep Da Analysis Da		13	RunNo: <b>879</b> SeqNo: <b>15</b> 3		
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) DT of Molybdenum @ 5x in within witera and MS/MSD of Manganere

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

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.

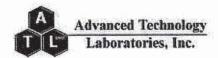
Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

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.



CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

Workorder No.: N009744

CLIENT: CH2M HILL

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

**Date:** 15-Mar-13

Lab Order: N009744

#### 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 Work Order Sample Summary

**Lab Order:** N009744 **Contract No:** 2013-GMP-191-

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 M
N009744-002B	MW-58BR-165MD-191	Water	2/28/2013 3:52:00 PM	3/1/2013	3/15/2013
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 M
N009744-003B	MW-64BR-255MD-191	Water	3/1/2013 3:05:00 PM	3/1/2013	3/15/2013

**Date:** 15-Mar-13

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.



Print Date: 15-Mar-13

Advanced Technology Laboratories, Inc.

**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 Result MDL **PQL** Units DF

Analyses Date Analyzed **SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

QC Batch: R87879 RunID: WETCHEM\_130304B PrepDate: Analyst: QBM Specific Conductance 890 0.10 0.10 umhos/cm 3/4/2013

Qual

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



## Advanced Technology Laboratories, Inc.

Print Date: 15-Mar-13

*5PD* 04-19-1

CLIENT: CH2M HILL Client Sample ID: MW-58BR-191 MW-58BR-191

Lab Order:N009744Collection Date: 2/28/2013 3:52:00 PMProject:PG&E Topock, 423575.MP.02.GM.03Matrix: WATER

**Lab ID:** N009744-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM\_130304C
 QC Batch:
 R87880
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 7300
 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



# ANALYTICAL RESULTS 5PD

## Advanced Technology Laboratories, Inc.

CH2M HILL

N009744

3/4/2013

Client Sample ID: MW-64BR-255MD-191 MW-64BR-191

Print Date: 15-Mar-13

Collection Date: 3/1/2013 3:05:00 PM

Matrix: WATER

umhos/cm

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

12000

0.10

Lab ID: N009744-003

Specific Conductance

**CLIENT:** 

Lab Order:

Result MDL **PQL** Units DF Analyses Qual Date Analyzed **SPECIFIC CONDUCTANCE EPA 120.1** RunID: WETCHEM\_130304C PrepDate: Analyst: QBM QC Batch: R87880

0.10

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range

Not Detected at the Reporting Limit Results are wet unless otherwise specified



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

**Date:** 15-Mar-13

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009744

Project:

TestCode: 120.1\_WPGE PG&E Topock, 423575.MP.02.GM.03

Sample ID: LCS-R87879	SampType: <b>LCS</b>	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 %F	RPD RPDLimit Qual
Specific Conductance	95600.000	0.10 100000 0 95.6 85 115	
Sample ID: N009742-003A-DUP	SampType: <b>DUP</b>	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 %F	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 %F	RPD RPDLimit Qual
Specific Conductance	117600.000	0.20 100000 9820 108 75 125	
Sample ID: N009742-003A MSD	SampType: <b>MSD</b>	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 %F	RPD RPDLimit Qual
Specific Conductance	117200.000	0.20 100000 9820 107 75 125 117600 0.	.341 10

#### Qualifiers:

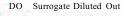
B Analyte detected in the associated Method Blank

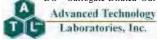
ND Not Detected at the Reporting Limit

E Value above quantitation range

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

RPD outside accepted recovery limits Calculations are based on raw values





CH2M HILL **CLIENT:** N009744 Work Order:

## ANALYTICAL QC SUMMARY REPORT

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

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 RPDLim	t Qual
Specific Conductance	90900.000	0.10 100000 0 90.9 85 115	
Sample ID: N009744-003B-DUP	SampType: <b>DUP</b>	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 RPDLim	t Qual
Specific Conductance	12460.000	0.10 12440 0.161 1	0
Sample ID: N009744-003B MS	SampType: MS	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 87880	
Sample ID: N009744-003B MS Client ID: ZZZZZZ	SampType: MS Batch ID: R87880	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87880           TestNo: EPA 120.1         Analysis Date: 3/4/2013         SeqNo: 1535326	
		· ·	t Qual
Client ID: ZZZZZZ	Batch ID: <b>R87880</b>	TestNo: EPA 120.1 Analysis Date: 3/4/2013 SeqNo: 1535326	t Qual
Client ID: ZZZZZZ Analyte	Batch ID: R87880	TestNo: EPA 120.1 Analysis Date: 3/4/2013 SeqNo: 1535326  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLim	t Qual
Client ID: ZZZZZZ Analyte Specific Conductance	Batch ID: <b>R87880</b> Result  94800.000	TestNo: EPA 120.1         Analysis Date: 3/4/2013         SeqNo: 1535326           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLim           0.20         100000         12440         82.3         75         125	t Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009744-003B MSD	Batch ID: R87880  Result  94800.000  SampType: MSD	TestNo: EPA 120.1         Analysis Date: 3/4/2013         SeqNo: 1535326           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLim           0.20         100000         12440         82.3         75         125         TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87880	

#### Qualifiers:

B Analyte detected in the associated Method Blank

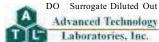
ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

RPD outside accepted recovery limits Calculations are based on raw values



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

Print Date: 15-Mar-13

## Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A			A 6020		
RunID: ICP7_130312A	QC Batch: 423	336		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



## Advanced Technology Laboratories, Inc.

Print Date: 15-Mar-13

5/D \_ 04-19-1

CLIENT: CH2M HILL Client Sample ID: MW-58BR-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 I	CP-MS				
	EPA 3010A	EPA 6	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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



# ANALYTICAL RESULTS 5PD

04-19-13

Advanced Technology Laboratories, Inc.

3/12/2013 04:31 PM

Print Date: 15-Mar-13

CH2M HILL Client Sample ID: MW-64BR-255MD-191 MW-64BR-191

μg/L

Lab Order: N009744 Collection Date: 3/1/2013 3:05:00 PM

0.035

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

2.9

Lab ID: N009744-003

**CLIENT:** 

Arsenic

Result MDL **PQL** DF Analyses Qual Units Date Analyzed **DISSOLVED METALS BY ICP-MS EPA 3010A EPA 6020** QC Batch: 42336 RunID: ICP7\_130312A Analyst: CEI PrepDate: 3/4/2013

0.10

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out

Value above quantitation range

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

**Date:** 15-Mar-13

**CLIENT:** CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT

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

N009744

TestCode:	6020 DIS	

Sample ID: MB-42336	SampType: MBLK		de: <b>6020_DIS</b>	Units: µg/L		•	te: 3/4/201		RunNo: 88		
Client ID: PBW	Batch ID: 42336	TestN	lo: <b>EPA 6020</b>	EPA 3010A		Analysis Da	te: 3/12/20	)13	SeqNo: 15	40115	
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	TestCod	de: <b>6020_DIS</b>	Units: µg/L		Prep Dat	te: <b>3/4/201</b>	3	RunNo: 88	054	
Client ID: LCSW	Batch ID: 42336	TestN	No: EPA 6020	EPA 3010A		Analysis Da	te: 3/12/20	113	SeqNo: 15	40116	
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	TestCod	de: <b>6020_DIS</b>	Units: µg/L		Prep Dat	te: <b>3/4/201</b>	3	RunNo: 88	054	
Client ID: ZZZZZZ	Batch ID: 42336	TestN	No: EPA 6020	EPA 3010A		Analysis Da	te: 3/12/20	113	SeqNo: 15	40127	
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	TestCod	de: <b>6020_DIS</b>	Units: µg/L		Prep Dat	te: <b>3/4/201</b>	3	RunNo: 88	054	
Client ID: ZZZZZZ	Batch ID: 42336	TestN	lo: EPA 6020	EPA 3010A		Analysis Da	te: 3/12/20	113	SeqNo: 15	40128	
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

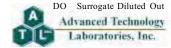
E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference



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

CLIENT: CH2M HILL
Work Order: N009744

## ANALYTICAL QC SUMMARY REPORT

Work Order: N009744

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

TestCode: 6020\_DIS

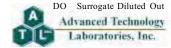
Sample ID: MB-42336	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: <b>88056</b>
Client ID: PBW	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/13/2013	SeqNo: <b>1540197</b>
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Selenium	ND	0.50			
Sample ID: LCS-42336	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: <b>88056</b>
Client ID: LCSW	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/13/2013	SeqNo: <b>1540198</b>
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
Sample ID: N009744-001A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 42336	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A	Prep Date: 3/4/2013 Analysis Date: 3/13/2013	RunNo: <b>88056</b> SeqNo: <b>1540206</b>
	. 31	TestNo: EPA 6020		·	
Client ID: ZZZZZZ	Batch ID: <b>42336</b>	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/13/2013	SeqNo: <b>1540206</b>
Client ID: ZZZZZZ Analyte	Batch ID: <b>42336</b> Result	TestNo: <b>EPA 6020</b> PQL SPK value	EPA 3010A SPK Ref Val	Analysis Date: 3/13/2013  %REC LowLimit HighLimit RPD Ref Val	SeqNo: <b>1540206</b>
Client ID: ZZZZZZ Analyte Selenium	Batch ID: <b>42336</b> Result  11.112	TestNo: <b>EPA 6020</b> PQL SPK value  0.50 10.00	EPA 3010A  SPK Ref Val  1.734	Analysis Date: 3/13/2013  %REC LowLimit HighLimit RPD Ref Val  93.8 75 125	SeqNo: <b>1540206</b> %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Selenium Sample ID: N009744-001A-MSD	Batch ID: 42336  Result  11.112  SampType: MSD	TestNo: EPA 6020  PQL SPK value  0.50 10.00  TestCode: 6020_DIS     TestNo: EPA 6020	EPA 3010A  SPK Ref Val  1.734  Units: µg/L	Analysis Date: 3/13/2013    REC   LowLimit   HighLimit   RPD Ref Val     93.8   75   125     Prep Date: 3/4/2013	SeqNo: 1540206  %RPD RPDLimit Qual  RunNo: 88056

#### Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

- 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



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

-	10	-	
	12		

#### **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  Preservatives:	HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x1 Liter 4°C	1Liter Poly 4°C	Please note the sample IDs were changed after receiving the results from the laboratory. $04/19/13$		
Sample Manager Shawn Duffy Filtered:		Field	NA	NA	01/15/15		
Holding Time:	180	180	14	30			
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  DATE TIME Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)	NO 89744	Number of Containers	COMMENTS
MW-74-240-191 3/1/2013 8:15 Water	х	х	X.	Х.		3	
MW-5808 165mb 141 2-28-13 1552 Water	X		X	X	MW-58BR-191 5PD -2 TOTAL NUMBER OF CONTAINERS	3	
14 CUBP 255mp 14 3-113 1505 Water	X		X		MW-64BR-191 04-19-13 -3	2	
OD						8	

04-19-13

Approved by Sampled by

Relinquished by

Received by Received by

Signatures

Date/Time 3-1-13 1645

**Shipping Details** 

Method of Shipment: courier

On Ice: yes / no 2-6°C Airbill No:

3/1/13 104 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO

Lab Phone: (702) 307-2659

ATTN:

Special Instructions: Feb 4 - Feb 28, 2013

Sample Custody

and

Marlon

Report Copy to

Shawn Duffy (530) 229-3303

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions o	r further in	struction, pleas	e contact our F	Project Coordin	nator 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	<b>✓</b> No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing N	laterial Used:	None		
Cooling process:	✓ Ice	[] Ice Pack	☐ Dry Ice	☐ Other	None			
		<u>s</u>	ample Recei	ot Checklist				
1. Shipping container/cooler in	good condi	ition?			Yes 🗸	No 🗆	Not Present	
2. Custody seals intact, signed	l, dated on	shippping contain	er/cooler?		Yes 🗆	No 🗌	Not Present	
3. Custody seals intact on sam	ple bottles	?		į	Yes 🗌	No []	Not Present	V
4. Chain of custody present?				3	Yes 🗸	No 🗆		
5. Sampler's name present in	COC?			j O	Yes 🗹	No 🗆		
6. Chain of custody signed wh	en relinquis	hed and received	?		Yes 🗹	No 🗆		
7. Chain of custody agrees wit	h sample la	bels?			Yes 🗹	No 🗀		
8. Samples in proper containe	r/bottle?				Yes 🗹	No 🗌		
9. Sample containers intact?					Yes 🗹	No 🗆		
10. Sufficient sample volume f	for indicated	test?			Yes 🗹	No 🗀		
11. All samples received within	n holding tir	ne?			Yes 🗹	No 🗌		
12. Temperature of rep sample	e or Temp E	Blank within accep	otable limit?		Yes 🗹	No 🗆	NA	
13. Water - VOA vials have ze	ro headspa	ice?			Yes 🗌	No 🗔	NA	V
14. Water - pH acceptable upon Example: pH > 12 for (C	117	for Metals			Yes 🗸	No 🗔	NA	. 🗆
15. Did the bottle labels indica	ite correct p	reservatives used	1?		Yes 🗹	No 🖂	NA	
16. Were there Non-Conforma	nce issues	at login?			Yes 🖂	No 🖂		<b>V</b>
Anna Carlotte Company	las Client n	otified?	STATES TO STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF		Yes 🗌	No 🗔	NA	V
Comments:								
Checklist Completed B	мвс _	-31412				Reviewed By:	40%	returns.

# **Sample Calculation**

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

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

Arsenic, ug/L

= A \* DF \* PF

where:

A = ug/L, calculated concentration

DF = dilution factor

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

For Sample N009744-001A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

= 8.76433543726978 \* 1 \* (25/25)

= 8.76433543726978

Reporting results in two significant figures,

Arsenic, ug/L

8.8

3/5/3

(基)

ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.:

N009744

Test Method: Analysis Date: EPA 6020 03/12/13 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

ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.:

N009744

Matrix:

Water 42336

Test Method:

EPA 6020

Batch No.:

Analysis Date:

3/13/2013, 3/14/2013

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

Date: 15-Mar-13

TestCode: 6020\_DIS

CI- ID: N000744 0044 D0	O	T10-		11.9					5 11		
Sample ID: N009744-001A-PS	SampType: PS	restCo	de: 6020_DIS	Units: µg/L	Prep Date:				RunNo: 88054		
Client ID: ZZZZZZ	Batch ID: 42336	Test	lo: EPA 6020	EPA 3010A		Analysis Da	te: 3/12/20	)13	SeqNo: 154	0126	
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	TestCoo	de: 6020_DIS	Units: µg/L		Prep Da	te:		RunNo: 88056		
Client ID: ZZZZZZ	Batch ID: 42336	TestN	lo: EPA 6020	<b>EPA 3010A</b>		Analysis Da	te: 3/13/20	113	SeqNo: 154	0205	
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

Workorder No.: N009807

CA-ELAP No.:2676

NV Cert. No.: NV-009222007A

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,

) Aglibuew Jose Tenorio Jr.

Laboratory Director

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



CLIENT: CH2M HILL

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

**Date:** 26-Mar-13

Lab Order: N009807

#### 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 Work Order Sample Summary

Date: 26-Mar-13

Lab Order: N009807

Contract No: 2013-GMP-191-

Lab Sample ID Client Sample ID	Matrix	<b>Collection Date</b>	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

Print Date: 26-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

Advanced Technology Laboratories, Inc.

 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

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 26-Mar-13

%RPD

0.491

RPDLimit Qual

10

TestCode: 120.1\_WPGE

2030

%REC LowLimit HighLimit RPD Ref Val

CLIENT: CH2M HILL

Work Order:

Analyte

Specific Conductance

ANALYTICAL QC SUMMARY REPORT N009807

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

Result

2040.000

PQL

0.10

Sample ID: LCS-R88047 Client ID: LCSW	SampType: LCS Batch ID: R88047		de: 120.1_WP No: EPA 120.1	GE Units: umhos	/cm	Prep Dat Analysis Dat		13	RunNo: <b>880</b> SeqNo: <b>153</b>		
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: <b>DUP</b>	TestCoo	de: <b>120.1_WP</b>	GE Units: umhos	/cm	Prep Dat	e:		RunNo: 880	47	
Client ID: ZZZZZZ	Batch ID: R88047	TestN	lo: <b>EPA 120.1</b>			Analysis Dat	te: <b>3/13/20</b>	13	SeqNo: <b>153</b>	9780	

Sample ID: N009806-009A MS	SampType: MS	TestCod	de: <b>120.1_WP</b>	GE Units: umh	os/cm	Prep Da	te:		RunNo: 880	)47	
Client ID: ZZZZZZ	Batch ID: R88047	TestN	lo: <b>EPA 120.1</b>			Analysis Da	ite: 3/13/20	13	SeqNo: <b>153</b>	9781	
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				

SPK value SPK Ref Val

Sample ID: N009806-009A M	SD SampType: MSD	TestCo	de: <b>120.1_WP</b>	GE Units: umh	os/cm	Prep Da	te:		RunNo: <b>880</b>	47	
Client ID: ZZZZZZ	Batch ID: R88047	Testi	No: <b>EPA 120.1</b>			Analysis Da	te: <b>3/13/20</b>	13	SeqNo: <b>153</b>	9782	
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

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



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

Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130325A	QC Batch: 424	156		PrepDate:	3/18/2013	Analyst: CEI
Arsenic	0.32	0.035	0.10	μg/L	1	3/25/2013 11:53 AM
Manganese	ND	0.16	0.50	μg/L	1	3/25/2013 11:53 AM
Molybdenum	21	0.074	0.50	μg/L	1	3/25/2013 11:53 AM
Selenium	ND	0.084	0.50	μg/L	1	3/25/2013 11:53 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CH2M HILL

N009807

ANALYTICAL QC SUMMARY REPORT

**Date:** 26-Mar-13

Project: PG&E Topock, 423575.MP.02.GM.03 TestCode: 6020\_DIS

Sample ID: MB-42456 Client ID: PBW	SampType: MBLK  Batch ID: 42456	TestCode: 6020_DIS Units: µg/L TestNo: EPA 6020 EPA 3010A		Prep Date: 3/18/2013  Analysis Date: 3/25/2013	RunNo: 88192 SegNo: 1545219
Ciletit ID. PBW	Batch 1D. 42430	1651110. EFA 0020	EFA 3010A	Allalysis Date. 3/23/2013	3eq110. 1343219
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: <b>88192</b>
Client ID: LCSW	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545220

Sample ID: LCS-42456	SampType: <b>LCS</b>	TestCod	de: <b>6020_DIS</b>	Units: µg/L		Prep Da	te: <b>3/18/20</b>	13	RunNo: 881	92	
Client ID: LCSW	Batch ID: 42456	TestN	lo: <b>EPA 6020</b>	EPA 3010A	Analysis Date: 3/25/2013			13	SeqNo: <b>1545220</b>		
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	TestCod	de: <b>6020_DIS</b>	Units: µg/L		Prep Dat	te: <b>3/18/20</b>	13	RunNo: <b>881</b>	92	
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020		EPA 3010A	Analysis Date: 3/25/2013			13	SeqNo: <b>1545231</b>		
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 Client ID: ZZZZZZ	SampType: MSD Batch ID: 42456		e: 6020_DIS o: EPA 6020	Units: µg/L EPA 3010A		•	te: <b>3/18/20</b>		RunNo: <b>881</b> SeqNo: <b>15</b> 4		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic Molybdenum	11.687 14.222	0.10 0.50	10.00 10.00	0.4256 3.411	113 108	75 75	125 125	11.25 14.29	3.78 0.477	20 20	

#### Qualifiers:

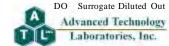
CLIENT:

Work Order:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

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

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



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009807

TestCode: 6020\_DIS

Project: PG&E Topock, 423575.MP.02.GM.03	
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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: <b>1545232</b>
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: <b>88192</b>
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: <b>1545237</b>
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: <b>88192</b>
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: <b>1545238</b>
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:

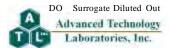
B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

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



		-	
CH			
	~ "		

### **CHAIN OF CUSTODY RECORD**

3/12/2013 9:52:20 AM

Page 1 OF 1

Project Name PG&E Topock Container Location Topock Project Manager Jay Piper Preservatives: Sample Manager Shawn Duffy Filtered: Holding Time: Project Number 423575.MP.02.GM.03	ml Poly HN03, 4°C  Field 180	1x500 ml Poly HNO3, 4°C Field	1x1 Liter 4°C NA 14	1Liter Poly 4°C NA 30			
Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 3/12/2013 COC Number: 19  DATE TIME Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)		Number of Containers	COMMENTS
MW-57-070-191 x 3/11/2013 15:05 Water		 	х		NOO 9807-1	1	
MW-66BR-270-191 3/12/2013 8:25 Water	х	х	Х	х	し、一之	3	
					TOTAL NUMBER OF CONTAINERS	4	

Date/Time 3~12-13 1715 Signatures **Shipping Details** Special Instructions: Approved by ATTN: Feb 4 - Feb 28, 2013 Method of Shipment: courier Sampled by On Ice: (8) 1 no 13-4 1CE 124 Relinquished by Sample Custody 3-12-13 1715 Airbill No: Received by and Report Copy to Relinquished by Received by Lab Name: ADVANCED TECHNOLOGY LABORATO Shawn Duffy Marion Lab Phone: (702) 307-2659 (530) 229-3303

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions of	or further instruction, pleas	e contact our Project	Coordinator a	t (702) 307-2659.	
Cooler Received/Opened On:	3/12/2013		Work	order: N009807	
Rep sample Temp (Deg C):	3.4		IR G	un ID: 1	
Temp Blank:	☐ Yes ☑ No				
Carrier name:	ATL				
Last 4 digits of Tracking No.:	NA	F	acking Material	Used: None	
Cooling process:	✓ Ice ☐ Ice Pack	Dry Ice	Other 🗌 1	None	
			- Lilina		
1. Shipping container/cooler in		ample Receipt Ch	Yes	No □	Not Present
Custody seals intact, signed		ar/cooler?	Yes [		Not Present ☑
Custody seals intact on san		370001011	Yes 🗆		Not Present <b>☑</b>
4. Chain of custody present?			Yes <b></b>		
5. Sampler's name present in	COC?		Yes ₩		
6. Chain of custody signed wh		?	Yes 🗸		
7. Chain of custody agrees wil	th sample labels?		Yes <b>⊻</b>	Ø No □	
8. Samples in proper containe	er/bottle?		Yes 🛂	No □	
9. Sample containers intact?			Yes ⊻	No □	
10. Sufficient sample volume	for indicated test?		Yes 🗹	<u> </u>	
11. All samples received withi	in holding time?		Yes <b>⊻</b>	∄ No□	
12. Temperature of rep sampl	le or Temp Blank within accep	table limit?	Yes <b>⊻</b>	<b>2</b> No □	NA 🖂
13. Water - VOA vials have ze	ero headspace?		Yes [	☐ No ☐	NA 🗹
14. Water - pH acceptable up Example: pH > 12 for (0	and a Miller Advanced to the contract of		Yes <b>⊻</b>	<b>2</b> No □	NA □
15. Did the bottle labels indica	ate correct preservatives used	<b>!?</b>	Yes 🗹	Z No 🗌	NA 🗇
16. Were there Non-Conforma	ance issues at login? Vas Client notified?		Yes [ Yes [	No No No No No No No No No No No No No N	NA ☑ NA ☑
Comments:					
Checklist Completed B	MBC ~3/13/13			Reviewed By	+6 Interns
	/				the state of the s

## **Sample Calculation**

METHOD: EPA 6020

**TEST NAME:** Heavy Metals by ICP-MS

**MATRIX**: Aqueous

FORMULA:

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

Arsenic, ug/L

A \* DF \* PF

where:

A = ug/L, calculated concentration

DF = dilution factor

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

For Sample N009807-002A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

0.32289219254 \* 1 \* (25/25)

= 0.32289219254

Reporting results in two significant figures,

Arsenic, ug/L

0.32

Hyn 3/26/13

#### ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.:

N009807

Test Method: Analysis Date: EPA 6020 03/25/13

Matrix: Batch No.:

Water 42456

Instrument ID:

Comments:

ICP-MS #2

Instrument Description:

Agilent 7700x

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

Date: 26-Mar-13

**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: <b>PS</b>	TestCode: 6	020_DIS	Units: µg/L	Prep Date:			RunNo: <b>88192</b>			
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: E	PA 6020	EPA 3010A	Analysis Date: 3/25/2013				SeqNo: <b>1545228</b>		
Analyte	Result	PQL SF	PK 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: <b>PS</b>	TestCode: 6	020_DIS	Units: µg/L		Prep Dat	te:		RunNo: <b>88192</b>		
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: E	PA 6020	EPA 3010A		Analysis Da	te: <b>3/25/20</b>	13	SeqNo: <b>154</b>	15236	
Analyte	Result	PQL SF	PK 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

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.



CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

Workorder No.: N009833

**CLIENT:** CH2M HILL

Project: PG&E Topock, 423575.MP.02.GM.0 CASE NARRATIVE

**Date:** 29-Mar-13

Lab Order: N009833

#### SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

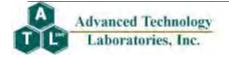
Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

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 Work Order Sample Summary

**Date:** 29-Mar-13

**Lab Order:** N009833 **Contract No:** 2013-GMP-191-

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



Print Date: 29-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-24BR-191

**Lab Order:** N009833 **Collection Date:** 3/14/2013 2:58:00 PM

Project: PG&E Topock, 423575.MP.02.GM.0 Matrix: WATER

**Lab ID:** N009833-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Lab Order: N009833

**Project:** PG&E Topock, 423575.MP.02.GM.0

**Lab ID:** N009833-002

Print Date: 29-Mar-13

**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

**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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 29-Mar-13

Advanced Technology Laboratories, Inc.

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

**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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CLIENT: CH2M HILL

Work Order:

N009833

**Project:** PG&E Topock, 423575.MP.02.GM.0

## ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1\_WPGE

**Date:** 29-Mar-13

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	3 SeqNo: <b>1541969</b>
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit F	RPD Ref Val %RPD RPDLimit Qual
Specific Conductance	1522.000	0.10 1412 0 108 85 115	
Sample ID: N009834-002A-DUP	SampType: <b>DUP</b>	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	3 SeqNo: <b>1541981</b>
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit F	RPD Ref Val %RPD RPDLimit Qual
Specific Conductance	2450.000	0.10	2460 0.407 10
Sample ID: N009834-002A MS	SampType: <b>MS</b>	TestCode: 120.1_WPGE Units: umhos/cm Prep Date:	RunNo: <b>88101</b>
Sample ID: N009834-002A MS Client ID: ZZZZZZ	SampType: MS Batch ID: R88101	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: TestNo: EPA 120.1 Analysis Date: 3/18/2013	
Client ID: ZZZZZZ			3 SeqNo: <b>1541982</b>
Sample ID: N009834-002A MS Client ID: ZZZZZZ Analyte Specific Conductance	Batch ID: <b>R88101</b>	TestNo: EPA 120.1 Analysis Date: 3/18/2013	3 SeqNo: <b>1541982</b>
Client ID: ZZZZZZ Analyte	Batch ID: R88101 Result	TestNo: EPA 120.1 Analysis Date: 3/18/2013  PQL SPK value SPK Ref Val %REC LowLimit HighLimit F	3 SeqNo: <b>1541982</b>
Client ID: ZZZZZZ  Analyte  Specific Conductance	Batch ID: <b>R88101</b> Result  3806.000	TestNo: EPA 120.1 Analysis Date: 3/18/2013  PQL SPK value SPK Ref Val %REC LowLimit HighLimit F  0.20 1412 2460 95.3 75 125	SeqNo: 1541982  RPD Ref Val %RPD RPDLimit Qual  RunNo: 88101
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009834-002A MSD	Batch ID: R88101  Result  3806.000  SampType: MSD	TestNo: EPA 120.1         Analysis Date: 3/18/2013           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         F           0.20         1412         2460         95.3         75         125           TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:	RPD Ref Val %RPD RPDLimit Qual  RunNo: 88101 SeqNo: 1541983

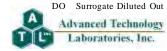
#### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

- 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



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

Print Date: 29-Mar-13

### Advanced Technology Laboratories, Inc.

 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
DISSOLVED METALS BY I	CP-MS					•
	EPA 3010A		EP	A 6020		
RunID: ICP7_130325A	QC Batch: <b>424</b>	56		PrepDate:		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 29-Mar-13

### Advanced Technology Laboratories, Inc.

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
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130325A	QC Batch: <b>424</b>	156	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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CLIENT: CH2M HILL

N009833

Work Order:

Project:

## ANALYTICAL QC SUMMARY REPORT

**Date:** 29-Mar-13

PG&E Topock, 423575.MP.02.GM.0

TestCode: 6020\_DIS

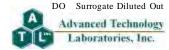
Sample ID: MB-42456	SampType: MBLK	TestCode: 6020 DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: <b>88192</b>
Client ID: PBW	Batch ID: 42456	_			
Client ID: PBW	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: <b>1545219</b>
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Va	I %RPD RPDLimit Qual
Arsenic	ND	0.10			
Manganese	ND	0.50			
Molybdenum	ND	0.50			
Selenium	ND	0.50			
Sample ID: LCS-42456	SampType: <b>LCS</b>	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: <b>88192</b>
Client ID: LCSW	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: <b>1545220</b>
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Va	I %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	
				5 5 4 2424222	Durable 00400
Sample ID: N009804-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192
Sample ID: N009804-001A-MS Client ID: ZZZZZZ	SampType: MS  Batch ID: 42456	TestCode: 6020_DIS TestNo: EPA 6020		Analysis Date: 3/25/2013	SeqNo: <b>1545231</b>
·		TestNo: EPA 6020		·	SeqNo: <b>1545231</b>
Client ID: ZZZZZZ	Batch ID: <b>42456</b>	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: <b>1545231</b>
Client ID: ZZZZZZ Analyte	Batch ID: <b>42456</b> Result	TestNo: <b>EPA 6020</b> PQL SPK value	EPA 3010A SPK Ref Val	Analysis Date: 3/25/2013  %REC LowLimit HighLimit RPD Ref Va	SeqNo: <b>1545231</b>
Client ID: ZZZZZZ  Analyte  Arsenic	Batch ID: <b>42456</b> Result  11.254	TestNo: <b>EPA 6020</b> PQL SPK value  0.10 10.00	EPA 3010A  SPK Ref Val  0.4256	Analysis Date: 3/25/2013  %REC LowLimit HighLimit RPD Ref Va  108 75 125	SeqNo: <b>1545231</b>
Client ID: ZZZZZZ  Analyte  Arsenic  Molybdenum	Batch ID: <b>42456</b> Result  11.254 14.290	TestNo: <b>EPA 6020 PQL</b> SPK value  0.10 10.00  0.50 10.00	EPA 3010A  SPK Ref Val  0.4256 3.411 0	Analysis Date: 3/25/2013  ***REC LowLimit HighLimit RPD Ref Value	SeqNo: <b>1545231</b>
Client ID: ZZZZZZ  Analyte  Arsenic  Molybdenum  Selenium	Batch ID: <b>42456</b> Result  11.254  14.290  10.276	TestNo: <b>EPA 6020</b> PQL SPK value  0.10 10.00  0.50 10.00  0.50 10.00	EPA 3010A  SPK Ref Val  0.4256 3.411 0  Units: μg/L	Analysis Date: 3/25/2013  **REC LowLimit HighLimit RPD Ref Value	SeqNo: 1545231
Client ID: ZZZZZZ  Analyte  Arsenic Molybdenum Selenium  Sample ID: N009804-001A-MSD	Result 11.254 14.290 10.276  SampType: MSD	TestNo: <b>EPA 6020</b> PQL SPK value  0.10 10.00 0.50 10.00 0.50 10.00  TestCode: <b>6020_DIS</b> TestNo: <b>EPA 6020</b>	EPA 3010A  SPK Ref Val  0.4256 3.411 0  Units: μg/L	Analysis Date: 3/25/2013  %REC LowLimit HighLimit RPD Ref Va  108	SeqNo: 1545231  I %RPD RPDLimit Qual  RunNo: 88192  SeqNo: 1545232
Client ID: ZZZZZZ  Analyte  Arsenic Molybdenum Selenium  Sample ID: N009804-001A-MSD Client ID: ZZZZZZ	Batch ID: 42456  Result  11.254 14.290 10.276  SampType: MSD Batch ID: 42456	TestNo: <b>EPA 6020</b> PQL SPK value  0.10 10.00 0.50 10.00 0.50 10.00  TestCode: <b>6020_DIS</b> TestNo: <b>EPA 6020</b>	EPA 3010A  SPK Ref Val  0.4256 3.411 0  Units: μg/L EPA 3010A	Analysis Date: 3/25/2013  %REC LowLimit HighLimit RPD Ref Value  108	SeqNo: 1545231  I

#### Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

- 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



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

CLIENT: CH2M HILL Work Order: N009833

## ANALYTICAL QC SUMMARY REPORT

**Project:** PG&E Topock, 423575.MP.02.GM.0

TestCode:	6020	DIS
resicoue.	UUZU	סוע

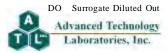
Sample ID: N009804-001A-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: 42456	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A	Prep Date: 3/18/2013 Analysis Date: 3/25/2013	RunNo: <b>88192</b> SeqNo: <b>1545232</b>
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Selenium	10.286	0.50 10.00	0	103 75 125 10.28	0.0977 20
Sample ID: N009804-001A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 42456	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A	Prep Date: 3/18/2013 Analysis Date: 3/25/2013	RunNo: <b>88192</b> SeqNo: <b>1545237</b>
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 Client ID: ZZZZZZ	SampType: MSD Batch ID: 42456	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A	Prep Date: 3/18/2013 Analysis Date: 3/25/2013	RunNo: <b>88192</b> SeqNo: <b>1545238</b>
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
- ND Not Detected at the Reporting Limit

- 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



CH2MHIL	.L							CHAIN OF CUSTODY RECORD 3/15/2013 12:19:55 PM Page 1	OF	1_
Project Name Po Location Topod Project Manager Sample Manager	6&E Topod k Jay Piper	Pres	Container: servatives: Filtered: ding Time:	ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C Field	1x1 Liter 4°C NA	1Liter Poly 4°C NA 30			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 3 COC Number: 2	P-191-Q1 10 Day 3/15/2013	S	VI.O Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)		Number of Containers	COMMENTS
MW-24BR-191	3/14/2013	14:58	Water			×		NW9833-1	1	
MW-60BR-245-191	3/14/2013	8:02	Water	x,	х	х	х		3	BEL
MW-B6-191	3-14-13	1313	Worler	×	×	¥	×	TOTAL NUMBER OF CONTAINERS	4	
<b>V</b>		Į.	( and a second				ı		7	

Date/Time 3-15-13 1230 Signatures **Shipping Details** Approved by ATTN: Method of Shipment: courier Sampled by Relinquished by Sample Custody A3 D30 Airbill No: Received by and Lab Name: ADVANCED TECHNOLOGY LABORATO Relinquished by Marlon 3/1/10 exc4) Lab Phone: (702) 307-2659 Requeived by (530) 229-3303

**Special Instructions:** Feb 4 - Feb 28, 2013

Report Copy to Shawn Duffy

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions o	r further in	struction, pleas	e contact our F	Project Coord	dinator at (702	307-2659.		
Cooler Received/Opened On:	3/15/2013				Workorder:	N009833		
Rep sample Temp (Deg C):	4.6				IR Gun ID:	1		
Temp Blank:	Yes	<b>⊘</b> No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	<b>✓</b> Ice	lce Pack	Dry Ice	Other	None			
		s	ample Recei	ot Checklis	ŧ			
1. Shipping container/cooler in	good condi				Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	, dated on s	hippping contain	er/cooler?		Yes 🗌	No 🗌	Not Present	V
3. Custody seals intact on sam	ple bottles?	•			Yes	No 🗀	Not Present	V
4. Chain of custody present?					Yes 🗹	No 🗔		
5. Sampler's name present in 0	COC?				Yes 🗹	No 🗌		
6. Chain of custody signed who	en relinquisl	ned and received	?		Yes 🗹	No 🗀		
7. Chain of custody agrees with	h sample la	bels?			Yes 🗸	No 🗔		
8. Samples in proper container	/bottle?				Yes 🗹	No 🗌		
9. Sample containers intact?					Yes 🗸	No 🗌		
10. Sufficient sample volume f	or indicated	test?			Yes 🗸	No 🗌		
11. All samples received within	holding tim	ne?			Yes 🗸	No 🗀		
12. Temperature of rep sample	e or Temp B	lank within accer	otable limit?		Yes 🗸	No 🗌	NA	
13. Water - VOA vials have ze	ro headspa	ce?			Yes 🗌	No 🗔	NA	<b>V</b>
14. Water - pH acceptable upon Example: pH > 12 for (C	•	for Metals			Yes 🗹	No 🗆	NA	
15. Did the bottle labels indica			1?		Yes 🔽	No 🗀	NA	
16. Were there Non-Conforma					Yes 🗌	No 🗀	NA	<b>V</b>
W	as Client no	otified?			Yes 🗌	No 🗌	NA	
Comments:								
Checklist Completed B	мвс м	BC 3/15/13				Reviewed By:	<b>Ą</b> i4i	

## **Sample Calculation**

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

**MATRIX:** Aqueous

FORMULA:

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

Arsenic, ug/L

= A \* DF \* PF

where:

A = ug/L, calculated concentration

DF = dilution factor

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

For Sample N009833-003B, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

7.0874641064 \* 1 \* (25/25)

= 7.0874641064

Reporting results in two significant figures,

Arsenic, ug/L

No.

7.1

15 f 3/29/3

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ICP-Metals in Water

**Dilution Test Summary** 

Work Order No.:

N009833

Test Method: Analysis Date: EPA 6020 03/25/13 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

Date: 26-Mar-13

**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: <b>PS</b>	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88192
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 602	D EPA 3010A	Analysis Date: 3/25/2013	SeqNo: <b>1545228</b>
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: <b>PS</b>	TestCode: 6020_DIS	Units: μg/L	Prep Date:	RunNo: <b>88192</b>
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 602	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: <b>1545236</b>
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 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.

to - Mona Nassimi

Manager, Analytical Services

spidral the

Michael Ngo

Quality Assurance/Quality Control Officer

## TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



Established 1931

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

Laboratory No.: 806464

Date Received: February 20, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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





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

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Page 1 of 17

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Printed 3/6/2013

Laboratory No. 806464

## 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:

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

Field ID	Lab ID	Collected	<b>Matr</b> ix
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 Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND			
Duplicate						Lab ID = 806461-009
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 3.48	Expected 3.49	RPD 0.428	Acceptance Range 0 - 20

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



Client: E2 Consulting Eng	ineers, Inc		oject Name: oject Number	PG&E Topock Pro: 423575.MP.02.GN	-	Page 2 of 17 Printed 3/6/2013
Low Level Calibration	/erification					
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.181	Expected 0.200	Recovery 90.6	Acceptance Range 70 - 130
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.90	Expected 5.00	Recovery 98.1	Acceptance Range 90 - 110 Lab ID = 806461-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 6.03	Expected/Added 6.08(5.00)	Recovery 99.0	Acceptance Range 90 - 110 Lab ID = 806461-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.40	Expected/Added 1.31(1.00)	Recovery 109	Acceptance Range 90 - 110 Lab ID = 806461-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.28	Expected/Added 1.26(1.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806461-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.08	Expected/Added 1.07(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806461-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.08	Expected/Added 1.12(1.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 806461-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 8.39	Expected/Added 8.49(5.00)	Recovery 97.9	Acceptance Range 90 - 110 Lab ID = 806461-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.66	Expected/Added 1.67(1.00)	Recovery 98.6	Acceptance Range 90 - 110 Lab ID = 806461-011
Parameter Chromium, Hexavalent <b>M</b> atrix Spike	Unit ug/L	DF 1.00	Result 1.69	Expected/Added 1.73(1.00)	Recovery 96.1	Acceptance Range 90 - 110 Lab ID = 806461-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.57	Expected/Added 1.58(1.00)	Recovery 99.2	Acceptance Range 90 - 110 Lab ID = 806461-013
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.39	Expected/Added 1.39(1.00)	Recovery 100	Acceptance Range 90 - 110

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



Client: E2 Consulting Engineers, Inc.			roject Name: roject Number	•	PG&E Topock Project 423575.MP.02.GM.03		
Matrix Spike						Lab ID = 806461-014	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.16	Expected/Added 1.17(1.00)	Recovery 98.6	Acceptance Range 90 - 110 Lab ID = 806461-015	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.31	Expected/Added 1.31(1.00)	Recovery 99.8	Acceptance Range 90 - 110 Lab ID = 806464-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 8.56	Expected/Added 8.53(5.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806464-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.997	Expected/Added 1.00(1.00)	Recovery 99.7	Acceptance Range 90 - 110 Lab ID = 806464-003	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 9.43	Expected/Added 9.22(5.00)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806464-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 43.2	Expected/Added 41.2(25.0)	Recovery 108	Acceptance Range 90 - 110 Lab ID = 806464-005	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.999	Expected/Added 1.00(1.00)	Recovery 99.9	Acceptance Range 90 - 110 Lab ID = 806464-006	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806464-007	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 43.3	Expected/Added 42.8(25.0)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806464-008	
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 27.6	Expected/Added 27.4(15.0)	Recovery 101	Acceptance Range 90 - 110	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.93	Expected 5.00	Recovery 98.7	Acceptance Range 90 - 110	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.54	Expected 10.0	Recovery 95.4	Acceptance Range 95 - 105	

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

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

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Batch 022213A Metals by EPA 6020A, Dissolved DF MDL Parameter Unit Analyzed RL Result 02/22/2013 09:21 2.00 0.200 0.50 806464-001 Arsenic ug/L 3.9 02/22/2013 09:21 2.00 0.184 8.4 Chromium ug/L 1.0 Manganese ug/L 02/22/2013 10:09 10.0 0.860 2.0 406 02/22/2013 09:21 2.00 0.414 2.0 134 Molybdenum ug/L 02/22/2013 09:21 2.00 0.160 5.0 ND Selenium ug/L 806464-002 Chromium ug/L 02/22/2013 10:56 2.00 0.1841.0 ND ug/L 806464-003 Arsenic 02/22/2013 11:02 2.00 0.200 0.50 4.1 Chromium ug/L 02/22/2013 11:02 2.00 0.1841.0 8.2 368 Manganese ug/L 02/22/2013 11:32 5.00 0.430 1.0 2.00 2.0 126 Molybdenum ug/L 02/22/2013 11:02 0.414 2.00 ND Selenium ug/L 02/22/2013 11:02 0.160 5.0 806464-004 Arsenic ug/L 02/22/2013 11:08 2.00 0.200 0.50 1.6 02/22/2013 11:08 2.00 0.1841.0 18.3 Chromium ug/L 2.2 Manganese uq/L 02/22/2013 11:08 2.00 0.172 0.50 2.00 0.414 2.0 16.3 Molybdenum uq/L 02/22/2013 11:08 02/22/2013 11:08 2.00 0.160 ND Selenium ug/L 5.0 806464-005 Chromium 02/22/2013 11:14 2.00 0.184 1.0 ND ug/L 806464-006 Chromium ug/L 02/22/2013 11:38 2.00 0.184 1.0 ND 2.00 0.200 806464-007 Arsenic ug/L 02/22/2013 11:44 0.50 1.4 2.00 17.9 Chromium ug/L 02/22/2013 11:44 0.184 1.0 2.00 0.172 2.2 Manganese ug/L 02/22/2013 11:44 0.50 2.00 0.414 16.5 Molybdenum ug/L 02/22/2013 11:44 2.0 Selenium ug/L 02/22/2013 11:44 2.00 0.160 5.0 ND 806464-008 Arsenic 2.00 0.200 0.50 2.7 ug/L 02/22/2013 11:50 Chromium ug/L 02/22/2013 11:50 2.00 0.184 1.0 13.7 2.00 0.50 ND Manganese ug/L 02/22/2013 11:50 0.172Molybdenum ug/L 02/22/2013 11:50 2.00 0.414 2.0 16.2 Selenium 02/22/2013 11:50 2.00 0.160 5.0 ND ug/L



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 V	erification					
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 Project Number: 423575.MP.02.GM.03				Page 7 of 17 Printed 3/6/2013
Matrix Spike Duplicate	e					Lab ID = 806464-001
Parameter Manganese MRCCS - Secondary	Unit ug/L	DF 10.0	Result 669	Expected/Added 656(250)	Recovery 105	Acceptance Range 75 - 125
Parameter Arsenic Chromium Selenium Manganese Molybdenum MRCVS - Primary Parameter Arsenic MRCVS - Primary Parameter Arsenic MRCVS - Primary Parameter Arsenic MRCVS - Primary	Unit ug/L ug/L ug/L ug/L Unit ug/L	DF 1.00 1.00 1.00 1.00 1.00 DF 1.00	Result 20.0 20.5 20.4 20.7 19.1 Result 20.0 Result 20.0	Expected 20.0 20.0 20.0 20.0 20.0 Expected 20.0 Expected 20.0	Recovery 100 102 102 103 95.4 Recovery 100	Acceptance Range 90 - 110 90 - 110 90 - 110 90 - 110 90 - 110 Acceptance Range 90 - 110 Acceptance Range 90 - 110
Parameter Arsenic MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.0	Expected 20.0	Recovery 99.9	Acceptance Range 90 - 110
Parameter Arsenic MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.2	Expected 20.0	Recovery 101	Acceptance Range 90 - 110
Parameter Arsenic MRCVS - Primary	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 97.8	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.2	Expected 20.0	Recovery 101	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.2	Expected 20.0	Recovery 101	Acceptance Range 90 - 110
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 97.9	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc.			Project Name: Project Numbe	PG&E Topock r: 423575.MP.02	•	Page 11 of 17 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 Page 12 of 17

Project Number: 423575.MP.02.GM.03 Printed 3/6/2013

Metals by EPA 6010B, Di	ssolved		Batch	022713A				
Parameter		Unit	Analy	zed	DF	MDL	RL	Result
806464-001 Calcium		ug/L	02/27/2	2013 15:17	25.0	950	12500	98100
Magnesium		ug/L	02/27/2	2013 17:30	2.00	110	1000	5220
Sodium		ug/L	02/27/2	2013 12:26	1000	100000	500000	2950000
806464-003 Calcium		ug/L	02/27/2	2013 15:40	10.0	380	5000	94200
Magnesium		ug/L	02/27/2	2013 17:54	2.00	110	1000	5140
Sodium		ug/L	02/27/2	2013 13:06	200	20000	100000	2640000
806464-004 Calcium		ug/L	02/27/2	2013 13:12	200	7600	100000	333000
Magnesium		ug/L	02/27/2	2013 18:00	5.00	274	2500	32200
Sodium		ug/L	02/27/2	2013 13:12	200	20000	100000	1970000
806464-007 Calcium		ug/L	02/27/2	2013 13:17	200	7600	100000	336000
Magnesium		ug/L	02/27/2	2013 18:06	5.00	274	2500	32000
Sodium		ug/L	02/27/2	2013 13:17	200	20000	100000	2000000
806464-008 Calcium		ug/L	02/27/2	2013 15:46	200	7600	100000	115000
Magnesium		ug/L	02/27/2	2013 18:12	5.00	274	2500	13400
Sodium		ug/L	02/27/2	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 = 8	06464-001
Parameter	Unit	DF	Result	Expected	R	PD	Acceptan	ce 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	R	ecovery	Acceptan	ce 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 En	gineers, Inc		roject Name: roject Number:	PG&E Topock Pro 423575.MP.02.GM	=	Page 13 of 17 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
MRCCS - Secondary						
Parameter Calcium Sodium Magnesium	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	5080	5000	102	90 - 110
	ug/L	1.00	5000	5000	99.9	90 - 110
	ug/L	1.00	5100	5000	102	90 - 110
MRCVS - Primary Parameter Calcium MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	4970	5000	99.4	90 - 110
Parameter Calcium MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	4880	5000	97.6	90 - 110
Parameter Calcium MRCVS - Primary	Unit ug/L	DF 1.00	Result 4970	Expected 5000	Recovery 99.5	Acceptance Range 90 - 110
Parameter Calcium MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	4860	5000	97.2	90 - 110
Parameter Calcium MRCVS - Primary	Unit ug/L	DF 1.00	Result 5130	Expected 5000	Recovery 102	Acceptance Range 90 - 110
Parameter Calcium MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	5010	5000	100	90 - 110
Parameter Calcium MRCVS - Primary	Unit ug/L	DF 1.00	Result 5260	Expected 5000	Recovery 105	Acceptance Range 90 - 110
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 Page 16 of 17

Project Number: 423575.MP.02.GM.03 Printed 3/6/2013

Metals by EPA 6010B, D	issolved		Batch	022813A				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806464-001 Iron		ug/L	02/28	3/2013 12:04	1.00	3.57	20.0	100
806464-003 Iron		ug/L	02/28	3/2013 12:40	1.00	3.57	20.0	87.7
806464-004 Iron		ug/L	02/28	3/2013 12:46	1.00	3.57	20.0	ND
806464-007 Iron		ug/L	02/28	3/2013 12:52	1.00	3.57	20.0	ND
806464-008 Iron		ug/L	02/28	3/2013 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	l	RPD	Accepta	nce Range
Iron	ug/L	1.00	96.7	100		3.36	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	l	Recovery	Accepta	nce Range
Iron	ug/L	1.00	2180	2000		109	85 - 115	
Matrix Spike							Lab ID =	806464-001
Parameter	Unit	DF	Result	Expected/Add	ed l	Recovery	Accepta	nce Range
Iron	ug/L	1.00	2020	2100(2000)		95.8	75 - 125	
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	I	Recovery	•	nce Range
Iron	ug/L	1.00	5370	5000		107	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	1	Recovery	•	nce Range
Iron	ug/L	1.00	5150	5000		103	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	ł	Recovery	•	nce Range
Iron	ug/L	1.00	5160	5000		103	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	ł	Recovery		nce Range
Iron	ug/L	1.00	4850	5000		97.0	90 - 110	
Interference Check S								
Parameter	Unit	DF	Result	Expected	ł	Recovery	•	nce Range
Iron	ug/L	1.00	2340	2000		117	80 - 120	



Client: E2 Consulting Engineers, Inc.			Project Name: Project Number:	PG&E Topock 423575.MP.02	•	Page 17 of 17 Printed 3/6/2013
Interference Check Sta	andard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2200	2000	110	80 - 120
Interference Check Sta	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2370	2000	118	80 - 120
Interference Check Sta	andard 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

**206 46 4** CHAIN OF CUSTODY RECORD

2/19/2013 3:59:26 PM

Page 1 OF 1

	Project Name PG8 Location Topock		•	Container:	250 ml Poly (NH4)2S O4/NH4O	2x250 ml Poly (NH4)2S O4/NH4O	2x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C			
	Project Manager J			ei valives.	H, 4°C	H, 4°C	40	4.0	40	40				
-	Sample Manager S	shawn Dut	*	Filtered:		Field	Field	Field	Field	Field	Field			
				ling Time:	28	28	180	180	180	180	180			
	Project Number 4 Task Order	۵۷.	),GM	.03	Cr6	Cr6 (	Metals	Metals	Metals	Metals	Metals			
	Project 2013-GMP			COHTE	(E2	(E21	(60	(60	(60	(60	(60 As	ALERTII	Number	
	Turnaround Time	-	3		18.6	8.6	20A Chi	20A Chi	10B Ca,N	20A \s,N	20A ;,Mo		hbei	
	Shipping Date: 2/	19/2013			) Fig	1 3	P P P P P P P P P P P P P P P P P P P	omi (FF)	fg,N	FF) lo,Si	FF) ,Se,	Level III QC	of	r
	COC Number: 5	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe	Metals (6020AFF) Field Filtered As,Mo,Se,Mn	(6020AFF) Field Filtered As,Mo,Se,Mn,Cr		Containers	COMMENTS
-1	MW-112-191	2/13/2013	17:46	Water		Х	х		Х	Х			5	7
-2	MW-200-191	2/13/2013	16:50	Water	х			Х					2	pu-2
-3	MW-44-125-191	2/13/2013	15:32	Water		Х	x		X	x			5	60200
	MW-44-125-191EB	2/13/2013	8:35	Water	X			Х					2	6318B
y	MW-111-191	2/14/2013	14:58	Water	Х		ja ergenteren er er i		х		Х		2	7
5	MW-201-191	2/14/2013	16:36	Water	×			x					2	
6	MW-202-191	2/14/2013	16:30	Water	×			×					2	Tpu=2
7	MW-33-090-191	2/14/2013	14:53	Water	X				Х		х		2	16020A
B	MW-50-095-191	2/14/2013	10:15	Water	Х				Х		Х		2	60108
												TOTAL NUMBER OF CONTAINERS	24	

	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by	// /	2-20-13	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Sampled by		1535	Method of Shipment: courier		the state of the s
Reinquished by	1~		On Ice: yes / no	Sample Custody	
Received by	ed Danta	2-20-13,00	ຼຸ Airbill No:		
Relinquished by	Davila	2-20-13 21:	اجله Name: Truesdail Laboratories, Inc.		Report Copy to Shawn Duffy
Received by Lug	a, TII	2/20/13 2/130	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
2/21/13	806461-4	7	2ml/100ml	9,5	9:00 AM	TH
	-5	7			9:00 AM	TM
	-6				9:05 AM	The
	-7				9:05 AM	TAI
	-8				9:05AM	TH
	-9				9: 10 AM	TU
	-10				9:10 AM	774
	- 11				9:15 AM	TM
	-(2		·		9:15-AM	TM
	-13				9:19 AM	THI
	-14				9:20AM	THI
	-15-		$\downarrow$		9:20 AM	TM
2/21/13	806462	7	2ml/100ml	9,5	M4: 20 Am	Tay :
2/21/13	806463 - 1	9.5	NIA	NA	NA	TH
	- 2					
	-3					
	-4					
	-5				:	
	- 6					
	~ 7					
	-8					
	-9					
	-10					
	-11				·	
	-12					
	-13					
	-14			4	1	
2/2//3	806464-1	9.5	NIA	NIA	N/A.	The
	- <u>2</u>					
	-3					
	-4	$\downarrow$			1	

Thy

2/26/13

07070

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number		Buffer Added (mL)	Final pH	Time Buffered	Initials
2/21/13	966464-5	9.5	NA	NA	NA	TAI
	-6					
	-7					
	-8	1		J		
2/2/13	806465-1	9,5	N/A	NIA	NA	TM
	-2				]	
	- 3					
	-ij					
	-5					
	-6					
	-7					
	-8					
	-9					
1	-10				<u> </u>	
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		·				
			-			
		<u> </u>				

TV9 V 26/12 10713





Turbidity/pH Check													
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments					
806 709	41	22	2/14/13	ES	yes								
806312	1	1	1	1	i								
806313													
806314													
806315			J										
9.06369	71	<2	2-19-13	BZ	xes								
806370				1									
80 6371													
806372													
80 6373							-						
806374													
806375													
806376				,									
8063400 (192)													
80 83 405	1												
8063406													
8063401		72				10 AM							
806411	71	<b>42</b>											
305416 (19294)	31	72			~c	1 3:00							
306427619394)	۲۱	72	2-20-13	BU	NO	8:00							
80643311-41	<1	<2		1	xes								
80 6431 (10-11)		72			1	11:00		ACINITIEN METAL PO					
80 6432 (1-5)		<b>\2</b>				-		ACE SALL					
20646164-15)	<u>ر ۱</u>	72 ?	2-21-13	BE	Xes.			Acid after					
806462 (+ 318-14)	\	>2				13:AM		- Citera					
80646361-3,8-14)		<7											
806464L1-8)													
808465 (1-10)													
806467 (1-5)			<b>b</b>		1								
806 440	41	72	2/21/13	0c	yes								
806456 (10-12)	41	72	2/21/13	ES	No	15:00							
806 454(1-3)	V	72	l l	1	V	1							
806438(1-4)	71	22			yes								
806441	1	1			i								
806 442					` `		-						
806 443													
806 444													
806445					-	/							
806468													
806474													
606469-2	C I	WOGE											
806482 (1,2)	>1	£2	2/25/13	DC									
806 486	71	42	1	V	iyes V								
806522 (1-4)	21	>2	+	1	No	14:15	1-26-13	P462					

- 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

CI	lient: E2	_ Lab#
Da	nte Delivered: <u>Ø</u> 2 / <u>Ø</u> 9/13 Time: <u>&amp;/: S</u>	ÁField Service □Client
1.	Was a Chain of Custody received and signed?	ØYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ØN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ÁN/A
<b>5</b> .	Were all requested analyses understood and acceptable?	ØYes □No □N/A
<b>6</b> .	Were samples received in a chilled condition? Temperature (if yes)? $3.9 c$	dYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	దేYes □No □N/A
<b>8</b> .	Were sample custody seals intact?	□Yes □No ÁN/A
9.	Does the number of samples received agree with COC?	ØYes □No □N/A
10.	Did sample labels correspond with the client ID's?	ØYes □No □N/A
<b>1</b> 1.	Did sample labels indicate proper preservation?  Preserved (if yes) by: Truesdail □Client	ÆYes □No □N/A
12.	Were samples pH checked? pH = <u>FU</u> 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): □ <b>RUSH</b> ☑ Std	ÀYes □No □N/A
<i>5</i> .	Sample Matrix: □Liquid □Drinking Water □Ground □Sludge □Soil □Wipe □Paint □Solid	1 111 1
6.	Comments:	<del></del>
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	duda

ALERT!! Level III QC

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.

— Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

## TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



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

Laboratory No.: 806553

Date Received: February 26, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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



		Analysis	Extraction		Sample				
Lab Sample II	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
806553-004 806553-004	MW-204-191 MW-204-191	E218.6 SW6020	FLDFLT FLDFLT	2/26/2013 2/26/2013	7:30 7:30	Chromium, Hexavalent Chromium	ND 32.2	ug/L ug/L	0.20 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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Printed 3/14/2013

Laboratory No. 806553

### 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:

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

Field ID				Lab ID	С	ollected	Mati	ix
MW-46-175-191				806553-001	02/2	25/2013 16:24	Wat	er
MW-61-110-191				806553-002	02/2	25/2013 15:23	Wat	er
MW-203-191				806553-003	02/2	6/2013 07:35	Wat	er
MW-204-191				806553-004	02/2	26/2013 07:30	Wat	er
Chrome VI by EPA 218.0	<b>6</b>		Batch	03CrH13B				
Parameter	raki mengapan dinaganan be	Unit	Ana	lyzed	DF	MDL	RL	Result
806553-001 Chromium, Hex	avalent	ug/L	03/05	/2013 15:21	5.00	0.0460	1.0	50.4
806553-002 Chromium, Hex	avalent	ug/L	03/05	/2013 15:31	50.0	0.460	10.0	637
806553-003 Chromium, Hex	avalent	ug/L	03/05	/2013 15:42	1.00	0.00920	0.20	ND
806553-004 Chromium, Hex	avalent	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	Accepta	ance 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	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.202	0.200		101	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance 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/A	dded	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.989	1.00(1.00)		98.9	90 - 110	כ



Client: E2 Consulting Er	ngineers, Inc		roject Name: roject Numbe	PG&E Topock Pror: 423575.MP.02.GN	-	Page 2 of 16 Printed 3/14/2013
Matrix Spike						Lab ID = 806465-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 7.59	Expected/Added 7.69(5.00)	Recovery 98.0	Acceptance Range 90 - 110 Lab ID = 806465-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.990	Expected/Added 1.00(1.00)	Recovery 99.0	Acceptance Range 90 - 110 Lab ID = 806465-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 7.58	Expected/Added 7.71(5.00)	Recovery 97.3	Acceptance Range 90 - 110 Lab ID = 806465-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.03	Result 28.0	Expected/Added 27.9(15.0)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806465-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.02	Result 35.5	Expected/Added 35.6(20.0)	Recovery 99.4	Acceptance Range 90 - 110 Lab ID = 806465-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.03	Result 28.0	Expected/Added 27.9(15.0)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806465-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.02	Result 35.6	Expected/Added 35.6(20.0)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806465-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.03	Result 29.5	Expected/Added 29.6(15.0)	Recovery 99.3	Acceptance Range 90 - 110 Lab ID = 806465-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.03	Result 27.9	Expected/Added 27.6(15.0)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806552-001
Parameter Chromium, Hexavalent <b>Ma</b> trix Spike	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.07(1.00)	Recovery 96.9	Acceptance Range 90 - 110 Lab ID = 806553-001
Parameter Chromium, Hexavalent <b>M</b> atrix Spike	Unit ug/L	DF 5.00	Result 126	Expected/Added 125(75.0)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806553-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 50.0	Result 1380	Expected/Added 1390(750)	Recovery 99.7	Acceptance Range 90 - 110



Client: E2 Consulting Eng	gineers, Inc		oject Name: oject Number	PG&E Topock Pro:: 423575.MP.02.GM	-	Page 3 of 16 Printed 3/14/2013
Matrix Spike						Lab ID = 806553-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806553-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806554-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 100	Expected/Added 98.5(50.0)	Recovery 103	Acceptance Range 90 - 110 Lab ID = 806554-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 91.6	Expected/Added 90.8(50.0)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806554-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 58.0	Expected/Added 58.5(50.0)	Recovery 99.0	Acceptance Range 90 - 110 Lab ID = 806554-004
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 5.00	Result 248	Expected/Added 245(125)	Recovery 102	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.88	Expected 5.00	Recovery 97.5	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc. Project Name:

Name: PG&E Topock Project

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

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Metals by EPA 6020A, D	issolved		Batch	022813A				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806553-001 Arsenic		ug/L	02/28	3/2013 13:01	2.00	0.200	0.50	2.4
Chromium		ug/L	02/28	3/2013 13:01	2.00	0.184	1.0	53.7
Manganese		ug/L	02/28	3/2013 13:01	2.00	0.172	0.50	8.9
Molybdenum		ug/L	02/28	3/2013 13:01	2.00	0.414	2.0	179
806553-002 Arsenic		ug/L	02/28	8/2013 13:07	2.00	0.200	0.50	3.4
Chromium		ug/L	02/28	3/2013 14:33	10.0	0.920	5.0	682
Manganese		ug/L	02/28	3/2013 13:07	2.00	0.172	0.50	133
Molybdenum		ug/L	02/28	3/2013 13:07	2.00	0.414	2.0	24.0
806553-003 Chromium		ug/L	02/28	3/2013 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 =	806554-00
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ince Range
Molybdenum	ug/L	5.00	190	195		2.34	0 - 20	
Low Level Calibration	Verification	l						
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Rangi
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	F	Recovery		ince 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	i



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 10 of 16

Project Number: 423575.MP.02.GM.03 Printed 3/14/2013

Parameter		Unit	Ana	lyzed D	F	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			00	0.0800	5.0	ND
Method Blank	* P3(+ + + + + + + + + + + + + + + + + + +				H-10.			
Parameter	Unit	DF	Result					
Selenium	ug/L	1.00	ND					
Duplicate							Lab ID =	806554-001
Parameter	Unit	DF	Result	Expected	RF	PD	Accepta	nce Range
Selenium	ug/L	1.00	ND	0	(	כ	0 - 20	
Low Level Calibration	n Verification							
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	nce Range
Selenium	ug/L	1.00	4.91	5.00	9	98.3	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	nce Range
Selenium	ug/L	1.00	45.5	50.0	9	91.0	85 - 115	5
Matrix Spike							Lab ID =	806554-001
Parameter	Unit	DF	Result	Expected/Added	l Re	ecovery	Accepta	nce Range
Selenium	ug/L	1.00	46.9	50.0(50.0)	9	93.7	75 - 125	5
Matrix Spike Duplicat	te						Lab ID =	806554-001
Parameter	Unit	DF	Result	Expected/Added	l Re	ecovery	Accepta	nce Range
Selenium	ug/L	1.00	46.8	50.0(50.0)	ç	93.6	75 - 125	5
MRCCS - Secondary	1							
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	nce Range
Selenium	ug/L	1.00	20.0	20.0	ę	99.9	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	nce Range
Selenium	ug/L	1.00	20.6	20.0	•	103	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	ince Range
Selenium	ug/L	1.00	19.5	20.0	Ş	97.7	90 - 110	)
Interference Check S	Standard A							
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	ince Range
Selenium	ug/L	1.00	ND	0				



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

M O3 D

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

Printed 3/14/2013

Parameter		Unit	Analy	zed [	)F	MDL	RL	Result
806553-001 Calcium		ug/L	03/01/2	2013 14:50 5	0.0	600	25000	93800
Magnesium		ug/L	03/01/2	2013 17:10 1	00	55.4	500	2770
Sodium		ug/L	03/01/2	2013 13:47	000	394000	1000000	3870000
806553-002 Calcium		ug/L	03/01/2	2013 15:14 2	00	2400	100000	629000
Magnesium		ug/L	03/01/2	2013 17:41 2	00	111	1000	23300
Sodium		ug/L	03/01/2	2013 15:14 2	00	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 = 80	06553-001
Parameter	Unit	DF	Result	Expected	F	RPD	Acceptan	ce 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	F	Recovery	Acceptan	ce 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 = 80	06553-001
Parameter	Unit	DF	Result	Expected/Adde	d R	Recovery	Acceptan	ce Range
Calcium	ug/L	50.0	188000	194000(100000	)	94.2	75 - 125	
Sodium	ug/L	1000	5890000	5870000(20000	C	101	75 - 125	
Magnesium	ug/L	1.00	4820	4770(2000)		102	75 - 125	
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Acceptan	ce 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	F	Recovery	Acceptan	ce Range
Calcium	ug/L	1.00	4920	5000		98.3	90 - 110	



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

Project Number: 423575.MP.02.GM.03 Printed 3/14/2013

Parameter		Unit	Ana	lyzed [	)F	MDL	20.0 20.0 20.0 Lab ID = Accepta 85 - 118 Lab ID = Accepta 75 - 128 Accepta 90 - 110 Accepta	Result
806553-001 Iron	,	ug/L	· · · · · · · · · · · · · · · · · · ·	<del>-</del>	.00	3.57		ND
806553-002 Iron		ug/L			.00	3.57		ND
Method Blank		<u> </u>				0.01		
Parameter	Unit	DF	Result					
Iron	ug/L	1.00	ND					
Duplicate							Lab ID =	806553-001
Parameter	Unit	DF	Result	Expected		RPD	Accepta	nce Range
Iron	ug/L	1.00	ND	0		0	•	J
Lab Control Sam	nple							
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accepta	nce Range
Iron	ug/L	1.00	2170	2000		108	85 - 115	
Matrix Spike							Lab ID =	806553-001
Parameter	Unit	DF	Result	Expected/Adde	d I	Recovery	Accepta	nce Range
Iron	ug/L	1.00	1770	2000(2000)		88.4	75 - 125	
MRCCS - Secon	dary							
Parameter	Unit	DF	Result	Expected	I	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5100	5000		102	90 - 110	1
MRCVS - Primar	ry							
Parameter	Unit	DF	Result	Expected	l	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5310	5000		106	90 - 110	l
MRCVS - Primar	ry							
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5120	5000		102	90 - 110	ı
Interference Che	eck Standard A							
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accepta	nce Range
Iron	ug/L	1.00	2220	2000		111	80 - 120	ı
Interference Che	ck Standard A							
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	nce Range
Iron	ug/L	1.00	2160	2000		108	80 - 120	
Interference Che	eck Standard AB							
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accepta	nce Range
Iron	ug/L	1.00	2120	2000		106	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 3/14/2013

Interference Check Standard AB

Parameter

Iron

Unit ug/L

DF 1.00 Result 2190

Expected

2000

Recovery

Acceptance Range

109 80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

806553

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

2/26/2013 2:46:00 PM

Page 1 OF 1

APERACIIIL	. <b>L</b>							220/20/3 2.40.00 / W	<u>-</u>	<u>,                                    </u>
Project Name Po Location Topoc Project Manager	k		Container: ervatives:	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			
Sample Manager		ffy	Filtered:		Field	Field	Field			
		Holdi	ing Time:	28	180	180	180			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 13	IP-191SAM • 10 Days 2/26/2013	.od.Gi Pleme	m.e3	ර ර	Metals (6020AFF) Field Filtered Chromium	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe	Metals (6020AFF) Field Filtered As.Mo,Se,Mn,Cr	ALERT !! Level III QC	Number of Containers	COMMENT
MW-46-175-191	2/25/2013	16:24	Water	х		х	х		2	7
MW-61-110-191	2/25/2013	15:23	Water	х		Х	Х		2	
MW-203-191	2/26/2013	7:35	Water	Х	X				2	pu=
MW-204-191	2/26/2013	7:30	Water	Х	х				2	600
	•	<del></del>			<del> </del>	<del> </del>		TOTAL NUMBER OF CONTAINERS	8	601



	∫ Signatures	Date/Time	Chinaina Davida		
Approved by	A	9-26-13	Shipping Details	ATTN:	Special Instructions:
Sampled by	K //	1530	Method of Shipment: courier	ATTN.	Feb 4 - Feb 28, 2013
Ranquished by	1,9		On Ice: yes / no	Sample Custody	
Received by	bout Day co	2/26/13 15:3	Airbill No:		Daniel Canada
Relinquished by	for David	2-26-13 21:3	Lab Name: Truesdail Laboratories, Inc.		Report Copy to Shawn Duffy
Received by	ela TI	1/26/12 2/13	Lab Phone: (714) 730-6239		(530) 229-330

# 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	966464-5	9.5	NA	NA	NA	TAI
	-6					
	-7					
	_8					
2/21/13	806465-1	9,5	NA	NIA	NA	TM
	-2				1	
·	- 3					
	-4					
	-5		·			
	-6					
	-7					
·	-8					
·	-9		·		·	
	-10				1	
2/27/13	806 552-	7	2mL	9.5	10:15	RB
	806553-1	9.5	NIA	14/4	NIA	RB
	2					
	-3					
	-4	ų į	· ·			
2/27/13	806554-1	9.5	NA	NIA	NIA	RB
	2					
	3					
<u> </u>	-4	<u> </u>				4
2/27/13	806555-1	9.5	N/A	ivia	10,4	RB
	_3				i di	
	-4					
	-5					
	-6					
	7					
	8-				<u> </u>	

2/06/13 2/6/13





			Turbio	lity/pH C	heck			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41	12	2/25/13	DC	yes			
806520	. 71	42		1				
806493 (1-5)	71	12						
806494(1-5)	>1	12	J.					
306552	<1	72	2-27-13	Br	Xes	11:00		
806553L1-4)	1	<2						
806554 (1-4)		1						
806555 L194-9	r)	1.				· ,		
806542(1-3)		72			<b>~</b> 0	12:00	2/28/13 2 15:35	
808545							J	·
806537	41	62	¥	or	yes			
806565	41	72	ı	+	ges	14:00	428/13 20 15:30	
806562(1-19)	41	72	2/28/13	ES	no	9:30	3/11/3 00 600	DHZ 2
806567(10-12)	1		6	1	J	1	J	1 L
806570 (1-2)	71	ZZ			ye			
806 572 (1-2)	71	42			yeg			
806586 (1,2)	4	72	i	DC	yes	15:30		
306617	7/25/3/4/13	.42	3/4/13	ov	yes			
506632 (1-12)	<u>ر</u> ١		3-5-19	B.C-	<sub>9</sub>			
806633(1-12)								
8066346193-6	)						•	
806135 [1-508-14)								
806620(1-2,4)	Z i	72	31=113	ŁŚ	Nd	12:00		
806627 (16,23)			1		1			
80625		<b>Z</b> 2			ijes			
806626	L_	1		1				
906 688 C1-275.12	<1	_ < 2	3-6-13	BE	χes			
806669 Li-2)		72						Lab filt A cicliful
80667061-27		\						
80667911-5)		くて	\					
806643	71	۷2	·	vc	yes			,
806651	41	l_						
806688	71	>2	4	_ l	y	12:30		
906667	<1	ን፣		BI-	V	14100		
80666361-3	<u> </u>	_	· · · · · · ·			15 An B		
806694610-12				1		15:00		
806688(4-6)						4		
80 66 50	41	22	3/4/13	n	yes			
806649				1.				
806648								
8012647						_		
806646								
806652								
80°671	./		.1	<u> </u>	·J			

- 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.

84

# Sample Integrity & Analysis Discrepancy Form

Cli	ent: $E2$	Lab # <u>8065</u> 5
Dat	te Delivered: 원시원/13 Time: <u>원/당</u> By: 미Mail 석	Field Service
1.	Was a Chain of Custody received and signed?	ÆYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	☐Yes ☐No ੴN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No 為N/A
<b>5</b> .	Were all requested analyses understood and acceptable?	⊿Yes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>3.8°C</u>	ÀYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆYes □No □N/A
<b>3</b> .	Were sample custody seals intact?	□Yes □No ÆN/A
9.	Does the number of samples received agree with COC?	ÆYes □No □N/A
10.	Did sample labels correspond with the client ID's?	aYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: <b>☑Truesdail</b> □Client	ÆiYes □No □N/A
2.	Were samples pH checked? pH = <u>See C. O. C.</u>	ÆYes □No □N/A
3.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes □No □N/A
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b>	⊉Yes □No □N/A
5.	Sample Matrix: □Liquid □Drinking Water □Ground W □Sludge □Soil □Wipe □Paint □Solid 🗯	11/ 1
5.	Comments:	
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	d'Strabium



# 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 29, 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-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-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.



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-12-191and 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

#### TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

Laboratory No.: 806632

Date Received: March 4, 2013

Client: E2 Consulting Engineers, Inc.

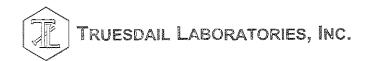
155 Grand Ave. Suite 1000 Oakland, CA 94612

Attention: Shawn Duffy

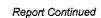
Project Name: PG&E Topock Project Project No.: 423575.MP.02.GM.03 P.O. No.: 423575.MP.02.GM.03

### **Analytical Results Summary**

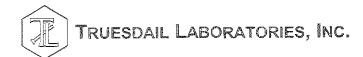
Lab Sample II	D Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806632-001	MW-208-191	E218.6	FLDFLT	2/28/2013	8:40	Chromium, Hexavalent		ug/L	0.20
806632-001	MW-208-191	SW6020	FLDFLT	2/28/2013	8:40	Chromium	ND	ug/L	1.0
806632-002	MW-207-191	E218.6	FLDFLT	2/28/2013	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



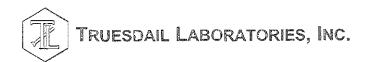
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806632-003	MW-110-191	E218.6	FLDFLT	2/26/2013	15:03	Chromium, Hexavalent	2570	ug/L	20.0
806632-003	MW-110-191	SW6010B	FLDFLT	2/26/2013	15:03	Calcium	32400	ug/L ug/L	2500
806632-003	MW-110-191	SW6010B	FLDFLT	2/26/2013	15:03	Iron	ND	_	20.0
806632-003	MW-110-191	SW6010B	FLDFLT	2/26/2013	15:03	Magnesium	6630	ug/L	
			FLDFLT			-		ug/L	2500
806632-003	MW-110-191	SW6010B		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	<b>53</b> .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	_	5.0
	MW-110-191	SW6020	FLDFLT			Silver	ND	ug/L	
806632-003				2/26/2013	15:03			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
					. — . • •		•	3	



Lab Sample II	) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
				····		Chanaina Harrina			
806632-006	MW-47-115-191 MW-47-115-191	E218.6 SW6010B	FLDFLT FLDFLT	2/27/2013 2/27/2013	15:09 15:09	Chromium, Hexavalent Calcium	21.0	ug/L	1.0
806632-006 806632-006	MW-47-115-191	SW6010B SW6010B	FLDFLT	2/27/2013	15:09	Iron	316000 ND	ug/L	50000
	MW-47-115-191	SW6010B SW6010B	FLDFLT	2/27/2013	15:09	Magnesium	33300	ug/L	20.0 5000
806632-006		SW6010B SW6010B	FLDFLT	2/27/2013	15:09	Sodium	2550000	ug/L	50000
806632-006	MW-47-115-191 MW-47-115-191	SW6010B SW6020	FLDFLT	2/27/2013	15:09	Arsenic	2550000	ug/L	0.50
806632-006		- ·	FLDFLT	2/27/2013	15:09		2.3 22.8	ug/L	
806632-006	MW-47-115-191	SW6020	FLDFLT			Chromium		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		2/27/2013	15:53	Chromium, Hexavalent	7410 570000	ug/L	100
806632-007	MW-50-200-191	SW6010B	FLDFLT FLDFLT	2/27/2013	15:53	Calcium	576000	ug/L	250000
806632-007	MW-50-200-191	SW6010B		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 II	D 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:

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

Laboratory No. 806632

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Printed 3/28/2013

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



Client: E2 Consulting Eng	ineers, Inc		oject Name: oject Number	PG&E Topock Pro: 423575.MP.02.GN	-	Page 2 of 41 Printed 3/28/2013
Duplicate						Lab ID = 806632-007
Parameter Chromium, Hexavalent Low Level Calibration V	Unit ug/L /erification	DF 500	Result 7470	Expected 7410	RPD 0.776	Acceptance Range 0 - 20
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.194	Expected 0.200	Recovery 96.8	Acceptance Range 70 - 130
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.86	Expected 5.00	Recovery 97.3	Acceptance Range 90 - 110 Lab ID = 806632-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.982	Expected/Added 1.00(1.00)	Recovery 98.2	Acceptance Range 90 - 110 Lab ID = 806632-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.16	Expected/Added 1.17(1.00)	Recovery 99.2	Acceptance Range 90 - 110 Lab ID = 806632-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4500	Expected/Added 4580(2000)	Recovery 96.0	Acceptance Range 90 - 110 Lab ID = 806632-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 500	Result 15100	Expected/Added 14900(7500)	Recovery 103	Acceptance Range 90 - 110 Lab ID = 806632-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.02(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806632-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.982	Expected/Added 1.00(1.00)	Recovery 98.2	Acceptance Range 90 - 110 Lab ID = 806632-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806632-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.988	Expected/Added 1.00(1.00)	Recovery 98.8	Acceptance Range 90 - 110 Lab ID = 806669-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 16.6	Expected/Added 16.5(10.0)	Recovery 101	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806632-003 Chromium, Hex	avalent	ug/L	03/13	/2013 02:44	100	0.920	20.0	2570
806632-005 Chromium, Hex	avalent	ug/L	03/13	/2013 02:55	5.00	0.0460	1.0	75.9
806632-006 Chromium, Hex	avalent	ug/L	03/13	/2013 03:16	5.00	0.0460	1.0	21.0
806632-008 Chromium, Hex	avalent	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	Accepta	nce Range
Chromium, Hexavalent	ug/L	100	2590	2570		0.635	0 - 20	
Low Level Calibration	Verification	l						
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	0.211	0.200		105	70 - 130	)
Lab Control Sample	. *							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince 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/Ad	ded	Recovery	•	nce Range
Chromium, Hexavalent	ug/L	100	4460	4570(2000)		94.6	90 - 110	)
Matrix Spike							Lab ID =	806632-005
Parameter	Unit	DF	Result	Expected/Ad	dded	Recovery	Accepta	ince 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/Ad	dded	Recovery	Accepta	ince 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/Ad	ded	Recovery		ince Range
Chromium, Hexavalent	ug/L	250	8830	8920(5000)		98.1	90 - 110	)
Matrix Spike		:					Lab ID =	806633-001
Parameter	Unit	DF	Result	Expected/Ad	dded	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	100	4500	4560(2000)		97.1	90 - 110	)



Client: E2 Consulting Engineers, Inc.

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Parameter			Unit	Ana	lyzed	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
Meth	od Blank			<u>.</u>				**	
Parameter		Unit	ÐF	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					
Dupli	cate							Lab ID =	806632-005
Parameter		Unit	DF	Result	Expected	F	RPD	Accepta	ance 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	F	Recovery	Accepta	ance 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	F	Recovery	Accepta	ance Range
Barium		ug/L	1.00	47.4	50.0		94.8	85 - 118	5
Cadmium		ug/L	1.00	49.3	50.0		98.7	85 - 118	5
Antimony		ug/L	1.00	46.4	50.0		92.8	85 - 118	5
Lead		ug/L	1.00	49.2	50.0		98.4	85 - 118	5



Client: E2 Consulting En	gineers, Inc		roject Name: roject Numbe	PG&E Topock Pror: 423575.MP.02.GM	-	Page 8 of 41 Printed 3/28/2013
Matrix Spike						Lab ID = 806632-005
Parameter Barium	Unit ug/L	DF 1.00	Result 65.5	Expected/Added 69.6(50.0)	Recovery 91.9	Acceptance Range 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 Duplicat	e					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
	Ü				•	



Client: E2 Consulting Engineers, Inc.			Project Name: PG&E Topock Project Project Number: 423575.MP.02.GM.03			Page 10 of 41 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		



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Metals by EPA 6020A, Dissolved Batch 030813A Parameter Unit DF Analyzed MDL RL Result 806632-003 Cobalt ug/L 03/08/2013 16:44 1.00 0.0790 5.0 ND ug/L 0.0860 0.50 ND Manganese 03/08/2013 16:44 1.00 Nickel ug/L 03/08/2013 16:44 1.00 0.786 2.0 ND 0.0790 806632-004 Cobalt ug/L 03/08/2013 17:02 1.00 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

Method Dialik						
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 Calibr	ration 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 San	nple					
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



Client: E2 Consulting Eng	ineers, Inc		•	PG&E Topock Pro : 423575.MP.02.GM	-	Page 12 of 41 Printed 3/28/2013
Matrix Spike Duplicate						Lab ID = 806632-005
Parameter	Unit	DF	Result	Expected/Added 50.0(50.0)	Recovery	Acceptance Range
Cobalt	ug/L	1.00	41.0		82.1	75 - 125
Nickel Manganese MRCCS - Secondary	ug/L	1.00	43.1	50.0(50.0)	86.3	75 - 125
	ug/L	1.00	48.9	54.2(50.0)	89.4	75 - 125
Parameter Cobalt Nickel Manganese MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	19.9	20.0	99.3	90 - 110
	ug/L	1.00	19.9	20.0	99.6	90 - 110
	ug/L	1.00	20.0	20.0	100	90 - 110
Parameter Cobalt MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	19.6	20.0	98.0	90 - 110
Parameter Cobalt MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	18.6	20.0	92.9	90 - 110
Parameter Cobalt MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	20,2	20.0	101	90 - 110
Parameter Cobalt MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	20,2	20.0	101	90 - 110
Parameter Nickel MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.7	Expected 20.0	Recovery 104	Acceptance Range 90 - 110
Parameter Nickel MRCVS - Primary	Unit ug/L	DF 1.00	Result 21.0	Expected 20.0	Recovery 105	Acceptance Range 90 - 110
Parameter Nickel MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.8	Expected 20.0	Recovery 104	Acceptance Range 90 - 110
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	21.3	20.0	106	90 - 110



Client: E2 Consulting Engineers, Inc.

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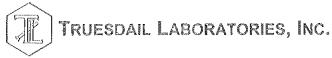
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 Metals by EPA 6020A, Dissolved
 Batch 031113B

 Parameter
 Unit
 Analyzed
 DF
 MDL
 RL
 Result

806632-003 Mercury		ug/L	03/12	2/2013 01:11 1.0	0.0400	0.20 ND
806632-004 Mercury		ug/L	03/12	2/2013 01:29 1.0	0.0400	0.20 ND
Method Blank	1 . 5					
Parameter Mercury Duplicate	Unit ug/L	DF 1.00	Result ND			Lab ID = 806632-005
Parameter Mercury Level Calibration	Unit ug/L Verification	DF 1.00	Result ND	Expected 0	RPD 0	Acceptance Range 0 - 20
Parameter Mercury Lab Control Sample	Unit ug/L	DF 1.00	Result 0.178	Expected 0.200	Recovery 89.0	Acceptance Range 70 - 130
Parameter Mercury Matrix Spike	Unit ug/L	DF 1.00	Result 4.66	Expected 5.00	Recovery 93.3	Acceptance Range 85 - 115 Lab ID = 806632-005
Parameter Mercury MRCCS - Secondary	Unit ug/L	DF 1.00	Result 3.88	Expected/Added 5.00(5.00)	Recovery 77.7	Acceptance Range 75 - 125
Parameter Mercury MRCVS - Primary	Unit ug/L	DF 1.00	Result 2.02	Expected 2.00	Recovery 101	Acceptance Range 90 - 110
Parameter Mercury MRCVS - Primary	Unit ug/L	DF 1.00	Result 1.88	Expected 2.00	Recovery 94.0	Acceptance Range 90 - 110
Parameter Mercury MRCVS - Primary	Unit ug/L	DF 1.00	Result 2.02	Expected 2.00	Recovery 101	Acceptance Range 90 - 110
Parameter Mercury Interference Check St	Unit ug/L andard A	DF 1.00	Result 1.88	Expected 2.00	Recovery 93.8	Acceptance Range 90 - 110
Parameter Mercury	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range



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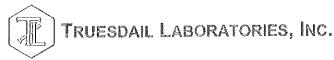
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806632-003 Arsenic		ug/L	03/13	/2013 15:30	1.00	0.100	0.50	45.9
Chromium		ug/L	03/13	/2013 15:18	50.0	4.60	50.0	2850
Copper		ug/L	03/13	/2013 15:30	1.00	0.257	5.0	ND
Selenium		ug/L	03/13	/2013 15:30	1.00	0.0800	5.0	14.0
Vanadium		ug/L	03/13	/2013 15:30	1.00	0.181	5.0	20.2
306632-004 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
306632-005 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
06632-006 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
306632-007 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
06632-008 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		/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	F	RPD	Accepta	nce Range
Arsenic	ug/L	1.00	6.02	5.94		1.30	0 - 20	3
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	



Client: E2 Consulting Eng	ineers, Inc.		=	PG&E Topock Pro : 423575.MP.02.GN	-	Page 18 of 41 Printed 3/28/2013
Low Level Calibration \	/erification					
Parameter Arsenic Low Level Calibration \	Unit ug/L	DF 1.00	Result 0.157	Expected 0.200	Recovery 78.5	Acceptance Range 70 - 130
Parameter Chromium Low Level Calibration	Unit ug/L	DF 1.00	Result 1.17	Expected 1.00	Recovery 117	Acceptance Range 70 - 130
Parameter Selenium Low Level Calibration V	Unit ug/L /erification	DF 1.00	Result 0.384	Expected 0.400	Recovery 96.0	Acceptance Range 70 - 130
Parameter Copper Low Level Calibration V	Unit ug/L /erification	DF 1.00	Result 0.957	Expected 1.00	Recovery 95.7	Acceptance Range 70 - 130
Parameter Vanadium Lab Control Sample	Unit ug/L	DF 1.00	Result 0.464	Expected 0.400	Recovery 116	Acceptance Range 70 - 130
Parameter Arsenic	Unit ug/L	DF 1.00	Result 48.7	Expected 50.0	Recovery 97.4	Acceptance Range 85 - 115
Chromium Selenium Copper	ug/L ug/L ug/L	1.00 1.00 1.00	50.5 46.6 52.1	50.0 50.0 50.0	101 93.2 104	85 - 115 85 - 115 85 - 115
Vanadium  Matrix Spike	ug/L	1.00	50.2	50.0	100	85 - 115 Lab ID = 806632-005
Parameter Arsenic Chromium	Unit ug/L ug/L	DF 1.00 2.00	Result 55.5 138	Expected/Added 55.9(50.0) 132(50.0)	Recovery 99.1 114	Acceptance Range 75 - 125 75 - 125
Selenium Copper Vanadium	ug/L ug/L ug/L	1.00 1.00 1.00	48.4 44.6 59.2	50.0(50.0) 50.0(50.0) 57.2(50.0)	96.8 89.2 104	75 - 125 75 - 125 75 - 125
Matrix Spike Duplicate	-9		00.2	0,12(00.0)	,	Lab ID = 806632-005
Parameter Arsenic Chromium Selenium Copper	Unit ug/L ug/L ug/L ug/L	DF 1.00 2.00 1.00 1.00	Result 55.2 139 47.7 44.7	Expected/Added 55.9(50.0) 132(50.0) 50.0(50.0) 50.0(50.0)	Recovery 98.5 115 95.4 89.5	Acceptance Range 75 - 125 75 - 125 75 - 125 75 - 125
Vanadium	ug/L	1.00	59.5	57.2(50.0)	105	75 - 125



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Interference Check St	andard AB					
Parameter Selenium Interference Check St	Unit ug/L andard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Selenium Interference Check St	Unit ug/L andard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Copper Interference Check St	Unit ug/L andard AB	DF 1.00	Result 19.6	Expected 20.0	Recovery 98.1	Acceptance Range 80 - 120
Parameter Copper Interference Check St	Unit ug/L andard AB	DF 1.00	Result 22.8	Expected 20.0	Recovery 114	Acceptance Range 80 - 120
Parameter Vanadium Interference Check St	Unit ug/L andard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Vanadium Serial Dilution	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range Lab ID = 806632-003
Parameter Arsenic Serial Dilution	Unit ug/L	DF 5.00	Result 46.7	Expected 45.9	RPD 1.68	Acceptance Range 0 - 10 Lab ID = 806632-005
Parameter Chromium	Unit ug/L	DF 10.0	Result 83.5	Expected 81.5	RPD 2.43	Acceptance Range 0 - 10



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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806632-003 Beryllium		ug/L		5/2013 17:53	2.00	0.0600	0.50	ND
Molybdenum		ug/L		5/2013 17:53	2.00	0.414	2.0	11.2
Silver		ug/L	03/15	5/2013 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		/2013 18:05	2.00	0.414	2.0	8.8
Silver		ug/L		5/2013 18:05	2.00	0.108	5.0	ND
806632-005 Molybdenum		ug/L	03/15	6/2013 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		/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 =	806632-00
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range
Beryllium	ug/L	2.00	ND	0		0	0 - 20	J
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	F	Recovery	Accepta	ince 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	F	Recovery	Accepta	nce Rang
Beryllium	ug/L	1.00	44.6	50.0		89.3	85 - 115	5
Silver	ug/L	1.00	43.8	50.0		87.5	85 - 115	5
Molybdenum	ug/L	1.00	47.8	50.0		95.5	85 - 118	5



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Matrix Spike						Lab ID = 806632-005
Parameter Beryllium Silver	Unit ug/L ug/L	DF 2.00 2.00	Result 37.8 40.0	Expected/Added 50.0(50.0) 50.0(50.0)	Recovery 75.6 80.0	Acceptance Range 75 - 125 75 - 125
Molybdenum  Matrix Spike Duplicate	ug/L	2.00	127	119(50.0)	116	75 - 125 Lab ID = 806632-005
Parameter Beryllium Silver Molybdenum	Unit ug/L ug/L ug/L	DF 2.00 2.00 2.00	Result 37.7 39.5 126	Expected/Added 50.0(50.0) 50.0(50.0) 119(50.0)	Recovery 75.4 78.9 115	Acceptance Range 75 - 125 75 - 125 75 - 125
MRCCS - Secondary	·		.20	, ,		10 120
Parameter Beryllium Silver Molybdenum MRCVS - Primary	Unit ug/L ug/L ug/L	DF 1.00 1.00 1.00	Result 18.5 19.6 19.0	Expected 20.0 20.0 20.0	92.4 98.1 95.3	Acceptance Range 90 - 110 90 - 110 90 - 110
Parameter Beryllium MRCVS - Primary	Unit ug/L	DF 1.00	Result 18.6	Expected 20.0	Recovery 93.1	Acceptance Range 90 - 110
Parameter Beryllium Silver MRCVS - Primary	Unit ug/L ug/L	DF 1.00 1.00	Resuit 18.1 19.1	Expected 20.0 20.0	Recovery 90.4 95.6	Acceptance Range 90 - 110 90 - 110
Parameter Silver Molybdenum MRCVS - Primary	Unit ug/L ug/L	DF 1.00 1.00	Result 19.4 20.3	Expected 20.0 20.0	Recovery 97.2 102	Acceptance Range 90 - 110 90 - 110
Parameter Molybdenum Interference Check St	Unit ug/L andard A	DF 1.00	Result 21.3	Expected 20.0	Recovery 106	Acceptance Range 90 - 110
Parameter Beryllium Interference Check St	Unit ug/L andard A	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Beryllium	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range



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Interference Check Sta	andard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	ND	0		
Interference Check Sta	andard 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 Sta	andard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		
Interference Check Sta						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	ND	0		
Interference Check Sta	andard 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 Sta	andard AB					Terror Motor
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 Sta	andard 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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Parameter		Unit	Ana	lyzed	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		F	RPD	Accepta	ance Range
Chromium	ug/L	2.00	1.38 1.34			2.65	0 - 20	_
Thailium	ug/L	2.00	ND 0			0	0 - 20	
Low Level Calibration	n Verification	1					•	
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance 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	F	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	51.6	50.0		103	85 - 118	5
Thallium	ug/L	2.00	51.0	50.0		102	85 - 118	5
Matrix Spike							Lab ID =	806632-010
Parameter	Unit	DF	Result	Expected/Add	led F	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	50.0	51.3(50.0)		97.3	75 - 12	5
Thallium	ug/L	2.00	47.1	50.0(50.0)		94.3	75 - 128	5
Matrix Spike Duplical	te						Lab ID =	806632-010
Parameter	Unit	DF	Result	Expected/Add	led F	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	50.6	51.3(50.0)		98.6	75 - 128	5
Thallium	ug/L	2.00	46.0	50.0(50.0)		91.9	75 - 128	



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Interference Check S	tandard AB					. 214
Parameter Chromium Interference Check S	Unit ug/L standard AB	DF 1.00	Result 18.7	Expected 20.0	Recovery 93.4	Acceptance Range 80 - 120
Parameter Chromium Interference Check S	Unit ug/L itandard AB	DF 1.00	Result 18.9	Expected 20.0	Recovery 94.4	Acceptance Range 80 - 120
Parameter Thallium Interference Check S	Unit ug/L tandard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Thallium Serial Dilution	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range  Lab ID = 806632-008
Parameter Chromium	Unit ug/L	DF 250	Result 3890	Expected 4050	RPD 3.94	Acceptance Range 0 - 10



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Parameter		Unit	Ana	lyzed	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		•	e .				Lab ID =	806632-005
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ince 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	I					•	* · · · ·
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce 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								100
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Chromium	ug/L	2.00	53.9	50.0		108	85 - 115	5
Manganese	ug/L	2.00	54.0	50.0		108	85 - 115	5
Matrix Spike							Lab ID ≕	806632-005
Parameter	Unit	DF	Result	Expected/Adde	ed F	Recovery	Accepta	nce Range
Chromium	ug/L	2.00	141	129(50.0)		124	75 - 125	5
Manganese	ug/L	2.00	59.0	54.2(50.0)		110	75 - 125	5
Matrix Spike Duplicate	•						Lab ID =	806632-005
Parameter	Unit	DF	Result	Expected/Adde	ed F	Recovery	Accepta	nce 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	5



Client: E2 Consulting	Engineers, Inc		r <b>o</b> ject Name: roject Numbe	PG&E Topock r: 423575.MP.02	•	Page 31 of 41 Printed 3/28/2013
Interference Check	Standard AB					
Parameter Manganese Interference Check	Unit ug/L Standard AB	DF 1.00	Result 19.8	Expected 20.0	Recovery 98.8	Acceptance Range 80 - 120
Parameter Manganese Serial Dilution	Unit ug/L	DF 1.00	Result 20.9	Expected 20.0	Recovery 105	Acceptance Range 80 - 120 Lab ID = 806632-005
Parameter Chromium	Unit ug/L	DF 10.0	Result 75.8	Expected 78.9	RPD 3.96	Acceptance Range 0 - 10



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Parameter		Unit	Analy	zed [	)F	MDL	RL	Result
806632-003 Sodium		ug/L	03/18/2	2013 16:05 1	00	39400	100000	1390000
806632-004 Sodium		ug/L	03/18/2	2013 16:11 1	00	39400	100000	1340000
Method Blank								
Parameter	Unit	DF	Result					
Sodium	ug/L	1.00	ND					
Duplicate							Lab ID = 8	06828-002
Parameter	Unit	DF	Result	Expected		RPD	Acceptan	ce Range
Sodium	ug/L	1000	1590000	1640000		2.84	0 - 20	
Lab Control Sample	•							
Parameter	Unit	DF	Result	Expected		Recovery	Acceptan	ce Range
Sodium	ug/L	1.00	1870	2000		93.5	85 - 115	
Matrix Spike							Lab ID = 8	06828-002
Parameter	Unit	DF	Result	Expected/Adde	d I	Recovery	Acceptan	ce Range
Sodium	ug/L	1000	3520000	3640000(20000	C	94.2	75 - 125	
MRCCS - Seconda	ry							1 1 2 2 2 2
Parameter	Unit	DF	Result	Expected		Recovery	Acceptan	ce Range
Sodium	ug/L	1.00	4900	5000		97.9	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Acceptan	ce Range
Sodium	ug/L	1.00	4760	5000		95.2	90 - 110	
MRCVS - Primary	grandes de Maria Personales de Carrolla							
Parameter	Unit	DF	Result	Expected		Recovery	Acceptan	ce Range
Sodium	ug/L	1.00	4780	5000		95.6	90 - 110	
Interference Check	Standard A						+ 1	y to the Wilde
Parameter	Unit	DF	Result	Expected		Recovery	Acceptan	ce Range
Sodium	ug/L	1.00	1880	2000		93.8	80 - 120	
Interference Check	Standard A							
Parameter	Unit	DF	Result	Expected		Recovery	Acceptan	ce Range
Sodium	ug/L	1.00	1880	2000		94.2	80 - 120	-
Interference Check	Standard AB	* 1 1 41						1000
Parameter	Unit	DF	Result	Expected		Recovery	Acceptan	ce Range
Sodium	ug/L	1.00	1870	2000		93.6	80 - 120	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Parameter		Unit	Anal	yzed	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	e esperante						Lab ID =	806828-002
Parameter	Unit	DF	Result	Expected		RPD	Accepta	ince 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	11.							7 * * * · · · · · · · · · · · · · · · ·
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Calcium	ug/L	1.00	1950	2000		97.7	85 - 115	;
Magnesium	ug/L	1.00	1980	2000		98.8	85 - 115	j
Matrix Spike							Lab ID =	806828-002
Parameter	Unit	DF	Result	Expected/Adde	d	Recovery	Accepta	nce Range
Calcium	ug/L	100	416000	411000(20000	0)	103	75 - 125	j
Magnesium	ug/L	10.0	50500	53300(20000)		86.0	75 - 125	5
MRCCS - Secondary	er de la company	*						•
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce 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	Accepta	nce Range
Calcium	ug/L	1.00	4570	5000		91.3	90 - 110	)
MRCVS - Primary	* 1 *.							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Calcium	ug/L	1.00	4740	5000		94.8	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Calcium	ug/L	1.00	4710	5000		94.1	90 - 110	)



Client: E2 Consulting Engineers, Inc.

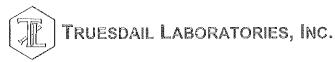
PG&E Topock Project Project Name:

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

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Parameter		Unit	Analy	zed I	)F	MDL	RL	Result
806632-005 Calcium		ug/L	03/07/2	2013 16:41 1	0.0	380	5000	115000
Magnesium		ug/L	03/07/2	2013 16:41 1	0.0	549	5000	7340
Sodium		ug/L	03/07/2	2013 18:39 2	00	20000	100000	2450000
806632-006 Calcium		ug/L	03/07/2	2013 17:34 1	00	3800	50000	316000
Magnesium		ug/L	03/07/2	2013 16:03 1	0.0	549	5000	33300
Sodium		ug/L	03/07/2	2013 17:58 1	000	100000	500000	2550000
806632-007 Calcium		ug/L	03/07/2	2013 18:45 5	00	19000	250000	576000
Magnesium		ug/L	03/07/2	2013 16:47 1	0.0	549	5000	34800
Sodium		ug/L	03/07/2	2013 18:45 5	00	50000	250000	4910000
806632-008 Calcium		ug/L	03/07/2	2013 18:51 2	00	7600	100000	637000
Magnesium		ug/L	03/07/2	2013 16:53 1	0.0	549	5000	23400
Sodium		ug/L	03/07/2	2013 18:51 2	00	20000	100000	1590000
Method Blank								1 11 1
Parameter	Unit	DF	Result					
Calcium	ug/L	1.00	ND					
Sodium	ug/L	1.00	ND					
Magnesium	ug/L	1.00	ND					
Duplicate	A STATE OF THE STA						Lab ID = 8	06632-006
Parameter	Unit	DF	Result	Expected	R	RPD	Acceptan	ice 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	. 1							**
Parameter	Unit	DF	Result	Expected	F	Recovery	Acceptar	ice 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 <i>-</i> 115	
Matrix Spike							Lab ID = 8	06632-006
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Acceptan	ice Range
Calcium	ug/L	100	522000	516000(20000	))	103	75 - 125	
Sodium	ug/L	1000	4570000	4550000(20000	)C	101	75 - 125	
Magnesium	ug/L	10.0	52500	53300(20000)		96.0	75 - 125	



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Parameter		Unit	Ana	lyzed	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	Accepta	ınce 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	Ac <b>c</b> epta	ınce Range
Iron	ug/L	1.00	2180	2000		109	85 - 118	5
Zinc	ug/L	1.00	2110	2000		106	85 - 115	5
Matrix Spike	erasa a r						Lab ID =	806632-006
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	Accepta	ınce Range
Iron	ug/L	1.00	1830	2000(2000)		91.6	75 - 125	5
Zinc	ug/L	1.00	2370	2000(2000)		118	75 - 125	5
Matrix Spike Duplicate							Lab ID =	806632-006
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	Accepta	ince Range
Iron	ug/L	1.00	1830	2000(2000)		91.6	75 - 125	5
Zinc	ug/L	1.00	2360	2000(2000)		118	75 - 125	5
MRCCS - Secondary	. et et							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ınce Range
Iron	ug/L	1.00	5200	5000		104	90 - 110	)
Zinc	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.GM.03

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Interference Check Standard AB

Parameter Zinc Interference Check Sta	Unit ug/L indard AB	DF 1.00	Result 2100	Expected 2000	Recovery 105	Acceptance Range 80 - 120
Parameter	Unit	DF	Result	Expected 2000	Recovery	Acceptance Range
Zinc	ug/L	1.00	2140		107	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

CH2MHIL	L								CI	HAIN C	)F.CU	STOD	Y RECORD	•	206	94 Page 1	OF.	è	
Project Name Po	3&E Topo	ck	C	ntalner	250 ml Poly	2x250 mi Poly	2x500 mi Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 mì Poly	1x500 ml Poly				ASSESSMENT OF THE PROPERTY OF			
Location Topoc			Preser	vatives:	(NH4)250 4/NH4OH	(NH4)2SC		HNO3, 4°C	HNO3,	HN03, 4°C	HNO3, 4°C	HN03. 4°C		1. 34	्र <sub>ाक</sub> े १५ ५६ <b>म म प</b> ्रिक्त १५५४				
Project Manager					4°C	4°C	İ	<u> </u>	-					- 1 to 1	J. 197				
Sample Manager	Suawn Di	-		Filtered:		Field	Field	Field	Field	Fleid	Field	Field							
Project Number 4	177575 BAD			g Time:	28	28	180	180	180	180	180	180		ł	And the second second second			Comments of the Comments of th	
roject Number 4 Task Order	02	, Cin	1.0	3			¥eg	Mo	Metais (6010BFF) FF Ca,Mg,Na,Fe	Metals (8010B/6020A/7470Adjs) FF Tijls 21:SbAsBeBeCdCrCoCuPbHgMoNi ApTryZn					A				
Project 2013-GM	P-191SA	NPLE	MET	HOD	,	0	als (F	als (	. (60	8 (80 A48	₹	. Me.			P. Commissioners		l m		
Turnaround Time	10 Day	/S			ğ	8	020	0020	3010	)10E	As (	N's'W		7	LOV	el III and	Ĭ Ĕ	STATE OF THE PARTY	
hipping Date: 1	/31/2013				E21	E218	)A	ΑF	Ĕ,	78020 1180 1180 1180 1180 1180 1180 1180	(602¢	6020 Se					ofc		
COC Number: 11	⊔_GMP-1	91SN	TT.		Cr6 (E218.6) FF	Cr8 (E218.6R) F	) 55	925	FF 1	<u> </u>	Metals (6020AFF) FF As.Mo,So.Mn	š AF					9£		
•					77	7	Metals (6020AFF) FF Chromium	Metals (0020AFF) FF Chromium	4'e7	7470 uPbl	3 F	Melais (6020AFF) FF As,Mo,Se,Mn,Cr	•				Number of Containers		
					ĺ		omic	rom	, ĝ	Age.							S		
	DATE	TIN	4E !	Matrix			ਭੋ	3	e,Fe	Metals (8010B/8020A/7470Adis) FF Title 22:SbAqBeBeCdCrCoCuPbHgMoNiSe AcTV7n			Sample	T,	<b>\</b> 5			COM	IMENTS
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-3	1-26-13			1	X			2		X			mw-llc			מי	2	П	
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-7		153	3		X				×			X	MW-50-	DOK	-191		12		7-
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~9	2-27-13	10)	4		X			X					MW-206	-191			2		
-10	2-28-13	3/08	B		X			X					MW-209	-19			2		
-1(	2-26-13	151	o	T	X	Ţ		X	-				MW-205	-19			a		$\Gamma^{-}$
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			mat			Doto											<u> </u>	<u> </u>	
Approved by	. /	/)"	ایکفته به مختص	1162		Date:	/3			• •	ng Detai				ATTN:	Special Instructions:  **Please add Ca,Mg,Na,F	'e,&	Mn	to
Sampled by						163			•	hipment:	Fed	Ex	ļ			samples MW-12-191 and M			
Relinquished by	111		~						e: ye:	s / no			Ì	Samp	ole Custody	· · · · · · · · · · · · · · · · · · ·		_	
Received by	Kilo	<u> </u>	23	·/a	_ 3	4-13										Report Copy to 03/14/	2013		77
lelinquished by	Kell	ail	F	) ON	ilos	3-4-	3 12	· Jab 1	lame: T	ruesdail	Laborat	tories, Ir	c.			Shawn Duffy			-
eceived by	1	, ~	\ <del></del>					lahl	hone:	(714) 73	0-6239					(530) 229-3303			

**CHAIN OF CUSTODY RECORD** 

206632

Page 1 OF

Designat Name DOSE Toronto	Container	250 ml	2x250	2x500	1x500	1x500	1x500	1x500	1x500		/ <del>*</del>		.79			٦
Project Name PG&E Topock Location Topock	Container	Poly	ml Poly	ml Poly	mí Poly HNO3,	ml Poly	ml Poly	mi Poly HNO3,	mi Poly	<b>.</b>	er er er Samer e		350			ı
Project Manager Jay Piper	Preservatives:	(NH4)250 4/NH4OH, 4°C	(NH4)2SO 4/NH4OH, 4°C	4°C	4°C	HNO3, 4°C	HNO3, 4°C	4°C	HNO3, 4°C	*	4, 2, 3	Form Atlanta				
Sample Manager Shawn Duffy	Filtered:	Field	Field	Field	Field	Field	Field	Field	Field	_	4,500 (500)					1
	Holding Time:	28	28	180	180	180	180	180	180	_	Section and the second	Obstantia (State Control of Contr				
Project Number 423575.MP.06 Task Order 02. G Project 2013-GMP-191SAMPL Turnaround Time 10 Days		940	Спб	Metals (6020AFF) FF	Metals (602	Metals (6010	Metals (6010 22:SbAsBaBe	Metals As	Metals As,	444		ALERTII	IXUIIUGI	Numba		-
Shipping Date: 1/31/2013		(E21	(E218	,0AFF	0AFF	BFF)	B/60	(602 \$,Mo.	(602 Mo,S		The state of the s					
COC Number: TLI_GMP-191S	SMT	Сг6 (E218.6) FF	Сr6 (E218.6R) FF	-) FF Chromium	Metals (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6010B/6020A/7470Adis) FF Title 22:SbAsBaBeCdCrCoCuPbHgMoNiSe	Metals (8020AFF) FF As,Mo,Se,Mn	Metals (8020AFF) FF As,Mo,Se,Mn,Cr	Sample Mw-208	こコン		Mildikais	of Containers	COMMENTS	
1-38-30	SHO wher	X			×					MW-208	-191		2		1	]
	845	X		-	1					mw-20	7-191		2		1	1
-3 2-36-13 19		×					×			mw-110			2	T		1
Y   1   12	458	×					X			mw-12			2		and the same of th	1
	235	×				X			X	MW-44-	<del></del>	11	2			1
7-27-13 19	- 1	×				×			X	mu-47-	-115-19	11	a		DV-	1
	533	X				X			X	MW-W-	200 - l	91	a		Me	
	125	×				×			X	MW-59-	100-10		9			1
79 2-27-13 11		X			X					MW-206	-191		2			1
-10 2-28-130		X			X					MW-209	-191		2		-	1
-11 2-26-13 19		<b>X</b>			X					MW-205			Q			1
72 2-28-130		×		***************************************	<b>×</b>					mw-210			2			1
	Signatures		Date	Time			China	na Data				Special Instructions:				
Approved by Sampled by		·	3- 4- 163	13° 0		od of Si ce: yes	hipment	ng Detai			ATT	N:				

Sample Custody

Received by

Relinquished by Received by

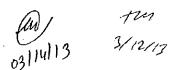
Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239

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
2127/13	806555-9	9.5	NIA	NIA	P19	KB
	-10				1	
	11					
	12				,	
	_\3		-			
	_14					
	-ر` کا-					
	~16					
	<u>~\7</u>					
	-13					
2/27/13	806573-1	7.0	Iml/Some	9.5	4:30 16:30	74
	~2	7.0	Jul/Soml	9.5	16:30	TM
2/28/13	806591-1	7.0	2ml /100 ml	9.5	15:00	TRY
	-2	· <u>J</u>	J	J	12:00	TH
3/4/13	806624-1	7.0	2 ml/100 m L	9.5	17:00	TU
	- 2	$\downarrow$		1	17:00	TH
3/5/13	806632-1	9.5	NA	NIA	IV IA	RA
	-2					_
	-3			·		
	~4					
<u>.</u>	5					
.	-6					
	-7					
	-8					
	_9	-				
	_10					
	-11					
	-12	_	<u> </u>	<u> </u>	<u> </u>	<i>J</i>
3/5/13	806633-1	9.5	NA	NIA	NA	KB
	-2	<u> </u>				1
		<u> </u>	<u>_</u>	<i>b</i>	k	<u> </u>





Turbidity/pH Check

			Turbi	dity/pH C	heck			
Sample Number	Turbidity	рH	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41.	12	2/25/13	DC	Yes			
806520	. 71	42		1	1			
806493 (1-5)	71	' 12						
806494 (1-5)	71	62	l	V	J			
306552	<1.	72	2-27-13	ちょ	Xes	11:00		
80655361-4)		42						
8165544-4)			·	1	·			
806882 L194-1	7)	-						
806542(1-3)		72			<b>~</b> 0	12:00	2/28/13 2 15:35	
80 8545				(		-	J	
806537	4	42	<b>Y</b>	or	yes			
806565	41	72	<u> </u>	4	. ges	14:00	2/28/13 20 15:30	
806562(1-19)		72	2 [28]13	ES	no_	9:30	3/1/13 00 10:00	pHZ2
806567(10-12)			9 4	1	4	7	¥	$\nu$
806570 (1-2)	フリ	ZZ			ye			
806 572 (1-2)	<b>ラ</b> (	42			ys ges			
806586 (1,2)	41	72	l	00	yes	15:30		
306617	71 TNO	.42	3/4/13	ov	izes			
506632 (1-12)	<u> </u>		3-5-18	BL	9			
806833(1-12)			·					
8066344193-6								
806135 [1-598-14]					<u> </u>			
806620(1-2,4)	41	72_	31313	ŁS	NO	12:00		
506627 (16,23)		<u> </u>		<u>-                                     </u>				
806625		<del>~2</del> 2			yes			
806626	4	<u> </u>		1				
408 688 C1-532.15	_{\}	<u> </u>	3-6-13	BE	xes			الناه والم
896669 L1-2)	-	72	1	_ \	——————————————————————————————————————			A CICLIFUL
80667061-27			· \	_ \	<b>\</b>			
808679(1-5)		<u> </u>	,	1				
806643	71			DC	yes			
806651	<u> </u>	<u>.</u>	<u> </u>		- 1			
806688	>1 ≺\	<b>&gt;2</b> ツァ		B E-	V	12:30		
906667	<del>- i'-+</del>	7.		100		105-males	10	
80666361-3	-+-	—- <del>\</del>			—- <del> </del>	15:00		
806685(4-6)						1		·
					yes	<u> </u>		
80 6650	41	22	3/4/13	n	- The	<del></del>		
806649			<del></del>					·
806648								
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8010646	<del></del>							
806652		<del>- ]</del>		<del>-  </del> -			_	
806671	<u> </u>	<u>.b</u>	<u> </u>	4	3			

### Notes:

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

# Sample Integrity & Analysis Discrepancy Form

Clie	ent: £2	Lab # 806632
Date	e Delivered: <u>0</u> 3/ <u>0</u> 4/13 Time: <u>22:3</u> 0 By: □Mail ☑	Fleid Service
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ¤N/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ØN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ☑N/A
5.	Were all requested analyses understood and acceptable?	ДYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? 3.5°C	ÆQYes □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 ØN/A
<b>9</b> .	Does the number of samples received agree with COC?	ДìYes □No □N/A
1 <b>0</b> .	Did sample labels correspond with the client ID's?	ØYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: △Truesdail □Client	Ø Yes □No □N/A
12.	Were samples pH checked? pH = Sel C, O, C.	ÆlYes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	e Yes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b>	∕⊠(Yes □No □N/A
15.	Sample Matrix: □Liquid □Drinking Water □Ground	
	□Sludge □Soil □Wipe □Paint □Solid 💆	Other Water
6.	Comments:	
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	d. Shabunina

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.

Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

## TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



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

Laboratory No.: 806828

Date Received: March 12, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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

# TRUESDAIL LABORATORIES, INC.

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Page 1 of 16

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Printed 3/28/2013

Laboratory No. 806828

### 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:

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	\Mater

Chrome VI by EPA 218.6	3		Batch	03CrH13J				
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result
806828-001 Chromium, Hex	avalent	ug/L	03/14/2013 10:05		1.00	0.00920	0.20	ND
806828-002 Chromium, Hex	avalent	ug/L	03/14	1/2013 12:00	5.00	0.0460	1.0	58.7
806828-003 Chromium, Hex	avalent	ug/L	03/14	/2013 10:26	1.00	0.00920	0.20	16.7
Method Blank								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	806858-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.38	Expected 1.39	RPD 1.02		Acceptance Range 0 - 20	
Low Level Calibration	Verification							
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.212	Expected 0.200	F	Recovery 106	Acceptance Ran 70 - 130	
Lab Control Sample								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 4.98	Expected 5.00	F	Recovery 99.5	90 - 110	
Matrix Spike							Lab ID =	806827-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 25.0	Result 1180	Expected/Add 1220(625)	led F	Recovery 93.6	Accepta 90 - 110	ance Range )



Client: E2 Consulting En	gineers, Ind		Project Name: Project Number	PG&E Topock Pro: 423575.MP.02.GM	-	Page 2 of 16 Printed 3/28/2013
Matrix Spike						Lab ID = 806827-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.976	Expected/Added 1.02(1.00)	Recovery 95.2	Acceptance Range 90 - 110 Lab ID = 806828-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.989	Expected/Added 1.01(1.00)	Recovery 97.6	Acceptance Range 90 - 110 Lab ID = 806828-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 131	Expected/Added 134(75.0)	Recovery 96.8	Acceptance Range 90 - 110 Lab ID = 806828-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.02	Result 36.8	Expected/Added 36.7(20.0)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806829-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 185	Expected/Added 186(100)	Recovery 98.6	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 124	Expected/Added 125(75.0)	Recovery 98.4	Lab ID = 806829-002 Acceptance Range 90 - 110
Matrix Spike						Lab ID = 806829-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 83.0	Expected/Added 84.2(50.0)	Recovery 97.6	Acceptance Range 90 - 110 Lab ID = 806829-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.02	Result 36.9	Expected/Added 36.8(20.0)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806858-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 7.17	Expected/Added 7.33(5.00)	Recovery 96.8	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 7.44	Expected/Added 7.38(5.00)	Recovery 101	Lab ID = 806858-002  Acceptance Range 90 - 110  Lab ID = 806858-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.961	Expected/Added 1.00(1.00)	Recovery 96.1	Acceptance Range 90 - 110 Lab ID = 806858-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.988	Expected/Added 1.00(1.00)	Recovery 98.8	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 4 of 16

Project Number: 423575.MP.02.GM.03 Printed 3/28/2013

Parameter         Unit         Analyzed         DF         MDL           806828-001 Chromium         ug/L         03/19/2013 12:13         2.00         0.184           806828-002 Arsenic         ug/L         03/19/2013 13:25         2.00         0.200           Chromium         ug/L         03/19/2013 13:25         2.00         0.184           Manganese         ug/L         03/19/2013 13:25         2.00         0.172           Molybdenum         ug/L         03/19/2013 13:25         2.00         0.414           Selenium         ug/L         03/19/2013 12:31         2.00         0.200           Chromium         ug/L         03/19/2013 12:31         2.00         0.184           Manganese         ug/L         03/19/2013 12:31         2.00         0.172           Molybdenum         ug/L         03/19/2013 12:31         2.00         0.414           Selenium         ug/L         03/19/2013 12:31         2.00         0.414           Selenium         ug/L         03/19/2013 12:31         2.00         0.160           Method Blank           Parameter         Unit         DF         Result           Arsenic         ug/L         1.00         ND     <		Result
806828-002 Arsenic ug/L 03/19/2013 13:25 2.00 0.200 Chromium ug/L 03/19/2013 13:25 2.00 0.184 Manganese ug/L 03/19/2013 13:25 2.00 0.172 Molybdenum ug/L 03/19/2013 13:25 2.00 0.414 Selenium ug/L 03/19/2013 13:25 2.00 0.414 Selenium ug/L 03/19/2013 13:25 2.00 0.160  806828-003 Arsenic ug/L 03/19/2013 12:31 2.00 0.200 Chromium ug/L 03/19/2013 12:31 2.00 0.184 Manganese ug/L 03/19/2013 12:31 2.00 0.172 Molybdenum ug/L 03/19/2013 12:31 2.00 0.414 Selenium ug/L 03/19/2013 12:31 2.00 0.414 Selenium ug/L 03/19/2013 12:31 2.00 0.414 Selenium ug/L 03/19/2013 12:31 2.00 0.160  Method Blank  Parameter Unit DF Result Arsenic ug/L 1.00 ND  Chromium ug/L 1.00 ND	1.0	
Chromium ug/L 03/19/2013 13:25 2.00 0.184 Manganese ug/L 03/19/2013 13:25 2.00 0.172 Molybdenum ug/L 03/19/2013 13:25 2.00 0.414 Selenium ug/L 03/19/2013 13:25 2.00 0.414 Selenium ug/L 03/19/2013 13:25 2.00 0.160  806828-003 Arsenic ug/L 03/19/2013 12:31 2.00 0.200 Chromium ug/L 03/19/2013 12:31 2.00 0.184 Manganese ug/L 03/19/2013 12:31 2.00 0.172 Molybdenum ug/L 03/19/2013 12:31 2.00 0.414 Selenium ug/L 03/19/2013 12:31 2.00 0.414 Selenium ug/L 03/19/2013 12:31 2.00 0.414 Selenium ug/L 03/19/2013 12:31 2.00 0.160  Method Blank  Parameter Unit DF Result Arsenic ug/L 1.00 ND Chromium ug/L 1.00 ND		1.7
Manganese       ug/L       03/19/2013 13:25       2.00       0.172         Molybdenum       ug/L       03/19/2013 13:25       2.00       0.414         Selenium       ug/L       03/19/2013 13:25       2.00       0.160         806828-003 Arsenic       ug/L       03/19/2013 12:31       2.00       0.200         Chromium       ug/L       03/19/2013 12:31       2.00       0.184         Manganese       ug/L       03/19/2013 12:31       2.00       0.172         Molybdenum       ug/L       03/19/2013 12:31       2.00       0.414         Selenium       ug/L       03/19/2013 12:31       2.00       0.160         Method Blank         Parameter       Unit       DF       Result         Arsenic       ug/L       1.00       ND         Chromium       ug/L       1.00       ND	0.50	7.3
Molybdenum       ug/L       03/19/2013 13:25       2.00       0.414         Selenium       ug/L       03/19/2013 13:25       2.00       0.160         806828-003 Arsenic       ug/L       03/19/2013 12:31       2.00       0.200         Chromium       ug/L       03/19/2013 12:31       2.00       0.184         Manganese       ug/L       03/19/2013 12:31       2.00       0.414         Selenium       ug/L       03/19/2013 12:31       2.00       0.414         Selenium       ug/L       03/19/2013 12:31       2.00       0.160     Method Blank  Parameter  Unit  DF  Result  Arsenic  ug/L  1.00  ND  Chromium  ug/L  1.00  ND	1.0 5	58.3
Selenium       ug/L       03/19/2013 13:25       2.00       0.160         806828-003 Arsenic       ug/L       03/19/2013 12:31       2.00       0.200         Chromium       ug/L       03/19/2013 12:31       2.00       0.184         Manganese       ug/L       03/19/2013 12:31       2.00       0.172         Molybdenum       ug/L       03/19/2013 12:31       2.00       0.414         Selenium       ug/L       03/19/2013 12:31       2.00       0.160         Method Blank         Parameter       Unit       DF       Result         Arsenic       ug/L       1.00       ND         Chromium       ug/L       1.00       ND	0.50	59.6
806828-003 Arsenic ug/L 03/19/2013 12:31 2.00 0.200 Chromium ug/L 03/19/2013 12:31 2.00 0.184 Manganese ug/L 03/19/2013 12:31 2.00 0.172 Molybdenum ug/L 03/19/2013 12:31 2.00 0.414 Selenium ug/L 03/19/2013 12:31 2.00 0.160  Method Blank  Parameter Unit DF Result Arsenic ug/L 1.00 ND Chromium ug/L 1.00 ND	2.0	30.3
Chromium         ug/L         03/19/2013 12:31         2.00         0.184           Manganese         ug/L         03/19/2013 12:31         2.00         0.172           Molybdenum         ug/L         03/19/2013 12:31         2.00         0.414           Selenium         ug/L         03/19/2013 12:31         2.00         0.160           Method Blank           Parameter         Unit         DF         Result           Arsenic         ug/L         1.00         ND           Chromium         ug/L         1.00         ND	5.0	ND
Manganese       ug/L       03/19/2013 12:31       2.00       0.172         Molybdenum       ug/L       03/19/2013 12:31       2.00       0.414         Selenium       ug/L       03/19/2013 12:31       2.00       0.160         Method Blank         Parameter       Unit       DF       Result         Arsenic       ug/L       1.00       ND         Chromium       ug/L       1.00       ND	0.50 1	1.2
Molybdenum         ug/L         03/19/2013 12:31         2.00         0.414           Selenium         ug/L         03/19/2013 12:31         2.00         0.160           Method Blank           Parameter         Unit Arsenic         DF Result ND           Arsenic         ug/L         1.00         ND           Chromium         ug/L         1.00         ND	1.0	16.4
Selenium         ug/L         03/19/2013 12:31         2.00         0.160           Method Blank           Parameter         Unit         DF         Result           Arsenic         ug/L         1.00         ND           Chromium         ug/L         1.00         ND	0.50	ND
Method Blank  Parameter Unit DF Result  Arsenic ug/L 1.00 ND  Chromium ug/L 1.00 ND	2.0	8.5
Method Blank  Parameter Unit DF Result  Arsenic ug/L 1.00 ND  Chromium ug/L 1.00 ND	5.0	ND
Parameter         Unit         DF         Result           Arsenic         ug/L         1.00         ND           Chromium         ug/L         1.00         ND		
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 Commission C	Lab ID = 806	3827-001
Parameter Unit DF Result Expected RPD	Acceptance	e 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	e 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 Engi	neers, Inc.		Project Name: Project Number:	PG&E Topock Pro 423575.MP.02.GN	-	Page 5 of 16 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 05 - 445
Selenium	ug/L	1.00	45.0	50.0	90.0	85 - 115 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 Arsenic	Unit ug/L	DF 2.00	Result 53.8	Expected/Added 51.5(50.0)	Recovery 104	Acceptance Range 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	Vistorian E					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.4	20.0	92.1	90 - 110



Client: E2 Consulting Er	gineers, Ind		Project Name: Project Numbe	PG&E Topoc r: 423575.MP.0	•	Page 9 of 16 Printed 3/28/2013
Serial Dilution						Lab ID = 806827-001
Parameter Chromium	Unit ug/L	DF 50.0	Result 548	Expected 562	RPD 2.52	Acceptance Range 0 - 10
Serial Dilution						Lab ID = 806828-002
Parameter Chromium	Unit ug/L	DF 10.0	Result 58.2	Expected 58.3	RPD 0.113	Acceptance Range 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

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

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Metals by EPA 6010B,	Dissolved		Batch 031813A-Th2						
Parameter		Unit	Analy	zed	DF	MDL	RL	Result	
806828-002 Sodium		ug/L	03/18/2	2013 14:36 1	000	394000	1000000	1640000	
806828-003 Sodium		ug/L_	03/18/2	2013 15:25 1	00	39400	100000	674000	
Method Blank									
Parameter	Unit	DF	Result						
Sodium	ug/L	1.00	ND						
Duplicate							Lab ID = 8	06828-002	
Parameter	Unit	DF	Result	Expected	F	RPD	Acceptan	ce Range	
Sodium	ug/L	1000	1590000	1640000		2.84	0 - 20		
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	R	Recovery	Acceptan	ce Range	
Sodium	ug/L	1.00	1870	2000		93.5	85 - 115		
Matrix Spike							Lab ID = 8	06828-002	
Parameter	Unit	DF	Result	Expected/Adde	ed R	Recovery	Acceptan	ce Range	
Sodium	ug/L	1000	3520000	3640000(2000	OC	94.2	75 - 125		
MRCCS - Seconda	ry								
Parameter	Unit	DF	Result	Expected	R	Recovery	Acceptan	ce Range	
Sodium	ug/L	1.00	4900	5000		97.9	90 - 110		
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	R	Recovery	Acceptan	ce Range	
Sodium	ug/L	1.00	4760	5000		95.2	90 - 110		
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	R	Recovery	Acceptan	ce Range	
Sodium	ug/L	1.00	4780	5000		95.6	90 - 110		
Interference Check	Standard A								
Parameter	Unit	DF	Result	Expected	R	Recovery	Acceptan	ce Range	
Sodium	ug/L	1.00	1880	2000		93.8	80 - 120		
Interference Check	Standard A								
Parameter	Unit	DF	Result	Expected	R	lecovery	Acceptan		
Sodium	ug/L	1.00	1880	2000		94.2	80 - 120	_	
Interference Check	Standard AB								
Parameter	Unit	DF	Result	Expected	R	lecovery	Acceptan	ce Range	
Sodium	ug/L	1.00	1870	2000		93.6	80 - 120	_	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806828-002 Iron		ug/L	03/19	9/2013 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	two jeto							
Parameter	Unit	DF	Result					
Iron	ug/L	1.00	ND					
Lab Control Sam	ple							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Iron	ug/L	1.00	2080	2000		104	85 - 115	5
Matrix Spike							Lab ID =	806828-002
Parameter	Unit	DF	Result	Expected/Add	ed F	Recovery	Accepta	ance Range
Iron	ug/L	1.00	1780	2000(2000)		89.0	75 - 125	5
Matrix Spike Dup	licate						Lab ID =	806828-002
Parameter	Unit	DF	Result	Expected/Add	ed F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	1760	2000(2000)		88.0	75 - 125	5
MRCCS - Second	lary							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5110	5000		102	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Iron	ug/L	1.00	5320	5000		106	90 - 110	)
MRCVS - Primary	ANTENER.							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5170	5000		103	90 - 110	_
Interference Chec	ck Standard A							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Iron	ug/L	1.00	2230	2000		112	80 - 120	_
Interference Chec								
Parameter	Unit	DF	Result	Expected		Recovery		ince Range
Iron	ug/L	1.00	2140	2000		107	80 - 120	_
Interference Chec	-							
Parameter	Unit	DF	Result	Expected	F	Recovery		ince 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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Metals by EPA 6010B, D Parameter		Unit	Anal	yzed Di	F MDL	RL	Result
806828-002 Calcium				/2013 13:48 10		50000	211000
		ug/L					
Magnesium		ug/L		/2013 12:52		5000	33300
806828-003 Calcium		ug/L 		/2013 15:09 10		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 = 8	306828-002
Parameter	Unit	DF	Result	Expected	RPD	Acceptai	nce 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	Acceptar	nce Range
Calcium	ug/L	1.00	1950	2000	97.7	85 - 115	J
Magnesium	ug/L	1.00	1980	2000	98.8	85 - 115	
Matrix Spike						Lab ID = 8	306828-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptar	nce Range
Calcium	ug/L	100	416000	411000(200000)	103	75 - 125	J
Magnesium	ug/L	10.0	50500	53300(20000)	86.0	75 - 125	
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptar	nce Range
Calcium	ug/L	1.00	4970	5000	99.4	90 - 110	J .
Magnesium	ug/L	1.00	5040	5000	101	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptar	nce Range
Calcium	ug/L	1.00	4570	5000	91.3	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery		nce Range
Calcium	ug/L	1.00	4740	5000	94.8	90 - 110	ioo range
MRCVS - Primary			e grandy.	10)4	<del></del> 		
	Init	DE	Pocult	Evported	Doggvery	A aconte	noo Panas
Parameter	Unit	DF 1.00	Result 4710	Expected 5000	Recovery 94.1	90 - 110	nce Range



Client: E2 Consulting Engineers, Inc.

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Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

to - Mona Nassimi

Manager, Analytical Services

CHORALIII

806 828 CHAIN OF CUSTODY RECORD

3/12/2013 10:01:56 AM

CHZIVII	11LL							CHAIN OF COSTODT RECORD 3/12/2013 10:01:56 AM Page 1	OF _	<u>*</u>
Project Name Location To Project Manag	pock	•	Container: ervatives:	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			
Sample Manag	ger Shawn Du	iffy	Filtered:	Field	Field	Field	Field			
		Hold	ling Time:	28	180	180	180		i	**
Project Numb Task Order Project 2013- Turnaround T Shipping Date COC Number:	GMP-191SAN ime 10 Day a: 3/12/2013	oa.gm IPLEME s	1.03	218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe	Metals (6020AFF) Field Filtered As, Mo, Se, Mn, Cr	ALERTI! LevelIII QC	Number of Containers	COMMENTS
MW-211-191	3/11/2013	6:00	Water	X	х				2	7
MW-36-100-191	3/11/2013	12:41	Water	х		Х	х		2	
MW-47-055-191	3/11/2013	10:00	Water	х		Х	х		2 .	17
				•		<del> </del>	<del>(</del>	TOTAL NUMBER OF CONTAINERS	6	6010



	A				
Appressed by	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by	L - L	3-12-13	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Renquished by	[]		On Ice: yes / no	Sample Custody	
Received by	Rose Davida	3/12-13 15:3	Firbill No:		
Relinquished by	Radail Davila	3-12-13 21:3	bab Name: Truesdail Laboratories, Inc.		Report Copy to Shawn Duffy
Received by	Luga ni	3/12/12 2/10	Lab Phone: (714) 730-6239		(530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date Lab Numb		r Initial pH	Buffer Added (mL	) Final pH	Time Buffered	Initials
3/2/13	806790-1	9.5	NA	N/A	NA	724
	2					
	-3					
	-4				·	
	- 5-					
3/12/13	806791-1	9.5	NA	NA	NA	124
·	2		·			
	-3					
	-4					
	-5					
	-6					
	-7		·			
	-8					
<b>V</b>	-9		$\downarrow$			1
3/12/13	806805	7.0	2 mc/100 mc	9.5	02:31	Try
3/13/13	806824-1	9.09,5	NA	NA	NA	Tay
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
3/13/13	806825	9.5	N/A	NIA	NA	Try
3/12/13	806826	7.0	2 ml/100 ml	9.5	11:10	Try
3/13/13	806827-1	9,5	NA	NA	WA	Try
$\downarrow$	-2					V
50683/14/13	806828-1	9.5	NA	NA	NA	Try
	- 2					
$\downarrow$	- 3					
3/13/13	806829-1	9.5	NA	NA	NA	tres
J	-2	<u> </u>		1		1

Tu

3/15/13

(av) 131 151 1**863** 





Turbidity/pH Check

				Turbic	lity/pH C	heck	<u> </u>		
	Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
	806672	۷į	42	3/6/13	ac	yes			
	806228	501	Lich		B E-	TTLC			
	806114	<b>≺</b> \	< 2			NO			
8067260	12/626 (1-5		l			xes			
3-15-13	80668963-4		>2						Metal part
	Q06706								
	806720(1-2)								
	806724		<u></u>	L L		1		•	
	30679961-4	<u> </u>	12	3-12-13	35	Xe>			
	80679161-9)					<u> </u>			
	808792 C1-4)								
	806771(19294)		>2			<b>V</b> 0	II AM		
	806785 (1-3)					,			
	806745		<2	10		xes			
	806748	-			<del>-  -</del>				
	8.6747(1-2) 8.6775(1-4)								
	80 6776								
	80 877761-2								
	80677861-21								
	806780								
	806786								
	806787	1	7	1 1	-1	1			
	806824(1-7)	ξι	<b>&lt;2</b>	3-13-13	BE	×=3			
	806825		1						
	906826							-	
	806827								
	80682812-31								
	80682911-4)	4	Ų.	V	J				
	806814	LI	72	3/17/13	ES	<i>₩</i> €	2107		
	806801 (1-4)	V	1	[		L			
	806782		TTIC	(Svil)		yes Yes			
	806 602	72	22	3/19/12		yes .			
	806815	<b>42</b>	62						
	806816								
	816817								
	506818								
	806819	_					•		
	506820	3.	1	\$ !					
	806847 £06858(1-395)	<i>71</i> ≺\	>2	3/13/13	ov .	yez	-		
	808 47 200	41	<u> </u>	3-14-13	BE	Xes			
	SNF821 (-8)			3/14/13		iya			
-	506820	4	L2 L2	<u>v</u>	m	- IV			
	806862	<u>-1</u>	L.L	l	110	y-			

### Notes:

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

# Sample Integrity & Analysis Discrepancy Form

Cli	ent: E2	Lab # 0682
Da	te Delivered: <u>0</u> Š/ <u>/2</u> /13 Time: <u>Å/:30</u> By: □Mail &	(Field Service □Client
1.	Was a Chain of Custody received and signed?	ÆYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ØN/A
З.	Are there any special requirements or notes on the COC?	□Yes □No AN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No AN/A
<b>5</b> .	Were all requested analyses understood and acceptable?	ØYes □No □N/A
<b>6</b> .	Were samples received in a chilled condition? Temperature (if yes)? <u>3. 4 ° C</u>	ØYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØŶes □No □N/A
<b>8</b> .	Were sample custody seals intact?	□Yes □No ŒÑ/A
<b>9</b> .	Does the number of samples received agree with COC?	ØYes □No □N/A
10.	Did sample labels correspond with the client ID's?	ŻYes □No □N/A
11.	Did sample labels indicate proper preservation?  Preserved (if yes) by; ☐ Truesdail □ Client	ÆYes □No □N/A
12.	Were samples pH checked? pH = <u>Sel</u> C. O. @	Yes ONO ON/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
14.	Have Project due dates been checked and accepted?  Turn Around Time (TAT): □ RUSK Std	⊘ZYes □No □N/A
5.	Sample Matrix: DLiquid Drinking Water DGround	Water
	□Sludge □Soil □Wipe □Paint □Solid	Other Wafel
6.	Comments:	<u> </u>
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	Lude

## 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.truesdaii.com

Laboratory No.: 806910

Date Received: March 15, 2013

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

Oakland, CA 94612

Attention: Shawn Duffy

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



Lab Sample IDField IDMethodMethodSample DateTimeParameterResultUnits806910-003MW-26-191E218.6FLDFLT3/12/201314:03Chromium, Hexavalent1820ug/L	20.0 25000 20.0 2500
806910-003 MW-26-191 E218.6 FLDFLT 3/12/2013 14:03 Chromium, Hexavalent 1820 ug/L	25000 20.0
	20.0
806910-003 MW-26-191 SW6010B FLDFLT 3/12/2013 14:03 Calcium 186000 ug/L	
806910-003 MW-26-191 SW6010B FLDFLT 3/12/2013 14:03 Iron ND ug/L	2500
806910-003 MW-26-191 SW6010B FLDFLT 3/12/2013 14:03 Magnesium 48700 ug/L	2300
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

900





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** 



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Page 1 of 21

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Printed 3/28/2013

Matrix

Laboratory No. 806910

### 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:

Field ID

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

Lab ID

MW-19-191				806910-001	03/12	/2013 11:27	Wa	ter
MW-20-070-191				806910-002	03/12	/2013 16:17	Wa	ter
MW-26-191				806910-003	03/12	/2013 14:03	Wa	ter
MVV-20-100-191				806910-004	03/13	/2013 13:52	Wat	ter
MW-212-191				806910-005	03/13	/2013 08:15	Water	
MW-213-191				806910-006	03/13	/2013 08:20	Wat	ter
MW-20-130-191				806910-007	03/14	/2013 13:10	Wat	ter
MW-214-191			806910-008	03/14	/2013 07:30	Wat	ter	
MW-215-191			806910-009	03/14	/2013 07:35	Wat	ter	
MVV-216-191			806910-010	03/14	/2013 13:25	Wat	ter	
MVV-217-191			806910-011	03/14	/2013 12:40	Wa	ter	
MW-51-191			806910-012	03/14	/2013 10:33	Wa	ter	
Chrome VI by EPA 218.	6		Bato	h 03CrH13N				
Parameter		Unit	An	alyzed	DF	MDL	RL	Result
806910-006 Chromium, Hex	avalent	ug/L	03/20/2013 11:07		1.00	0.00920	0.20	ND
806910-012 Chromium, Hex	avalent	ug/L	03/2	0/2013 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	F	RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.534	0.516		3.33	0 - 20	•
Low Level Calibration	verification							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.206	0.200		103	70 - 13	•
	_							

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Client: E2 Consulting Eng	gineers, Ind		roject Name: roject Numbei	oject 1.03	Page 2 of 21 Printed 3/28/2013		
Lab Control Sample							
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 5.00	Expected 5.00	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806910-006	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.19	Expected/Added 1.19(1.00)	Recovery 99.7	Acceptance Range 90 - 110 Lab ID = 806910-012	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 9770	Expected/Added 9740(5000)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806965-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.00(1.00)	Recovery 106	Acceptance Range 90 - 110 Lab ID = 806966-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.50	Expected/Added 1.52(1.00)	Recovery 98.3	Acceptance Range 90 - 110 Lab ID = 806966-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.985	Expected/Added 1.00(1.00)	Recovery 98.5	Acceptance Range 90 - 110 Lab ID = 806966-003	
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 1.52	Expected/Added 1.54(1.00)	Recovery 98.3	Acceptance Range 90 - 110	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 4.81	Expected 5.00	Recovery 96.2	Acceptance Range 90 - 110	
MRCVS - Primary  Parameter Chromium, Hexavalent  MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.3	Expected 10.0	Recovery 103	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.3	Expected 10.0	Recovery 103	Acceptance Range 95 - 105	



Matrix Spike

Chromium, Hexavalent

Unit

ug/L

DF

5.00

Parameter

Report Continued

Project Name: PG&E Topock Project Client: E2 Consulting Engineers, Inc. Page 3 of 21 Printed 3/28/2013

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

Chrome VI by EPA 218.6 Batch 03CrH13M Unit Analyzed DF MDL RL Parameter Result ug/L 03/19/2013 16:33 10.0 0.0920 2.0 202 806910-001 Chromium, Hexavalent 250 806910-002 Chromium, Hexavalent ug/L 03/19/2013 11:29 2.30 3160 50.0 100 0.920 806910-003 Chromium, Hexavalent ug/L 03/19/2013 11:40 20.0 1820 ug/L 03/19/2013 12:13 250 2.30 806910-004 Chromium, Hexavalent 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 0.00920 806910-008 Chromium, Hexavalent ug/L 03/19/2013 12:55 1.00 0.20 ND 1.00 0.00920 806910-009 Chromium, Hexavalent ug/L 03/19/2013 13:05 0.20 ND 806910-010 Chromium, Hexavalent 03/19/2013 13:16 1.00 0.00920 0.20 0.29 ug/L 806910-011 Chromium, Hexavalent ug/L 03/19/2013 13:26 1.00 0.00920 0.20 ND Method Blank DF Parameter Unit Result Chromium, Hexavalent ug/L 1.00 ND Lab ID = 806910-005 Duplicate RPD Parameter Unit DF Result Expected Acceptance Range 0.476 Chromium, Hexavalent ug/L 1.00 0.4740.505 0 - 20Low Level Calibration Verification Parameter Unit DF Result Expected Acceptance Range Recovery ug/L 1.00 0.213 0.200 106 70 - 130Chromium, Hexavalent Lab Control Sample Parameter Unit DF Result Expected Recovery Acceptance Range Chromium, Hexavalent ug/L 1.00 5.04 5.00 101 90 - 110 Lab ID = 806908-001 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range Chromium, Hexavalent ug/L 5.00 4.96 5.00(5.00) 99.3 90 - 110Lab ID = 806908-001 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range Chromium, Hexavalent ug/L 1.00 1.01 1.00(1.00)101 90 - 110 Lab ID = 806908-002

Result

4.96

Expected/Added

5.00(5.00)

Recovery

99.2

Acceptance Range

90 - 110



Client: E2 Consulting	Engineers, Inc.		Project Name: Project Number:	ject 1.03	Page 4 of 21 Printed 3/28/2013		
Matrix Spike						Lab ID = 806908-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.00(1.00)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806908-003	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 195	Expected/Added 191(100)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806908-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 198	Expected/Added 194(100)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806909-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 7050	Expected/Added 6740(3750)	Recovery 108	Acceptance Range 90 - 110 Lab ID = 806910-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 10.0	Result 467	Expected/Added 454(250)	Recovery 105	Acceptance Range 90 - 110 Lab ID = 806910-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 7260	Expected/Added 6910(3750)	Recovery 109	Acceptance Range 90 - 110 Lab ID = 806910-003	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 3930	Expected/Added 3820(2000)	Recovery 105	Acceptance Range 90 - 110 Lab ID = 806910-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 6670	Expected/Added 6920(3750)	Recovery 93.4	Acceptance Range 90 - 110 Lab ID = 806910-005	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00		Expected/Added 1.48(1.00)	Recovery 98.6	Acceptance Range 90 - 110	
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 500	Result 20300	Expected/Added 19900(10000)	Recovery 104	Lab ID = 806910-007  Acceptance Range 90 - 110  Lab ID = 806910-008	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.09	Expected/Added 1.09(1.00)	Recovery 99.5	Acceptance Range 90 - 110 Lab ID = 806910-009	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110	

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Client: E2 Consulting Eng	jineers, Ind		oject Name: oject Numbe	oject 1.03	Page 5 of 21 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
MRCCS - 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

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

Printed 3/28/2013

Parameter		Unit	Analyzed	DF	MDL	RL	Result
806910-00		ug/L	03/21/2013 14:24	2.00	0.200	0.50	1.0
000310-00	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	0.400	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
806910-00		ug/L	03/21/2013 14:49	2.00	0.200	0.50	2.4
000910-00	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
806910-00		ug/L	03/21/2013 15:01	2.00	0.200	0.50	1.7
500510 00	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
306910-00	-	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
306910-00		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
306910-01		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



Client: E2 Consulting Engineers, Inc.

Report Continued

Project Name:

PG&E Topock Project

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Cheffic Lz Consuming Li	igineers, inc	•	r roject rume.	1 Our Topoc	ik i roject	rage rorzi
			Project Number:	423575.MP.0	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
The second secon						

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

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Client: E2 Consulting Eng	ineers, Inc.		Project Name: Project Number:	PG&E Topock Pro 423575.MP.02.GN	*	Page 8 of 21 Printed 3/28/2013
Matrix Spike Duplicate						Lab ID = 806910-006
Parameter Arsenic	Unit ug/L	DF 2.00	Result 48.5	Expected/Added 50.0(50.0)	Recovery 97.0	Acceptance Range 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
MRCCS - Secondary						
Parameter Arsenic	Unit ug/L	DF 1.00	Result 19.9	Expected 20.0	Recovery 99.4	Acceptance Range 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 Arsenic	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 98.1	Acceptance Range 90 - 110
MRCVS - Primary						
Parameter Arsenic	Unit ug/L	DF 1.00	Result 19.4	Expected 20.0	Recovery 96.9	Acceptance Range 90 - 110
MRCVS - Primary						
Parameter Chromium	Unit ug/L	DF 1.00	Result 20.1	Expected 20.0	Recovery 101	Acceptance Range 90 - 110
MRCVS - Primary						
Parameter Chromium	Unit ug/L	DF 1.00	Result 20.1	Expected 20.0	Recovery 101	Acceptance Range 90 - 110
MRCVS - Primary						
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.5	Expected 20.0	Recovery 97.5	Acceptance Range 90 - 110
MRCVS - Primary	ug/L	1.00	6400	20.0	91.J	30 - 110
and green we have the country of the country of the country of the country of the country of the country of the	Mila dalgeari. Heli	AAL AH De	Docult	Evenented	Deserve	A
Parameter Selenium	Unit ug/L	DF 1.00	Result 19.3	Expected 20.0	Recovery 96.6	Acceptance Range 90 - 110

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Client: E2 Consulting E	ngineers, Inc		roject Name: roject Numbe	PG&E Topoder: 423575.MP.0	•	Page 11 of 21 Printed 3/28/2013
Interference Check S	Standard AB					
Parameter  Manganese  Interference Check 5	Unit ug/L Standard AB	DF 1.00	Result 20.6	Expected 20.0	Recovery 103	Acceptance Range 80 - 120
Parameter Molybdenum Interference Check S	Unit ug/L Standard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Molybdenum Serial Dilution	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range  Lab ID = 806910-001
Parameter Chromium Serial Dilution	Unit ug/L	DF 25.0	Result 199	Expected 197	RPD 1.06	Acceptance Range 0 - 10 Lab ID = 806910-002
Parameter Molybdenum	Unit ug/L	DF 10.0	Result 33.8	Expected 35.9	RPD 6.07	Acceptance Range 0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
306910-003 Selenium		ug/L	03/22	2/2013 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	Accepta	ance Range
Selenium	ug/L	2.00	ND	0		0	0 - 20	
Low Level Calibration	n Verification	r francis						
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Selenium	ug/L	1.00	0.876	1.00		87.6	70 - 130	כ
Lab Control Sample	Makin al							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Selenium	ug/L	2.00	50.3	50.0		101	85 - 118	5
Matrix Spike							Lab ID =	806910-006
Parameter	Unit	DF	Result	Expected/Add	ed	Recovery	Accepta	ance Range
Selenium	ug/L	2.00	45.5	50.0(50.0)		91.0	75 - 125	5
Matrix Spike Duplica	ate						Lab ID =	806910-006
Parameter	Unit	DF	Result	Expected/Add	ed	Recovery	Accepta	ance Range
Selenium	ug/L	2.00	44.7	50.0(50.0)		89.5	75 - 125	5
MRCCS - Secondar	у							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Selenium	ug/L	1.00	20.2	20.0		101	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Selenium	ug/L	1.00	19.6	20.0		97.9	90 - 110	כ
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Selenium	ug/L	1.00	18.7	20.0		93.6	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance 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

Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806910-005 Chromium		ug/L	03/25	5/2013 11:53	2.00	0.184	1.0	1.2
806910-006 Chromium		ug/L	03/25	5/2013 11:05	2.00	0.184	1.0	ND
806910-008 Chromium		ug/L	03/25	5/2013 11:59	2.00	0.184	1.0	1.3
806910-009 Chromium		ug/L	03/25	5/2013 12:05	2.00	0.184	1.0	ND
806910-010 Chromium		ug/L	03/25	5/2013 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	n Verification							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.188	0.200		94.0	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/ <b>L</b> 2.00		54.0	50.0		108	85 - 115	5
Matrix Spike							Lab ID =	806910-006
Parameter	Unit	DF	Result	Expected/Added		Recovery	Accepta	ance Range
Chromium	ug/L	2.00	49.5	50.0(50.0)		99.0	75 - 125	
Matrix Spike Duplica	te						Lab ID =	806910-006
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	Accepta	ince Range
Chromium	ug/L	2.00	48.4	50.0(50.0)		96.8	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	-	ince Range
Chromium	ug/L	1.00	19.7	20.0		98.4	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery		nce Range
Chromium	ug/L	1.00	20.7	20.0		103	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince Range
Chromium	ug/L	1.00	19.8	20.0		98.9	90 - 110	)
Interference Check S	Standard A							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince Range
Chromium	ug/L	1.00	ND	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.



Client: E2 Consulting Engineers, Inc.

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

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Batch 032213A-Th2 Metals by EPA 6010B, Dissolved DF MDL Parameter Unit Analyzed RL Result 806910-001 Calcium 03/22/2013 14:19 100 1200 50000 103000 ug/L 03/22/2013 14:19 100 39400 100000 314000 Sodium ug/L 03/22/2013 15:01 806910-002 Calcium ug/L 50.0 600 25000 82800 03/22/2013 15:01 50.0 19700 50000 358000 Sodium ug/L 806910-003 Calcium 03/22/2013 15:07 50.0 600 25000 186000 ug/L Sodium 03/22/2013 15:07 50.0 19700 50000 662000 ug/L 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 50.0 806910-007 Calcium ug/L 03/22/2013 15:20 600 25000 311000 200 Sodium ug/L 03/22/2013 17:03 78800 200000 2260000 50.0 25000 806910-012 Calcium ug/L 03/22/2013 15:26 600 256000 200 78800 200000 Sodium ug/L 03/22/2013 17:09 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

Parameter		Unit	Ana	lyzed D	F M	DL 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	Accepta	nce 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	Recover	y Accepta	nce 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	Recover	y Accepta	nce 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	Recover	y Accepta	nce Range
Iron	ug/L	1.00	5060	5000	101	90 - 110	
Magnesium	ug/ <b>L</b>	1.00	5010	5000	100	90 - 110	



Client: E2 Consulting Engine	ers, Inc.	-	ect Name: ect Number:	PG&E Topock Pro 423575.MP.02.GM	•	Page 21 of 21 Printed 3/28/2013
Interference Check Standa	ard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium u	ıg/L	1.00	1890	2000	94.4	80 - 120
Interference Check Standa	ard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium ι	ıg/L	1.00	2070	2000	104	80 - 120
Interference Check Standa	ard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron u	ıg/L	1.00	2200	2000	110	80 - 120
Interference Check Standa	ard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ıg/L	1.00	2120	2000	106	80 - 120
Interference Check Standa	ard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium ເ	ıg/L	1.00	1880	2000	93.8	80 - 120
Interference Check Standa	ard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium u	ıg/L	1.00	1970	2000	98.3	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

√ Mona Nassimi

Manager, Analytical Services

806 910

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

3/15/2013 12:05:30 PM

age 1 OF 1

					1 age 1	. '' .	<u> </u>
Project Name PG&E Topock Container Location Topock Project Manager Jay Piper Preservatives:	Poly (NH4)25	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C			_
Sample Manager Shawn Duffy Filtered:		Field	Field	Field			
Holding Time: Project Number 423575.MP.96.78 Task Order .02.GM.03	<b></b>	180 Metals	180 Metals	180 Metals			
Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/15/2013 COC Number: 28	Cr6 (E218.6) Field Filtered	(6020AFF) Field Filtered Chromium	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe	(6020AFF) Field Filtered As,Mo,Se,Mn,Cr		Number of	
DATE TIME Matrix	d Filtered	ield Fiftered Im	ield Filtered 1,Fe	ield Filtered An,Gr		Containers	COMMENTS
MW-19-191 3/12/2013 11:27 Water	x		х	х		2	$\gamma$
MW-20-070-191 3/12/2013 16:17 Water	х		х	х		2	$\Box$
MW-26-191 3/12/2013 14:03 Water	х		х	х		2	
MW-20-100-191 3/13/2013 13:52 Water	X		х	х		2	
MW-212-191 3/13/2013 8:15 Water	х	х				2	7
MW-213-191 3/13/2013 8:20 Water	х	х				2	
MW-20-130-191 3/14/2013 13:10 Water	х		х	х		2	DU-2
MW-214-191 3/14/2013 7:30 Water	х	х			ALDIII	2	602
MW-215-191 3/14/2013 7:35 Water	х	х			Los licens	2	60100
MW-216-191 3/14/2013 13:25 Water	х	х			TI AVEITI QUI	2	- EUICE
MW-217-191 3/14/2013 12:40 Water	х	х				2	
MW-51-191 3/14/2013 10:33 Water	х		х	х	<u> </u>	2	ナー
						1	

Approved by Samueled by

Sampled by Reli**60** uished by

Received by

Received by

Relinquished by

Signatures

Date/Time 3-/5-/3 1230

te/Time Shipping Details

Method of Shipment: courier

On Ice: yes / no

12:3 dirbill No:

3-15-13 6 Cab Name: Truesdail Laboratories, Inc.

3/15/13 6:00 Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

Feb 4 - Feb 28, 2013

Sample Custody

Report Copy to Shawn Duffy (530) 229-3303 CH2MHILL

### **CHAIN OF CUSTODY RECORD**

3/15/2013 12:05:30 PM

Page 1 OF 1

	_								_	
Project Name PG Location Topoci	K	•	Container:	Poly (NH4)2S	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C			
Project Manager			ci valives.	H, 4°C	40	40	40			
Sample Manager	Shawn Du		Filtered:		Field	Field	Field			
5			ling Time:	28	180	180	180			
Project Number - Task Order	423575.MP	.06.15		0	Metals	Meta	Metals			
Project 2013-GM	P-191SAM	PLEME	ETHOD	76 (E	als (	als (	als (		z	
Turnaround Time				218	6020	5010 Ca	6020 As.N		Number	
Shipping Date: 3	/15/2013			Cr6 (E218.6) Field Filtered	(6020AFF) Field Filte Chromium	)BFF ,Mg,	(6020AFF) As,Mo,Se,		)er c	
COC Number: 28	3			ield	nium	Na,F	e,Mr		of C	
				Filte	id F	e E	n, Cr		onte	
				red	l ä	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe	) Field Filtered 9,Mn,Cr		Containers	
	DATE	TIME	Matrix		ä	<u>α</u>	۵.		S	COMMENT
MW-19-191	3/12/2013	11:27	Water	X		х	х		2	
MW-20-070-191	3/12/2013	16:17	Water	X		x	Х		2	
MW-26-191	3/12/2013	14:03	Water	х		Х	Х		2	
MW-20-190-191	3/13/2013	13:52	Water	X		х	Х		2	
MW-212-191	3/13/2013	8:15	Water	х	Х				2	
MW-213-191	3/13/2013	8:20	Water	Х	Х				2	
MW-20-130-191	3/14/2013	13:10	Water	х		Х	X		2	
MW-214-191	3/14/2013	7:30	Water	×	х				2	
MW-215-191	3/14/2013	7:35	Water	х	Х				2	
MW-216-191	3/14/2013	13:25	Water	х	х				2	
MW-217-191	3/14/2013	12:40	Water	х	Х				2	
NW-51-191	3/14/2013	10:33	Water	X		Х	X		2	
	,							TOTAL NUMBER OF CONTAINERS	24	

Approved by Sampled by

Rounquished by Received by

Relinquished by Received by

Date/Time 3-15-13 1230

Signatures

**Shipping Details** 

Method of Shipment:

On Ice: yes / no

On Ice: you do 3/15/13 12:3 & 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	4.5	NA	NA	NA	TZY
1	-4	L		1	L	1
3/13/13	806855-1	7-0	2ml/100ml	4-5	17:15	Tay
J	-2	Ţ	J	1	N	$\mathcal{L}$
3/14/13	806858-1	9.5	IVIA	14 1A	NIA	HAV
	\ -2		1			
	-3					
	/ -4					
	-5	4	4	<u>_</u> _h	L	_\l
3/14/12	806872-1	8-0	1ml/100ml	9.5	18:15	Tay
	-2	7.0	2ml/100ml	9.5		<u>l</u>
3/18/13	806908-1	9.5	N/4	10/4	N/Q	KB
	j -2		·			
	-3					
j	6 -4	<u> </u>	<u> </u>	4	<u> </u>	<u> </u>
3/13/13	806909-1	9.5	N/A	NA	-N/A	RK
	-2					
	_3				·	
	-4					
	-5					
	-6					
	-7					
	-3					
	9			-		
	-10					
	-1/					
	910	<u> </u>		<u> </u>	<u></u>	
3/13/13	3069 <del>10</del> -1	9.5	13/4	NIA	N/A .	RB
	910-2					
	410 -3	.		<del>-  </del>		
1	910 -4	L	1			

RB 3/18/13

> RA 3,21/13

03/22/13

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	La	b Number	Initia	al pH	Buffer	Added (mL)	Final pH	Time Buffered	Initials
3/18/13	80	6910-5	9.		2	14	NA	p1.4	Rrs
		-6							)
		-7							
		-8					-		:
		-9					j		
		-10							
		-11							
$\bigcup$	١.	-12	7	e .					
3/18/13	80	6921-1	7.	0	Дm	L/100mL	9.5	16:00	1B
Ì		2	),			<b>/</b>	j.	Į,	ĺ/
03/19/13	806	5943-1	<i>'7</i>		2 ml	1100 ml	9.3	16:30	1-1 AV
1,	,	1, -2	1			4	1	16:40	4
03120113	806	965-1	7		2ml	1100mL	9.5	9:45	RB
05/20/13	806	6966-1	9.5		HI	£	NIA	NIA	RB
		-2			<u> </u>				
		1 -3					b		J
								·	
						·			
								· .	
					***				







Turbidity/pH Check

			lurbic	dity/pH C	леск	·	,	
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
806861	12	12	3 M/13	oc	· ju			
806862	4	42	3/4/13	n	igra	:		
806848 Un-12	<1	>2		BL	<b>√</b> c	13:39		
80684911-7)	l				No		-	
406726(1-5)	41	(2	3/8/13	BE	yes.	•		
206826	41	72	3/15/13	Eς	yes	9:00		
806827-1	41	<b>42</b>			Ĺ			
806828(1-3)								
506829(1-4)		$\downarrow$	1		1			
806877L1-6)	Ž1	K2	3/19/13	ES	yes			
806908(1-4)		1	1	ì	1			
806909(1-12)								
806910(1-12)	1							
806933 (1-7)		V		1	L			
806965	41	72	3/20/13	Es	yes	9:30		
906966 (1,3)	1	22	1/	1	1	7 -		
806963	41	72	3/20/13	pc	NO	12:10	5/24/13 1:00	M L2
806918 (1,2,4)	41	72		ì	No	12:10		1
80695 \$(1,2,3)	ı	1			No	12:00		
806953(1,3,4)	J		L		No	L		
806903	<1	£2		í	yes			<b>*</b>
806904	1	1			ı			
806923								
806925								
806926								
806939								
806959								
806960								
806961								
806962								
806963	T							
806964	71							
806847	41							
806899	U	J						
806873	71	42	Ţ	1	Ů			
806985	41	42	3/21/13	pc	ye			
806999	>1	72	J.	ı	J.	14:25		
606987	<b>Κ</b> ١	<2	3-22-13	Bi	Xes			
80898211-3	1	72			No	9:30	3/26/13 10:00	PH L2
806983C4-12)	1.			7				1
807008	1	1						
806994	41	72	7	m	No	12:10		
807029(1-8)	4	72	3/22/13	pe	No	16:05	$\int$	4
807011	41	42	3/25/13	n	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

Cli	ent: <u>E2</u>	Lab #
Da	te Delivered: 🔼 / ∑/13 Time: ½/ № By: 🗅 Mail 🔯	Field Service
1.	Was a Chain of Custody received and signed?	ÁYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÞN/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No ØN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ØN/A
<b>5</b> .	Were all requested analyses understood and acceptable?	
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>火 &amp; °C</u>	o∰Yes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆYes □No □N/A
<b>8</b> .	Were sample custody seals intact?	□Yes □No ÆN/A
9.	Does the number of samples received agree with COC?	ÆlYes □No □N/A
10.	Did sample labels correspond with the client ID's?	ØYes □No □N/A
11.	Did sample labels indicate proper preservation?  Preserved (if yes) by:	ÆnYes □No □N/A
12.	Were samples pH checked? $pH = \underbrace{Sel\ C.O.P}$ .	ØYes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ RUSH	AYes □No □N/A
5.	Sample Matrix: □Liquid □Drinking Water □Ground \□Sludge □Soil □Wipe □Paint □Solid \□	111
6.	Comments:	
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	Luda



# **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:

Laboratory Project Manager

Kothy Mckincey

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.

### **Sample Receipt Comments**

We certify that the test results meet all standard ASL requirements.

### **Sample Cross-Reference**

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
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 Na	me: <u>C</u>	H2M HILL/LAB/CVO	ASL SDG#	: <u>M1240</u>	
Project:	<u>PGE</u>	<u>Topock</u>	Project #:	423575.MP.	02.GM.03
I.	<u>Metho</u> Analys	d(s): is: E353.2			
II.	_	t/Holding Times: eptance criteria were met.			
III.	Analys	<u>is:</u>			
	A.	Initial Calibration(s): All acceptance criteria were met.			
	B.	Calibration Verification(s): All acceptance criteria were met.			
	C.	Blanks: All acceptance criteria were met.			
	D.	Laboratory Control Sample(s): All acceptance criteria were met.			
	E.	Matrix Spike/Matrix Spike Duplicate San Analyzed in accordance with standard op		dure.	
	F.	Analytical Exception(s): None.			
IV.	Docum None.	entation Exception(s):			
V.	CH2M the data	y that this data package is in compliance with HILL, both technically and for completene a contained in this hardcopy data package hee, as verified by the following signatures.	ss, except for	the conditions	s detailed above. Release of
Prepare	d by:	Emily Cla		Date: _	3/5/13
Review	ed by:	Kathy mckens		Date:	3/4/13

### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

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SDG No.: M1240 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M124001

Date Received: 02/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.441		MG/L	1.	3 ML	E353.2	03/04/13
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### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-125-191

SDG No.: M1240 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M124002

Date Received: 02/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.259		MG/L	1	3 ML	E353.2	03/04/13
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### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-111-191

SDG No.: M1240 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M124003

Date Received: 02/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyze
103N02N	Nitrate/Nitrite-N	0.0140	0.0500	1.72		MG/L	5	3 ML	E353.2	03/04/13
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#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-090-191

SDG No.: M1240 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M124004

Date Received: 02/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.62		MG/L	5	3 ML	E353.2	03/04/13
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#### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-095-191

SDG No.: M1240 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M124005

Date Received: 02/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозиоги	Nitrate/Nitrite-N	0.0140	0.0500	1.58		MG/L	5	3 ML	E353.2	03/04/13
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### 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

F	ie:	l.d	Sample	TD:

WB5-0	30413	

SDG No.: M1240

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB5-030413

Date Received: \_\_/\_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/04/13
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SDG No.: M1240 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS5W0304

Initial Calibration ID: <a href="https://doi.org/10.1001/journal.com/">Date Analyzed: <a href="https://doi.org/10.1001/journal.com/">03/04/13</a>

Matrix: (Soil/Water) WATER Time Analyzed: 1814

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.910	104	90-110	
2101000/11111100 11		0.520	+	77	
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<sup>\*</sup> Values outside of QC limits

Comments:

CH2MHILL

### **CHAIN OF CUSTODY RECORD**

2/14/2013 4:47:15 PM

Page 1 OF

OI 121411 112	· San-						<del></del>
Project Name PG Location Topoc Project Manager	k		Container: ervatives:	H2SO4.	. :		
Sample Manager	Shawn Du		Filtered: ling Time:				
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 3	P-191SAM 10 Day: 2/14/2013	.0 <del>6.TS</del> .03. <i>G</i> PLEME	m.03	Nitrale/Nitrite (E353.3)	-	Number of Containers	COMMENT
MW-112-191	2/13/2013	17:46	Water	х		1	1
MW-44-125-191	2/13/2013	15:32	Water	х		1	2
MW-111-191	2/14/2013	14:58	Water	х		1	Ź
MW-33-090-191	2/14/2013	14:53	Water	х		1	Ψ
MW-50-095-191	2/14/2013	10:15	Water	х		1	Ŝ
	<u> </u>			•	TOTAL NUMBER OF CONTAINERS	5	

Approved by
Sampled by
Relinguished by
Received by
Reliesuished by
Received by

Signatures

Date/Time 2-14-13 1655

Shipping Details

· Method of Shipment: courier

courier

On Ice: yes/ no 3.4

Airbill No:

Lab Name: CH2M HILL Applied Sciences La

Lab Phone: (541) 752-4271

ATTN:

Special Instructions:

Feb 4 - Feb 28, 2013

Sample Custody

and

Report Copy to

Kathy McKinley

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!

	and the second second	. Q <sub>N</sub>	yFieldsample	(ACC)	
COC Number	location"	Field ID	Sample Date	Sampleilime	ParentSample OAQG 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



### Sample Receipt Record

Batch Number: <u>M240</u> Client/Project: <u>Topock</u>		Date received:	2/19	173	
Client/Project: Torock	-	Checked by:	<u> </u>	<u> </u>	
		Checked by:			
VERIFICATION OF SAMPLE CONDITIONS (verify a	ill items), HD = Client Hand delivered S	amples	NA	YES	NO
Radiological Screening for DoD			/		
Were custody seals intact and on the outside of th	e cooler?			V	
Type of packing material: Blue Ice Bubble w	ràp				
Was a Chain of Custody (CoC) Provided?				<b>し</b>	
Was the CoC correctly filled out (If No, document i	in the SRER)			<u></u>	
Did the CoC list a correct bottle count and the pres	servative types (Y=OK, N=	Corrected on CoC)		レ	
Were the sample containers in good condition (bro	oken or leaking)?			<u></u>	
Containers supplied by ASL?				<b>~</b>	
Any sample with < 1/2 holding time remaining? If	so contact LPM				~
Samples have multi-phase? If yes, document on S	RER				
Was there ice in the cooler? Enter temp. If >6°C of	contact client/SRER	24 ℃		V	
All VOCs free of air bubbles? No, document on S	RER		w		
pH of all samples checked and met requirements?	No, then document in SR	RER		V	
Enough sample volume provided for analysis? No.	, document in SRER			V	
Did sample labels agree with COC? No, document	t in SRER			V	
Dissolved/Soluble metals filtered in the field?			V		
Dissolved/Soluble metals have sediment in bottom	of container? Document	in SRER	/_		
Sample ID	Reagent	Reagent Lot Number	Volume	e Added	Initials
:					

### **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:

Laboratory Project Manager

Kothy Mckincey

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.

### **Sample Receipt Comments**

We certify that the test results meet all standard ASL requirements.

### **Sample Cross-Reference**

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
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 Na	me: <u>C</u>	H2M HILL/LAB/CVO	ASL SDG#	: <u>M1333</u>	
Project:	<u>PGE</u>	Topock	Project #:	423575.MP.0	2.GM.03
I.	Method Analys	<u>d(s):</u> is: E353.2			
П.	_	t/Holding Times: eptance criteria were met.			
III.	<u>Analys</u>	is:			
	Α.	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 Sa Analyzed in accordance with standard op		edure.	
	F.	Analytical Exception(s): None.			
IV.	Docum None.	entation Exception(s):			
V.	CH2M the data	y that this data package is in compliance w HILL, both technically and for completen a contained in this hardcopy data package ee, as verified by the following signatures.	ess, except fo	r the condition	s detailed above. Release of aboratory Manager or
Prepare	d by:	2 2;		Date:	3/26/2013
Review	ed by:	Katuy maken		Date:	3/29/13

Field Sample ID:

MW-46-175-191

SDG No.: M1333 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M133301

CAS No.	/ Analyte	DL		Result	Units	DF	Sample Amount	Analysis Method	Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	1.08	 MG/L	1	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-61-110-191

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID:  $\underline{\text{M133302}}$ 

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозиози	Nitrate/Nitrite-N	0.00303	0.0100	0.999		MG/L	1	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-110-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133303

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0303	0.100	12.7		MG/L	10	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-12-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133304

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	0.100	12.5		MG/L	10	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-44-115-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133305

CAS No.	. Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.374		MG/L	1	3 ML	E353.2	03/13/13
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Field Sample ID:

MW-33-040-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133316

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00303	0.0100	0.0291		MG/L	1	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-62-110-191

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133317

CAS No.	Analyte	DL	PQL		Q	Units	DF	Sample Amount	Analysis Method	Analyzed
иозио2и	Nitrate/Nitrite-N	0.0152	0.0500	4.26		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-62-190-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133318

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	ซ	MG/L	1	3 ML	E353.2	03/22/13
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Field Sample ID:

MW-70BR-225-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133319

CAS No:	Analyte	DL.	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0152	0.0500	4.13		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-47-115-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID:  $\underline{\text{M133320}}$ 

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	0.0500	2.32		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-50-200-191

SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID:  $\underline{\text{M133321}}$ 

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CAS No.	Analyte	Dr	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	0.0500	5.94		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-59-100-191

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133322

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.0152	0.0500	4.02		MG/L	5	2 ML	E353.2	03/13/13
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Field Sample ID:

MW-74-240-191

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133329

								Sample	Analysis	Date
CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Amount	Method	Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.159		MG/L	1	2 ML	E353.2	03/13/13
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SDG No.: <u>M1333</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-0313

Date Received: \_\_/\_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	Ū	MG/L	1	3 ML	E353.2	03/13/13
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WB1-0322
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SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-0322

Date Received: \_ / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyze
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/22/13
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WB2-	0313	

SDG No.: M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB2-0313

Date Received: \_ / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.0100	0.0100	Ū	MG/L	1	2 ML	E353.2	03/13/13
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#### 7-WC

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1333 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS1W0313

Initial Calibration ID: 031313NO3CAL Date Analyzed: 03/13/13

Matrix: (Soil/Water) WATER Time Analyzed: 1205

Instrument: <u>LACH8500</u> Concentration Units: <u>MG/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.469	0.513	109	90-110	
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<sup>\*</sup> Values outside of QC limits '

Comments:		•	

#### 7-WC

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1333 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS2W0313

Initial Calibration ID: 031313NO3Cal Date Analyzed: 03/13/13

Matrix: (Soil/Water) WATER Time Analyzed: 1318

Instrument: <u>LACH8500</u> Concentration Units: <u>MG/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.469	0.508	108	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments:	:
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#### 7-WC

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1333 Lab Name: CH2M HILL/LAB/CVO

Analysis Method:  $\underline{E353.2}$  LCS ID:  $\underline{BS1W0322}$ 

Matrix: (Soil/Water) WATER Time Analyzed: 1542

Instrument: LACH8500 Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.862	98	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments:			

**CH2MHILL** 

### CHAIN OF CUSTODY RECORD

2/26/2013 5:01:36 PM

Page 1 OF 1

CHZIVIHIL	.L				220/2013 3.01.36 FW Page 1	_	<u> </u>
Project Name PC Location Topoc Project Manager	k	••	Container: ervatives:	Poly H2SO4,			
Sample Manager	Shawn Du	ffy	Filtered:	NA			
		Holo	ling Time:	28			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 10	P-191SAM 10 Days 2/26/2013	.02.€H PLEME S	1.63	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENT
MW-46-175-191	2/25/2013	16:24	Water	x		1	1
/W-61-110-191	2/25/2013	15:23	Water	х		1	7
MW-110-191	2/26/2013	15:03	Water	Х		1	3
MW-12-191	2/26/2013	14:58	Water	х		1	4
MW-44-115-191	2/26/2013	12:35	Water	х		1	5
	•	•	•		TOTAL NUMBER OF CONTAINERS	5	92/03

Ammunicad by	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by		<u> 2-26-13</u> 1705	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Relinguished by	DH		On Ice: -yes-1 no 1-6-C Airbill No: 1-6-C	Sample Custody	
Received by	Jonaly	2/46/13 1705	Airbill No: / P# 1	and	Report Copy to
Relinguished by	Inonen !	1/26/13 / A/A	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Shawn Duffy
Received by	<b>1 2 2 2 3 3 3 3 3 3 3 3 3 3</b>	<u> 2/26/0 6 6 00</u>	Lab Phone: (541) 752-4271		(530) 229-3303
REC: /	mistant 3/4/1	120/750	Comen Bell 3/5/13 10:	30	

TOTAL NUMBER OF CONTAINERS

CH2MHILI	L				CHAIN OF CUSTODY RECORD	2/26/2013 4:26:35 PM	Page _1_	OF	1
Project Name PGo Location Topock Project Manager J Sample Manager S	ay Piper	Pres	Container: ervatives: Filtered: ling Time:	Poly H2SO4, pH<2, 4°C					
Project Number 4 Task Order Project 2013-GMF Turnaround Time Shipping Date: 2/ COC Number: 14	P-191-Q1 10 Days 26/2013	<b>;</b>	M.03	Nitrate/Nitrite (SM4500NO3) Nitrate				Number of Containers	соммент
MW-33-040-191	2/25/2013	10:47	Water	х			16	1	1/5
MW-62-110-191	2/26/2013	15:59	Water	х			17	1	18
MW-62-190-191	2/26/2013	16:05	Water	Х			18	1	191
MW-70BR-225-191	2/26/2013	11:16	Water	Х			19	1	80

Approved by	Signatures	Date/Time 2 26~13 1705	Shipping Details  Method of Shipment: courier	ATTN:	Special Instructions: Feb 4 - Feb 28, 2013
Relinguished by Received by Relinguished by	Polyney	2/34/13 1705	On Ice: _ves-/ no / / ("C' Airbill No: Lab Name: CH2M HILL Applied Sciences Lab	Sample Custody and Kathy McKinley	Report Copy to Shawn Duffy
Received by	how all	2/26/B/110 3/4/13 @1700	Lab Phone: (541) 752-4271  Carrier Bell 3/5/12	1632	(530) 229-3303

3

TOTAL NUMBER OF CONTAINERS

**CHAIN OF CUSTODY RECORD CH2MHILL** 3/1/2013 4:28:38 PM Page 1 OF 1 250 ml Project Name PG&E Topock Container: Poly Location Topock H2SQ4, Preservatives: pH<2, Project Manager Jay Piper Sample Manager Shawn Duffy Filtered: NA Holding Time: 28 Project Number 423575.MP.00.75
Task Order .02. GNL.03 Task Order Nitrate/Nitrite (E353.3) Number of Containers Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/1/2013 COC Number: 17 COMMENTS DATE TIME Matrix 70 MW-47-115-191 2/27/2013 | 15:09 Water Х MW-50-200-191 2/27/2013 15:53 Water Х MW-59-100-191 2/27/2013 10:25 Water Х

Annyound by	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by	<i>[-]</i> [	3-1-13	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Relinguished by	)//-	1675	On Ice: ages / no 3-47	Sample Custody	
Received by	madely	3/1/13/64	Airbill No: (EH)	and	Report Copy to
Relinguished by $+p$	wyalay	3/0/15 /MIN	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Shawn Duffy
Received by	gradin	3/1/13 ///0	Lab Phone: (541) 752-4271	, , , , , , , , , , , , , , , , , , , ,	(530) 229-3303
PEL! /min	19-12-314/1.	76/70	M. M. DA ROU 3/5/12 V	530	ļ

CH2MHILL		CHAIN OF CUSTODY RECORD 3/1/2013 4:44:53 PM Page 1	OF .	1_
Project Name PG&E Topock Container Location Topock Project Manager Jay Piper Preservatives Sample Manager Shawn Duffy Filtered	Poly H2SO4, pH<2, 4°C NA			
Holding Time 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  DATE TIME Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
MW-74-240-191 3/1/2013 8:15 Water	х	29	1	30
		TOTAL NUMBER OF CONTAINERS	1	07000

	Signatures	Date/Time	Shipping Details	İ	Special Instructions:
Approved by		3-1-13	Method of Shipment: courier	ATTN:	Feb 4 - Feb 28, 2013
Sampled by	K //	1645	· .		1 65 4 - 7 65 20, 20 10
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Relinguished by		3/1/13 100	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Shawn Duffy
Receixed by	a syring	3/1/13 /1/00	Lab Phone: (541) 752-4271		(530) 229-3303
per: mil	80 + 3/4/13 C	1700	(200190 BOLL 3/5/13 1030	<u></u>	<u> </u>



### Sample Receipt Record

Batch Number: M\333	Date received:	3/5/	13		
Batch Number:		<u>03</u>			
l		Checked by:			
VERIFICATION OF SAMPLE CONDITIONS (verify a		10	. NA	VEO	110
	NA	YES	NO		
Radiological Screening for DoD					
Were custody seals intact and on the outside of the					
Type of packing material: (ice Blue Ice Bubble w	лар				
Was a Chain of Custody (CoC) Provided?				<u> </u>	
Was the CoC correctly filled out (If No, document	in the SRER)			V	
Did the CoC list a correct bottle count and the pres	servative types (Y=OK, N	i=Corrected on CoC)	_	<i>i</i>	
Were the sample containers in good condition (bro	oken or leaking)?			<u></u>	
Containers supplied by ASL?					
Any sample with < 1/2 holding time remaining? If	so contact LPM			<u></u>	レ
Samples have multi-phase? If yes, document on S	SRER				$\nu$
Was there ice in the cooler? Enter temp. If >6°C of	contact client/SRER	2.8 °c		$\nu$	
All VOCs free of air bubbles? No, document on S	RFR				<u> </u>
pH of all samples checked and met requirements?		RER		V	
Enough sample volume provided for analysis? No.				V	
Did sample labels agree with COC? No, document					
Dissolved/Soluble metals filtered in the field?			V	·	
Dissolved/Soluble metals have sediment in bottom	n of container? Documer	nt in SRER	V		
Samula ID	Paggant	Reagent Lot Number	Volume	Addad	Initials
Sample ID	Reagent	Reagent Lot Number	Volume	Audeu	IIIIIIII
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### **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:

Laboratory Project Manager

Kothy Mckincey

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		Date/Time	Date
Sample ID	Client Sample ID	Collected	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 Nar	ne:	CH2M HILL/LAB/CVO	ASL SDG#	: <u>M1447</u>	
Project:	<u>PC</u>	GE Topock	Project #:	423575.MP	2.06.TS
I.		<u>nod(s):</u> lysis: E353.2			
II.		cipt/Holding Times:			
III.	Ana	lysis:			
	A.	Initial Calibration(s): All acceptance criteria were met.			
	B.	Calibration Verification(s): All acceptance criteria were met.			
	C.	Blanks: All acceptance criteria were met.			
	D.	<u>Laboratory Control Sample(s):</u> All acceptance criteria were met.			
	E.	Matrix Spike/Matrix Spike Duplicate Sa Analyzed in accordance with standard o		edure.	
	F.	Analytical Exception(s): None.			
IV.	<u>Doc</u>	umentation Exception(s): e.			
v.	CH2	tify that this data package is in compliance v M HILL, both technically and for completen lata contained in this hardcopy data package gnee, as verified by the following signatures.	ess, except fo has been auth	r the condition	ons detailed above. Release of
Prepare	d by:	21/2:		Date:	4/3/2013
Review	ed by:	Kastley nescens		Date:	41313

Field Sample ID:

MW-20-100-191

SDG No.: M1447

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M144707

Date Received: 03/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	6.27		mg/L	5	2 ML	E353.2	03/29/13
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Field Sample ID:

MW-20-130-191

SDG No.: M1447 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M144708

Date Received: 03/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	6.32		mg/L	5	2 ML	E353.2	03/29/13
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Field Sample ID:

MW-51-191

SDG No.: M1447 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M144709

Date Received: 03/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	9.31		mg/L	5	3 ML	E353.2	03/22/13
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# 1A-WC

#### GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID: WB1-0322

SDG No.: <u>M1447</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: <u>WATER</u>

Lab Sample ID: WB1-0322

Date Received: //

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	υ	mg/L	1	3 ML	E353.2	03/22/13
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Field	Sample	ID:	
WI	31-0329		

SDG No.: M1447 Lab Name: CH2M HTLL/LAB/CVO

Matrix: WATER Lab Sample ID: WB1-0329

Date Received: \_\_/\_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.00303	0.500	0.500	υ	mg/L	1	2 ML	E353.2	03/29/13
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#### 7-WC

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1447 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS1W0322

Initial Calibration ID: 031313NO3Cal Date Analyzed: 03/22/13

Matrix: (Soil/Water) WATER Time Analyzed: 1542

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.862	98	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments	:
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#### 7-WC

#### GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1447 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS1W0329

Initial Calibration ID: 032913NO23Cal Date Analyzed: 03/29/13

Matrix: (Soil/Water) WATER Time Analyzed: 1529

Instrument: LACH8500 Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.850	97	90-110	
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<sup>\*</sup> Values outside of QC limits

Comments:		

CHAIN OF CUSTODY RECORD CH2MHILL 3/15/2013 12:12:48 PM Page 1 OF 1 250 ml Project Name PG&E Topock Container Poly Location Topock H2SO4, Preservatives: pH<2, Project Manager Jay Piper Sample Manager Shawn Duffy Filtered: NA Holding Time: 28 Project Number 423575.MP.06.TS Task Order Nitrate/Nitrite (E353.3) Project 2013-GMP-191SAMPLEMETHOD Number of Containers Turnaround Time 10 Days Shipping Date: 3/15/2013 COC Number: 32 COMMENTS TIME Matrix DATE MW-20-100-191 3/13/2013 13:52 Water Х MW-20-130-191 3/14/2013 13:10 Water Х a MW-51-191 3/14/2013 10:33 Water Х 1

Approved by Sampled by

Relinquished by

Receiged by Relinquished by

Received by

Signatures

**Shipping Details** 

Method of Shipment:

On Ice: ves/ no 4-6 00

(5) Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Special Instructions: Feb 4 - Feb 28, 2013

Sample Custody

and

Report Copy to

Kathy McKinley

Shawn Duffy (530) 229-3303

TOTAL NUMBER OF CONTAINERS

3

Common Bell 3/9/13 1030



# Sample Receipt Record

Batch Number: MIYU7  Client/Project: Topock	-	Date received: Checked by: Checked by:	3/19	/13							
VERIFICATION OF SAMPLE CONDITIONS (verify a	all items), HD = Client Hand delivered S	Samples	NA	YES	NO						
Radiological Screening for DoD			L/								
Were custody seals intact and on the outside of th	ne cooler?										
Type of packing material: Ice Blue Ice Rubble w	rap)										
Was a Chain of Custody (CoC) Provided?				V							
Was the CoC correctly filled out (If No, document	as the CoC correctly filled out (If No, document in the SRER)										
Did the CoC list a correct bottle count and the pre-		V									
Were the sample containers in good condition (bro		V									
Containers supplied by ASL?		L									
Any sample with < 1/2 holding time remaining? If	so contact LPM				~						
Samples have multi-phase? If yes, document on S	BRER				2						
Was there ice in the cooler? Enter temp. If >6°C of	contact client/SRER	1.6°C		V							
All VOCs free of air bubbles? No, document on S	DED										
		DED									
pH of all samples checked and met requirements?		VER		1							
Enough sample volume provided for analysis? No				1							
Did sample labels agree with COC? No, documen Dissolved/Soluble metals filtered in the field?	UII SKEK		-/								
Dissolved/Soluble metals have sediment in bottom	of container? Document	in SDED	-V								
Dissolved/Soluble filetals have sediment in potton	Tol container: Document	III OI\LI\									
Sample ID	Reagent	Reagent Lot Number	Volume	Added	Initials						
				<u> </u>							

Page 39 of 39

March 04, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000 Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: 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.

for geogrammedo

Laboratory Director

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



## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.06.TS CASE NARRATIVE

**Date:** 04-Mar-13

Lab Order: N009612

#### SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



# Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.06.TS Work Order Sample Summary

**Date:** 04-Mar-13

Lab Order: N009612

Contract No: 2013-GMP-191S

Lab Sample ID Client Sample ID	Matrix	<b>Collection Date</b>	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

Print Date: 04-Mar-13

Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses Result MDL PQL Qual Units DF Date Analyzed

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-090-191

**Lab Order:** N009612 **Collection Date:** 2/14/2013 2:53:00 PM

Project: PG&E Topock, 423575.MP.06.TS Matrix: WATER

**Lab ID:** N009612-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130215A
 QC Batch:
 R87640
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 8700
 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



Print Date: 04-Mar-13

Advanced Technology Laboratories, Inc.

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

**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



**CLIENT:** CH2M HILL

Work Order: N009612

**Project:** PG&E Topock, 423575.MP.06.TS

# ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1\_WPGE

**Date:** 04-Mar-13

Sample ID: LCS-R87640	SampType: LCS	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 87640	
Client ID: LCSW	Batch ID: R87640	TestNo: <b>EPA 120.1</b> Analysis Date: <b>2/15/2013</b> SeqNo: <b>1526970</b>	
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: <b>EPA 120.1</b> Analysis Date: <b>2/15/2013</b> SeqNo: <b>1526973</b>	
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	
Sample ID: N009612-003A MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: R87640	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87640           TestNo: EPA 120.1         Analysis Date: 2/15/2013         SeqNo: 1526974	
		TestNo: <b>EPA 120.1</b> Analysis Date: <b>2/15/2013</b> SeqNo: <b>1526974</b>	Qual
Client ID: ZZZZZZ	Batch ID: <b>R87640</b>	TestNo: <b>EPA 120.1</b> Analysis Date: <b>2/15/2013</b> SeqNo: <b>1526974</b>	Qual
Client ID: ZZZZZZ Analyte	Batch ID: <b>R87640</b> Result	TestNo: EPA 120.1 Analysis Date: 2/15/2013 SeqNo: 1526974  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit (	Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance	Result 17600.000	TestNo: EPA 120.1         Analysis Date:         2/15/2013         SeqNo:         1526974           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLimit         0.20         9992         8760         88.5         75         125         17780         1.02         10	Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009612-003A-DUP	Result 17600.000  SampType: DUP	TestNo: EPA 120.1       Analysis Date: 2/15/2013       SeqNo: 1526974         PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit 0.20       9992 8760 88.5 75 125 17780 1.02 10         TestCode: 120.1_WPGE Units: umhos/cm       Prep Date: RunNo: 87640         TestNo: EPA 120.1       Analysis Date: 2/15/2013       SeqNo: 1526975	Qual

#### Qualifiers:

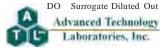
B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

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



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses	Result 1	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
,			SM	2320 B			
RunID: WETCHEM_130215B	QC Batch: R876	53		PrepDa	ate:		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

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
ALKALINITY, SPECIATED						
			SM	2320 B		
RunID: WETCHEM_130215B	QC Batch: R876	653		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

CH2M HILL

Client Sample ID: MW-111-191

Collection Date: 2/14/2013 2:58:00 PM

Matrix: WATER

**Project:** PG&E Topock, 423575.MP.06.TS

N009612

**Lab ID:** N009612-003

**CLIENT:** 

Lab Order:

Analyses	Result N	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM	2320 B			
RunID: WETCHEM_130215B	QC Batch: R876	53		PrepD	ate:		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-090-191

**Lab Order:** N009612 **Collection Date:** 2/14/2013 2:53:00 PM

Project: PG&E Topock, 423575.MP.06.TS Matrix: WATER

**Lab ID:** N009612-004

	D 1/ 1	ADI	DOL	0 1 11 11	DE	TD / A I I
Analyses	Result 1	MDL	PQL	Qual Units	DF	Date Analyzed
ALKALINITY, SPECIATED						
			SM	2320 B		
RunID: WETCHEM_130215B	QC Batch: R876	53		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

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 1	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
,			SM	2320 B			
RunID: WETCHEM_130215B	QC Batch: R876	53		PrepDa	ate:		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 04-Mar-13

CLIENT: CH2M HILL

Alkalinity, Total (As CaCO3)

Work Order:

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320\_W\_SP

**Project:** PG&E Topock, 423575.MP.06.TS

N009612

Sample ID: LCS-R87653 Client ID: LCSW	SampType: LCS  Batch ID: R87653	TestCode: 2320_W_SP Units: mg/L TestNo: SM 2320 B			Prep Date: Analysis Date: 2/15/2013				RunNo: <b>87653</b> SeqNo: <b>1527002</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCC	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	TestCod	e: <b>2320_W_S</b>	P Units: mg/L		Prep Da	te:		RunNo: 876	553	

Sample ID: MB-R86753	SampType: MBLK	TestCo	TestCode: 2320_W_SP Units: mg/L			Prep Date:				RunNo: 87653		
Client ID: PBW	Batch ID: R87653	Test	No: SM 2320 B	Analysis Date: 2/15/2013				SeqNo: <b>1527003</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Bicarbonate (As CaCO3	B) ND	5.0										
Alkalinity, Carbonate (As CaCO3)	ND	5.0										
Alkalinity, Hydroxide (As CaCO3)	ND	5.0										

Sample ID: N009612-001A MS	SampType: MS	TestCod	le: <b>2320_W_S</b>	P Units: mg/L		Prep Dat	te:		RunNo: <b>876</b>	553	
Client ID: ZZZZZZ	Batch ID: R87653	TestN	lo: SM 2320 E	3		Analysis Da	te: <b>2/15/20</b> 1	3	SeqNo: 152	27005	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Total (As CaCO3)	174.893 174.893	5.0 5.0	100.0 100.0	76.18 76.18	98.7 98.7	75 75	125 125				

Sample ID: N009612-001A MSD	SampType: MSD	TestCoo	le: <b>2320_W_S</b>	P Units: mg/L		Prep Dat	te:		RunNo: <b>876</b>	53	
Client ID: ZZZZZZ	Batch ID: R87653	TestNo: SM 2320 B			Analysis Date: 2/15/2013				SeqNo: <b>1527006</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Total (As CaCO3)	175.966 175.966	5.0 5.0	100.0 100.0	76.18 76.18	99.8 99.8	75 75	125 125	174.9 174.9	0.612 0.612	20 20	

#### Qualifiers:

B Analyte detected in the associated Method Blank

ND

5.0

ND Not Detected at the Reporting Limit

E Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

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



CH2M HILL **CLIENT:** N009612 Work Order:

ANALYTICAL QC SUMMARY REPORT

**Project:** PG&E Topock, 423575.MP.06.TS TestCode: 2320\_W\_SP

Sample ID: N009612-001A-DUP	SampType: <b>DUP</b>	TestCode: 2320_W_SP Units: mg/L		Prep Date:			RunNo: <b>87653</b>				
Client ID: ZZZZZZ	Batch ID: R87653	TestNo: SM 2320 B		Analysis Date: 2/15/2013			SeqNo: <b>1527007</b>				
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

RPD outside accepted recovery limits Calculations are based on raw values

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



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

Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMATO	OGRAPHY			
		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 CHROMATO	OGRAPHY			
		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

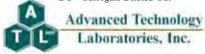
Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

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					
ANIONS BY ION CHROMAT	OGRAPHY								
		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 CHROMAT	OGRAPHY								
	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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses		Result MDL	PQL	Qual Units	DF	Date Analyzed
ANIONS BY ION	CHROMATO	GRAPHY				
			EP#	A 300.0		
RunID: IC2_13022	22A	QC Batch: R87832		PrepDate:		Analyst: QBM
Chloride		3100 11	500	mg/L	1000	2/22/2013 12:34 PM
ANIONS BY ION	CHROMATO	GRAPHY				
			EPA	A 300.0		
RunID: IC2_13022	22A	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	CHROMATO	GRAPHY				
			EP#	A 300.0		
RunID: IC2_13022	22A	QC Batch: R87832		PrepDate:		Analyst: QBM
Sulfate		690 3.5	50	mg/L	100	2/22/2013 02:18 PM

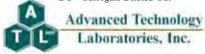
Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-090-191

**Lab Order:** N009612 **Collection Date:** 2/14/2013 2:53:00 PM

**Project:** PG&E Topock, 423575.MP.06.TS **Matrix:** WATER

**Lab ID:** N009612-004

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 04-Mar-13

#### Advanced Technology Laboratories, Inc.

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 CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130222A	QC Batch: R87832	PrepDate:	Analyst: <b>QBM</b>
Chloride	1400 5.5	250 mg/L	500 2/22/2013 04:53 PM
ANIONS BY ION CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130222A	QC Batch: R87832	PrepDate:	Analyst: <b>QBM</b>
Sulfate	260 1.8	25 mg/L	50 2/22/2013 04:42 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**CLIENT:** CH2M HILL

Work Order: N009612

**Project:** PG&E Topock, 423575.MP.06.TS

# ANALYTICAL QC SUMMARY REPORT

TestCode: 300\_W\_CLPGE

**Date:** 04-Mar-13

Sample ID: MB-R87832_CL	SampType: MBLK	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>87832</b>		
Client ID: PBW	Batch ID: R87832	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/22/2013	SeqNo: <b>1534385</b>		
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: <b>LCS</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>87832</b>		
Client ID: LCSW	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: <b>1534386</b>		
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: <b>DUP</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: <b>1534393</b>		
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: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/22/2013	SeqNo: <b>1534394</b>		
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: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/22/2013	SeqNo: <b>1534395</b>		
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

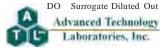
ND Not Detected at the Reporting Limit

E Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference



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

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009612

TestCode: 300\_W\_FPGE

Project:	PG&E Topock, 423575.MP.06.TS	TestCode:
----------	------------------------------	-----------

Sample ID: MB-R87832_F Client ID: PBW	SampType: MBLK Batch ID: R87832	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 2/22/2013	RunNo: <b>87832</b> SeqNo: <b>1534447</b>		
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: <b>LCS</b>	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: <b>87832</b>		
Client ID: LCSW	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: <b>1534448</b>		
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: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: <b>1534457</b>		
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: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: <b>1534458</b>		
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: <b>DUP</b>	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: <b>1534459</b>		
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
- ND Not Detected at the Reporting Limit

- 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



CH2M HILL **CLIENT:** N009612 Work Order:

ANALYTICAL QC SUMMARY REPORT

**Project:** PG&E Topock, 423575.MP.06.TS TestCode: 300\_W\_SO4PGE

Sample ID: MB-R87832_SO4	SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>87832</b>		
Client ID: PBW	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: <b>1534468</b>		
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: <b>87832</b>		
Client ID: LCSW	Batch ID: R87832	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/22/2013	SeqNo: <b>1534469</b>		
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: <b>DUP</b>	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/22/2013	SeqNo: <b>1534478</b>		
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: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/22/2013	SeqNo: <b>1534479</b>		
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: <b>87832</b>		
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: <b>EPA 300.0</b>	Analysis Date: 2/22/2013	SeqNo: <b>1534480</b>		
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		

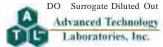
#### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

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

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



~10	

## **CHAIN OF CUSTODY RECORD**

2/14/2013 4:40:33 PM

OF, 1 Page 1

CHZIVINIL	· <b>L</b>							214/2013 4.40.33 FW Fage	٠.	
Project Name Po Location Topoc Project Manager	k		Container: ervatives:	Liter 4°C	1x1 Liter 4°C	1x1 Liter 4°C	1x1 Liter 4°C			
Sample Manager	Shawn Du	ffy	Filtered:	NA NA	NA	NA	NA			
		Hold	ling Time:	14	14	14	14			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 2 COC Number: 1	P-191SAM 10 Day	PLEME s		Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Alkalinity (SM2320B)	H069612	Number of Containers	COMMENTS
MW-112-191	2/13/2013	17:46	Water	х	Х		х		1	
MW-44-125-191	2/13/2013	15:32	Water		х		х	-2-7	1	
MW-44-125 191	2/13/2013	15:32	Water	х				-3-	1	
MW-111-191	2/14/2013	14:58	Water	х		х	х	-4-3 <u>~ 2/20/3</u>	1	
MW-33-090-191	2/14/2013	14:53	Water	х		х	х	-8-4	1	
MW-50-095-191	2/14/2013	10:15	Water	х	х		×	+ -6-5	1	
						<del>  </del>	<u> </u>	TOTAL NUMBER OF CONTAINERS	6	

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

Signatures

**Shipping Details** Method of Shipment: courier

On Ice: yes / no 3, yell 2/14/18 (415 Airbill No: 12 H)

Lab Name: ADVANCED TECHNOLOGY LABORATO

2/14/B (20) Lab Phone: (702) 307-2659

**Special Instructions:** 

Sample Custody

and Marlon

Report Copy to **Shawn Duffy** (530) 229-3303

ATTN: Feb 4 - Feb 28, 2013

## Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions o	r further in	struction, pleas	se contact our F	Project Coor	dinator 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	<b>☑</b> No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	<b>✓</b> Ice	lce Pack	Dry Ice	Other	☐ None			
		<u>s</u>	ample Receip	ot Checklis	<u>t</u>			
1. Shipping container/cooler in	good condi	tion?			Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	i, dated on s	shippping contain	er/cooler?		Yes	No 🗌	Not Present	V
3. Custody seals intact on sam	ple bottles?	•			Yes	No 🗌	Not Present	V
4. Chain of custody present?					Yes 🗹	No 🗌		
5. Sampler's name present in	COC?				Yes 🗹	No $\square$		
6. Chain of custody signed who	en relinquist	ned and received	?		Yes 🗹	No 🗀		
7. Chain of custody agrees wit	h sample lal	bels?			Yes 🗹	No 🗀		
8. Samples in proper container	r/bottle?				Yes 🗹	No 🗀		
9. Sample containers intact?					Yes 🗹	No 🗔		
10. Sufficient sample volume f	or indicated	test?			Yes 🗹	No $\square$		
11. All samples received within	n holding tim	ne?			Yes 🗹	No 🗀		
12. Temperature of rep sample	e or Temp B	Blank within accep	otable limit?		Yes 🗹	No 🗔	NA	
13. Water - VOA vials have ze	ro headspa	ce?			Yes 🗌	No 🗆	NA	V
14. Water - pH acceptable upo	•	£ \$4-4-1-			Yes $\square$	No 🗀	NA	$\checkmark$
Example: pH > 12 for (C					v 🗆	[]		
15. Did the bottle labels indica	•		17		Yes 🗌	No L		
16. Were there Non-Conforma W	ince issues las Client no				Yes ☐ Yes ☐	No ☐ No ☐	NA NA	
Comments:								
Checklist Completed B	мвс	~2 1B 13				Reviewed By:		<b>S</b> *

## Sample ID: N009612-001A @ pH 7.69

## A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na<sub>2</sub>CO<sub>3</sub> solution (MS/MSD Stock Solution)

B, mL Na2CO3 solution taken for tritration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na<sub>2</sub>CO<sub>3</sub>, ACS Grade (1.00 ml = 2500 ug as CaCO<sub>3</sub>): Dissolve 2.650 grams of Na<sub>2</sub>CO<sub>3</sub> in distilled water and dilute to 1 liter.

**LCS** Na<sub>2</sub>CO<sub>3</sub>, ACS Grade (1.00 ml = 2500 ug as CaCO<sub>3</sub>): Dissolve 2.650 grams of Na<sub>2</sub>CO<sub>3</sub> in distilled water and dilute to 1 liter. The reagent must be purchased from a secondary source

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.65 mL)

= 0.02146 N

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as CaCO<sub>3</sub>), mg/L =  $M_{vol.}$  \* N H<sub>2</sub>SO<sub>4</sub> \* DF \* 1000

Where:

 $M_{vol.}$ , 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,

Total Alkalinity (as  $CaCO_3$ ), mg/L = (3.55mL) (0.02146N) (1) \* 1000

= 76.183mg/L

05 fn 3 h / 13

### Reporting results in two significant figures,

= 76 mg/L as CaCO<sub>3</sub>

### C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as 
$$CaCO_3 = P_{vol.} * N H_2SO_4 * DF * 1000$$
  
= (0) (0.02146) (1) \* 1000  
= **0**

**Total Alkalinity** 

T alkalinity, mg/L as 
$$CaCO_3 = M_{vol.} * N H_2SO_4 * DF * 1000$$
  
= (3.55 mL) (0.02146) (1) \* 1000  
= **76.183 mg/L** as CaCO3

#### 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<sub>2</sub>SO<sub>4</sub>

DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

### Then OH, CO<sub>3</sub>, HCO<sub>3</sub> alkalinities as CaCO<sub>3</sub> will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO <sub>3</sub>	CO <sub>3</sub> Alkalinity as CaCO <sub>3</sub>	HCO <sub>3</sub> Alkalinity as CaCO <sub>3</sub>
P=0	0	0	
P<%T	0	2P	T – 2P
P=1/2 T	0	2P	0
P > 1/2 T	2P – T	2(T – P)	0
P=T		0	0

### Therefore,

OH Alkalinity as CaCO<sub>3</sub> = 0

CO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 0

HCO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 76.183 mg/L

# Reporting results in two significant figures,

OH Alkalinity as CaCO<sub>3</sub> = **0** 

 $CO_3$  Alkalinity as  $CaCO_3 = 0$ 

HCO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = **76 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:

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:

Chloride, mg/L = 3.911 \* 1000

= 3911 mg/L

Astella

Reporting N009612-001A results in two significant figures,

Chloride, mg/L = 3900

March 12, 2013

Shawn P. Duffy

CH2M HILL

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

RE: PG&E Topock, 423575.MP.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,

In Ax library
Jose Tenorio Jr.

Laboratory Director

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



CA-ELAP No.:2676

NV Cert. No.: NV-009222007A

Workorder No.: N009707

### Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

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

**Date:** 12-Mar-13

Lab Order: N009707

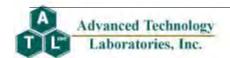
### SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



# Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.02.GM.03 Work Order Sample Summary

**Date:** 12-Mar-13

Lab Order: N009707

Contract No: 2013-GMP-191S

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

Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

Advanced Technology Laboratories, Inc.

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

**SPECIFIC CONDUCTANCE** 

EPA 120.1

 RunID:
 WETCHEM\_130227D
 QC Batch:
 R87837
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 11000
 0.10
 umhos/cm
 1
 2/27/2013

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



CH2M HILL **CLIENT:** 

ANALYTICAL QC SUMMARY REPORT

N009707 Work Order:

**Project:** 

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

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 Qu	ual
Specific Conductance	9640.000	0.10 9992 0 96.5 85 115	
Sample ID: N009707-003A-DUP	SampType: <b>DUP</b>	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 Qu	ual
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	
Sample ID: N009707-003A MS Client ID: ZZZZZZ	SampType: MS  Batch ID: R87837		
·		TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 87837	ual
Client ID: ZZZZZZ	Batch ID: <b>R87837</b>	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87837           TestNo: EPA 120.1         Analysis Date: 2/27/2013         SeqNo: 1533480	ual
Client ID: ZZZZZZ Analyte	Batch ID: R87837	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 87837 TestNo: EPA 120.1 Analysis Date: 2/27/2013 SeqNo: 1533480  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qu	ual
Client ID: ZZZZZZ Analyte Specific Conductance	Batch ID: <b>R87837</b> Result  16120.000	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87837           TestNo: EPA 120.1         Analysis Date: 2/27/2013         SeqNo: 1533480           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLimit         Qu           0.20         9992         6490         96.4         75         125	nal
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009707-003A MSD	Batch ID: R87837 Result 16120.000 SampType: MSD	TestCode: 120.1_WPGE Units: umhos/cm         Prep Date:         RunNo: 87837           TestNo: EPA 120.1         Analysis Date: 2/27/2013         SeqNo: 1533480           PQL SPK value SPK Ref Val         %REC LowLimit HighLimit RPD Ref Val         %RPD RPDLimit Qu           0.20 9992 6490 96.4 75 125         TestCode: 120.1_WPGE Units: umhos/cm         Prep Date:         RunNo: 87837	

#### Qualifiers:

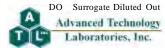
B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

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



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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
ALKALINITY, SPECIATED							
			SM	1 2320 B			
RunID: WETCHEM_130301D	QC Batch: R878	360		PrepDa	te:		Analyst: QBM
Alkalinity, Bicarbonate (As CaCO3)	40	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)	40	1.2	5.0		mg/L	1	3/1/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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 I	MDL	POL	Oual Units	DF	Date Analyzed
ALKALINITY, SPECIATED						
ALIALIMIT, OF LOTATED			SM	2320 B		
RunID: WETCHEM_130301D	QC Batch: R878	60		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses	Result M	DL PQL	<b>Qual</b> Units	DF	Date Analyzed
ALKALINITY, SPECIATED					
		SI	/I 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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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 M	IDL PQL	Qual Units	DF	Date Analyzed
ALKALINITY, SPECIATED					
			SM 2320 B		
RunID: WETCHEM_130301D	QC Batch: R8786	0	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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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
ALKALINITY, SPECIATED							
			SM	2320 B			
RunID: WETCHEM_130301D	QC Batch: R878	360		PrepD	ate:		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 12-Mar-13

**CLIENT:** CH2M HILL

Work Order:

Project:

N009707

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: <b>87860</b>	-
Client ID: LCSW	Batch ID: R87860	TestNo: SM :	2320 B		Analysis Date: 3/1/201	3	SeqNo: <b>1534314</b>	
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 1	0.00 0	95.3	85 115			
Alkalinity, Total (As CaCO3)	99.576	5.0 1	0.00	99.6	85 115			
Sample ID: MB-R87860	SampType: MBLK	TestCode: 2320	_W_SP Units: mg/L		Prep Date:		RunNo: <b>87860</b>	
Client ID: PBW	Batch ID: R87860	TestNo: SM 2	2320 B		Analysis Date: 3/1/201	3	SeqNo: <b>1534315</b>	
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: <b>87860</b>	
Client ID: ZZZZZZ	Batch ID: R87860	TestNo: SM :	2320 B		Analysis Date: 3/1/201	3	SeqNo: <b>1534329</b>	
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 1	00.0 40.25	97.5	75 125			
Alkalinity, Total (As CaCO3)	137.712	5.0 1	100.0 40.25	97.5	75 125			
Sample ID: N009707-001AMSD	SampType: MSD	TestCode: 2320	_W_SP Units: mg/L		Prep Date:		RunNo: <b>87860</b>	
Client ID: ZZZZZZ	Batch ID: R87860	TestNo: SM :	2320 B		Analysis Date: 3/1/201	3	SeqNo: <b>1534330</b>	
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 1	00.0 40.25	97.5	75 125	137.7	0 20	
Alkalinity, Total (As CaCO3)	137.712	5.0 1	00.0 40.25	97.5	75 125	137.7	0 20	

#### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

R RPD outside accepted recovery limits
Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009707

Project: PG&E Topock, 423575.MP.02.GM.03 TestCode: 2320\_W\_SP

Sample ID: N009707-005A-DUP	SampType: <b>DUP</b>	TestCod	de: <b>2320_W_S</b>	P Units: mg/L		Prep Da	te:		RunNo: <b>878</b>	60	
Client ID: ZZZZZZ	Batch ID: R87860	TestN	lo: SM 2320 E	3		Analysis Da	te: <b>3/1/201</b>	3	SeqNo: <b>153</b>	4335	
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:

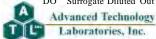
B Analyte detected in the associated Method Blank

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



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMAT	OGRAPHY		
		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 CHROMAT	OGRAPHY		
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMAT	OGRAPHY		
		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 CHROMAT	OGRAPHY		
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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 Uni	ts DF Date Analyzed
ANIONS BY ION CHROMAT	OGRAPHY		
		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 CHROMATO	OGRAPHY		
		EPA 300.0	
RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: <b>QBM</b>
Sulfate	450 1.8	25 mg/L	50 3/1/2013 07:51 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses	Result MDL	PQL Qual Units	DF Date Analyzed
ANIONS BY ION CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: <b>QBM</b>
Chloride	1800 5.5	250 mg/L	500 3/1/2013 06:18 PM
ANIONS BY ION CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: <b>QBM</b>
Sulfate	450 1.8	25 mg/L	50 3/1/2013 08:03 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 12-Mar-13

### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMAT	OGRAPHY		
		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 CHROMAT	OGRAPHY		
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 12-Mar-13

**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: <b>87949</b>
Client ID: PBW	Batch ID: <b>R87949</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: <b>3/1/2013</b>	SeqNo: <b>1537442</b>
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: <b>LCS</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>87949</b>
Client ID: LCSW	Batch ID: <b>R87949</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537443</b>
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: <b>DUP</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>87949</b>
Client ID: ZZZZZZ	Batch ID: <b>R87949</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537455</b>
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: <b>87949</b>
Client ID: ZZZZZZ	Batch ID: <b>R87949</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537458</b>
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: <b>87949</b>
Client ID: ZZZZZZ	Batch ID: <b>R87949</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537459</b>
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

ND Not Detected at the Reporting Limit

E Value above quantitation range

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

RPD outside accepted recovery limits

Calculations are based on raw values



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009707

Project: PG&E Topock, 423575.MP.02.GM.03 TestCode: 300\_W\_CLPGE

Sample ID: N009707-002AMS	nple ID: N009707-002AMS SampType: MS		TestCode: 300_W_CLPG Units: mg/L			Prep Date:				RunNo: <b>87949</b>		
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: <b>EPA 300.0</b>			Analysis Date: 3/1/2013			SeqNo: <b>1537467</b>				
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:

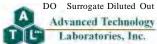
B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO G Pilot Director at the Reporting

- 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



CH2M HILL **CLIENT:** 

ANALYTICAL QC SUMMARY REPORT

N009707 Work Order:

**Project:** 

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

TestCode: 300\_W\_SO4PGE

Sample ID: MB-R87949_SO4	SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>87949</b>
Client ID: PBW	Batch ID: R87949	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: <b>1537554</b>
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: <b>87949</b>
Client ID: LCSW	Batch ID: <b>R87949</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537555</b>
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: <b>DUP</b>	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>87949</b>
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537564</b>
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: <b>87949</b>
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537568</b>
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: <b>87949</b>
Client ID: ZZZZZZ	Batch ID: <b>R87949</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/1/2013	SeqNo: <b>1537569</b>
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

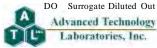
ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009707

Project: PG&E Topock, 423575.MP.02.GM.03 TestCode: 300\_W\_SO4PGE

Sample ID: N009707-002AMS SampType: MS		TestCod	TestCode: 300_W_SO4P Units: mg/L			Prep Date:				RunNo: <b>87949</b>		
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0 Analysis Date: 3/1/2013			;	SeqNo: <b>1537575</b>						
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

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



CH2MHII	LL						CHAIN OF CUSTODY RECORD 2/26/2013 4:45:10 PM Page 1	OF	1
Project Name P Location Topo Project Manager	ck		Container: servatives:	Liter 4°C	1x1 Liter 4°C	1x1 Liter 4°C			
Sample Manage	r Shawn Du		Filtered: ding Time:		NA 14	NA 14			
Project Number Task Order Project 2013-Gl Turnaround Time Shipping Date: COC Number: 8	MP-191SAM e 10 Day: 2/26/2013	PLEMI S		∺	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)	N009707	Number of Containers	COMMENTS
MW-46-175-191	2/25/2013	16:24	Water	x	х	х	7400 7 0	1	· .
MW-61-110-191	2/25/2013	15:23	Water	х	х	х	- 2	1	
MW-110-191	2/26/2013	15:03	Water	х	х	х	- 3	1	
MW-12-191	2/26/2013	14:58	Water	х	х	х	-4	1	-
MW-44-115-191	2/26/2013	12:35	Water	х	х	х	5	1	

5

TOTAL NUMBER OF CONTAINERS

Date/Time 2-26-/3 /705 Signatures Special Instructions: **Shipping Details** Approved by ATTN: Feb 4 - Feb 28, 2013 Method of Shipment: Sampled by On Ice: yes / no 2 /2 Sample Custody Relinquished by 10#1 Airbill No: Received by and Report Copy to Relinquished by Received by Lab Name: ADVANCED TECHNOLOGY LABORATO Shawn Duffy Marion Lab Phone: (702) 307-2659 (530) 229-3303

# Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.									
Cooler Received/Opened On:	2/26/2013	3			Workorder:	N009707			
Rep sample Temp (Deg C):	2.2, 2.4				IR Gun ID:	1			
Temp Blank:	☐ Yes	<b>☑</b> No							
Carrier name:	ATL								
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None			
Cooling process:	lce	Ice Pack	Dry Ice	Other	☐ None				
		S	ample Receir	ot Chacklis	<del>1</del>				
Shipping container/cooler in	good condi		ampie recei	JI CHECKIS	<u>.</u> Yes ☑	No 🗌	Not Present		
Custody seals intact, signed	_		er/cooler?		Yes 🗆	No 🗀	Not Present	<b>V</b>	
3. Custody seals intact on san		•			Yes 🗌	No 🗀	Not Present	_	
4. Chain of custody present?					Yes 🗸	No 🗀			
5. Sampler's name present in	COC?				Yes 🗹	No 🗌			
6. Chain of custody signed wh		hed and received	?		Yes 🗸	No			
7. Chain of custody agrees wil	•				Yes 🗸	No 🗌			
8. Samples in proper containe	r/bottle?				Yes 🗹	No 🗌			
9. Sample containers intact?					Yes 🗹	No 🗀			
10. Sufficient sample volume	for indicated	I test?			Yes 🗹	No 🗌			
11. All samples received within	n holding tin	ne?			Yes 🗹	No 🗌			
12. Temperature of rep sampl	e or Temp E	Blank within accep	table limit?		Yes 🗹	No 🗌	NA		
13. Water - VOA vials have ze	ero headspa	ice?			Yes 🗀	No 🗆	NA	$\checkmark$	
14. Water - pH acceptable up					Yes 🗌	No 🗌	NA	<b>✓</b>	
Example: pH > 12 for (C	N,S); pH<2	for Metals							
15. Did the bottle labels indica			l?		Yes 🗔	No 🗀	NA		
16. Were there Non-Conforma V	ance issues /as Client n	-			Yes ☐ Yes ☐	No ☐ No ☐	NA NA	<b>✓</b>	
Comments:			<del></del>						
	and the second section of the second and the second		***************************************						

3

Sample ID: N009707-001p @ pH 8.19

us for sportiz

## A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na<sub>2</sub>CO<sub>3</sub> solution (MS/MSD Stock Solution)

B, mL Na2CO3 solution taken for tritration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na<sub>2</sub>CO<sub>3</sub>, ACS Grade (1.00 ml = 2500 ug as CaCO<sub>3</sub>): Dissolve 2.650 grams of Na<sub>2</sub>CO<sub>3</sub> 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,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.80 mL)

= 0.02119 N

# B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as  $CaCO_3$ ),  $mg/L = M_{vol.} * N H_2SO_4 * DF * 1000$ 

Where:

 $M_{vol.}$ , 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,

Total Alkalinity (as CaCO<sub>3</sub>), mg/L = (1.90mL) (0.02119N) (1) \* 1000

= 40.261 mg/L

ns fu 3/12/13 47

### Reporting results in two significant figures,

= 40 mg/L as CaCO<sub>3</sub>

### C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as 
$$CaCO_3 = P_{vol.} * N H_2SO_4 * DF * 1000$$
  
= (0) (0.02119) (1) \* 1000  
= **0**

**Total Alkalinity** 

T alkalinity, mg/L as 
$$CaCO_3 = M_{vol.} * N H_2SO_4 * DF * 1000$$
  
= (1.90mL) (0.02119) (1) \* 1000  
= **40.261 mg/L** as CaCO3

### Where:

P<sub>vol.</sub> - volume titrant used to reach pH 8.3, ml M<sub>vol.</sub> - volume titrant used to reach pH 4.5, ml

N - Normality of H<sub>2</sub>SO<sub>4</sub>

DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO<sub>3</sub>, HCO<sub>3</sub> alkalinities as CaCO<sub>3</sub> will be calculated as follows:

Result of Titration	OH Alkalinity as	CO₃ Alkalinity as	HCO₃ Alkalinity
	CaCO₃	CaCO₃	as CaCO <sub>3</sub>
P = 0	0.3	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
PET	$\Gamma$	0	0

### Therefore,

OH Alkalinity as CaCO<sub>3</sub> = 0

CO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 0

HCO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 40.261mg/L

Reporting results in two significant figures,

OH Alkalinity as  $CaCO_3 = 0$ 

 $CO_3$  Alkalinity as  $CaCO_3 = 0$ 

HCO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 40 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:

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:

Chloride, mg/L = 6.067 \* 1000

= 6067 mg/L

Reporting N009707-001A results in two significant figures,

Chloride, mg/L = 6100  $\int_{3}^{3} \int_{1}^{1} \int_{1}^{3}$ 

March 15, 2013

Shawn P. Duffy

CH2M HILL

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

Workorder No.: N009742

NV Cert. No.: NV-009222007A

CA-ELAP No.: 2676

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.

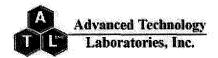
Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

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.

CLIENT: CH2M HILL

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

**Date:** 15-Mar-13

Lab Order: N009742

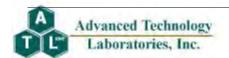
### SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



# Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.02.GM.03 Work Order Sample Summary

**Date:** 15-Mar-13

Lab Order: N009742

Contract No: 2013-GMP-191S

Lab Sample ID Client Sample ID	Matrix	<b>Collection Date</b>	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

Fax: 702-307-2691

Print Date: 15-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified



Print Date: 15-Mar-13

Advanced Technology Laboratories, Inc.

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

**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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 15-Mar-13

Advanced Technology Laboratories, Inc.

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

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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



# Advanced Technology Laboratories, Inc.

**CLIENT:** CH2M HILL

Work Order: N009742

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

# ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1\_WPGE

**Date:** 15-Mar-13

Sample ID: LCS-R87879	SampType: LCS	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 87879	
Client ID: LCSW	Batch ID: R87879	TestNo: <b>EPA 120.1</b> Analysis Date: <b>3/4/2013</b> SeqNo: <b>1535302</b>	
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: <b>DUP</b>	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	
Sample ID: N009742-003A MS Client ID: ZZZZZZ	SampType: MS Batch ID: R87879		
·		TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87879           TestNo: EPA 120.1         Analysis Date: 3/4/2013         SeqNo: 1535308	Qual
Client ID: ZZZZZZ	Batch ID: <b>R87879</b>	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87879           TestNo: EPA 120.1         Analysis Date: 3/4/2013         SeqNo: 1535308	Qual
Client ID: ZZZZZZ Analyte	Batch ID: R87879  Result	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 87879 TestNo: EPA 120.1 Analysis Date: 3/4/2013 SeqNo: 1535308  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit	Qual
Client ID: ZZZZZZ Analyte Specific Conductance	Batch ID: <b>R87879</b> Result  117600.000	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87879           TestNo: EPA 120.1         Analysis Date: 3/4/2013         SeqNo: 1535308           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLimit           0.20         100000         9820         108         75         125	Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance  Sample ID: N009742-003A MSD	Result 117600.000 SampType: MSD	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87879           TestNo: EPA 120.1         Analysis Date: 3/4/2013         SeqNo: 1535308           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLimit           0.20         100000         9820         108         75         125         TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 87879           TestNo: EPA 120.1         Analysis Date: 3/4/2013         SeqNo: 1535309	Qual

### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

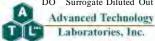
E Value above quantitation range

H Holding times for preparation or analysis exceeded

DO Surrogate Diluted Out

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



Print Date: 15-Mar-13

## Advanced Technology Laboratories, Inc.

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		
ALKALINITY, SPECIATED									
	SM 2320 B								
RunID: WETCHEM_130304D	QC Batch: <b>R87887</b>			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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 15-Mar-13

## Advanced Technology Laboratories, Inc.

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	POL	<b>Oual</b> Units	DF	Date Analyzed				
				<b>C</b>						
ALKALINITY, SPECIATED SM 2320 B										
RunID: WETCHEM_130304D	QC Batch: <b>R87887</b>			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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 15-Mar-13

### Advanced Technology Laboratories, Inc.

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 N	MDL	PQL	Qual	Units	DF	Date Analyzed		
ALKALINITY, SPECIATED									
	SM 2320 B								
RunID: WETCHEM_130304D	QC Batch: <b>R87887</b>		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CH2M HILL

N009742

**CLIENT:** 

Work Order:

ANALYTICAL QC SUMMARY REPORT

**Date:** 15-Mar-13

Project: PG&E Topock, 423575.MP.02.GM.03 TestCode: 2320\_W\_SP

Sample ID: LCS-R87887	SampType: <b>LCS</b>	TestCode:	2320_W_SP	Units: mg/L		Prep Dat	e:		RunNo: <b>878</b>	87	
Client ID: LCSW	Batch ID: R87887	TestNo:	SM 2320 B			Analysis Da	e: <b>3/4/201</b>	3	SeqNo: 153	5558	
Analyte	Result	PQL :	SPK value SP	K Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaC	03) 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 Dat	e:		RunNo: 878	87	
Client ID: PBW	Batch ID: <b>R87887</b>	TestNo:	SM 2320 B			Analysis Da	e: <b>3/4/201</b>	3	SeqNo: 153	5559	
Analyte	Result	PQL :	SPK value SP	K Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaC	O3) 2.079	5.0									
Alkalinity, Carbonate (As CaCO	3) ND	5.0									
Alkalinity, Hydroxide (As CaCO:	•	5.0									
Alkalinity, Total (As CaCO3)	2.079	5.0									
Sample ID: <b>N009742-001A DU</b> I	SampType: <b>DUP</b>	TestCode:	2320_W_SP	Units: mg/L		Prep Dat	e:		RunNo: <b>878</b>	87	
Client ID: ZZZZZZ	Batch ID: R87887	TestNo:	SM 2320 B			Analysis Da	e: <b>3/4/201</b>	3	SeqNo: 153	5561	
Analyte	Result	PQL :	SPK value SP	K Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaC	O3) 48.857	5.0						48.86	0	30	
Alkalinity, Carbonate (As CaCO	3) ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO	B) ND	5.0						0	0	30	
All - II-II- T-1-1 (A - 0-000)	48.857	5.0						48.86	0	30	
Alkalinity, Total (As CaCO3)											
	SampType: <b>MS</b>	TestCode:	2320_W_SP	Units: mg/L		Prep Dat	e:		RunNo: <b>878</b>	87	
Sample ID: <b>N009743-004A MS</b>			2320_W_SP SM 2320 B	Units: mg/L		Prep Dai Analysis Dai		3	RunNo: <b>878</b> SeqNo: <b>153</b>		
Sample ID: N009743-004A MS Client ID: ZZZZZZ	SampType: <b>MS</b>	TestNo:		J	%REC	Analysis Da	e: <b>3/4/201</b>	3 RPD Ref Val			Qual
Alkalinity, Total (As CaCO3)  Sample ID: N009743-004A MS  Client ID: ZZZZZZ  Analyte  Alkalinity, Bicarbonate (As CaC	SampType: MS  Batch ID: R87887  Result	TestNo:	SM 2320 B	J		Analysis Da	e: <b>3/4/201</b>		SeqNo: 153	5568	Qual

#### Qualifiers:

B Analyte detected in the associated Method Blank

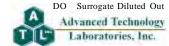
E Value above quantitation range

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



CH2M HILL **CLIENT:** N009742 Work Order:

ANALYTICAL QC SUMMARY REPORT

**Project:** PG&E Topock, 423575.MP.02.GM.03 TestCode: 2320\_W\_SP

Sample ID: N009743-004A MSD	SampType: MSD	TestCod	le: <b>2320_W_S</b>	P Units: mg/L		Prep Dat	te:		RunNo: 878	387	
Client ID: ZZZZZZ	Batch ID: R87887	TestN	lo: SM 2320 E	3		Analysis Da	te: <b>3/4/201</b>	3	SeqNo: 153	35569	
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:

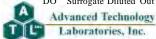
B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

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

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



Print Date: 15-Mar-13

### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMAT	OGRAPHY		
		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 CHROMAT	OGRAPHY		
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 15-Mar-13

### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMAT	OGRAPHY		
		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 CHROMAT	OGRAPHY		
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 15-Mar-13

### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130305A	QC Batch: R87988	PrepDate:	Analyst: <b>QBM</b>
Chloride	3100 11	500 mg/L	1000 3/5/2013 03:02 PM
ANIONS BY ION CHROMAT	OGRAPHY		
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CLIENT: CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT

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

N009742

TestCode: 300\_W\_CLPGE

**Date:** 15-Mar-13

Sample ID:	: MB-R87988_CL	SampType: MBLK	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>87988</b>
Client ID:	PBW	Batch ID: R87988	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/5/2013	SeqNo: <b>1539008</b>
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: <b>LCS</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>87988</b>
Client ID:	LCSW	Batch ID: R87988	TestNo: EPA 300.0	Analysis Date: 3/5/2013	SeqNo: <b>1539009</b>
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: <b>87988</b>
Client ID:	ZZZZZZ	Batch ID: R87988	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/5/2013	SeqNo: <b>1539017</b>
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: <b>87988</b>
Client ID:	ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0	Analysis Date: 3/5/2013	SeqNo: <b>1539018</b>
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: <b>DUP</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>87988</b>
Client ID:	ZZZZZZ	Batch ID: R87988	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/5/2013	SeqNo: <b>1539021</b>
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

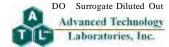
ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009742

Project: PG&E Topock, 423575.MP.02.GM.03 TestCode: 300\_W\_CLPGE

Sample ID: N009742-001AMS	SampType: MS	TestCode: 300_W_CLPG Units: mg/L		Prep Date:				RunNo: <b>87988</b>			
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: <b>EPA 300.0</b>		Analysis Date: 3/5/2013			SeqNo: <b>1539027</b>				
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

The Beteriou at the Reporting E.

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



CH2M HILL **CLIENT:** 

# ANALYTICAL QC SUMMARY REPORT

N009742 Work Order:

Project:

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

TestCode: 300\_W\_SO4PGE

Sample ID: MB-R87988_SO4	SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>87988</b>		
Client ID: PBW	Batch ID: <b>R87988</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: <b>3/5/2013</b>	SeqNo: <b>1539067</b>		
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: <b>LCS</b>	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>87988</b>		
Client ID: LCSW	Batch ID: R87988	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/5/2013	SeqNo: <b>1539068</b>		
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: <b>DUP</b>	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>87988</b>		
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/5/2013	SeqNo: <b>1539075</b>		
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: <b>87988</b>		
Client ID: ZZZZZZ	Batch ID: <b>R87988</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/5/2013	SeqNo: <b>1539076</b>		
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: <b>87988</b>		
Client ID: ZZZZZZ	Batch ID: <b>R87988</b>	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/5/2013	SeqNo: <b>1539077</b>		
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

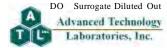
ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009742

Project: PG&E Topock, 423575.MP.02.GM.03 TestCode: 300\_W\_SO4PGE

Sample ID: N009742-001AMS SampType: MS		TestCod	TestCode: 300_W_SO4P Units: mg/L			Prep Date:				RunNo: <b>87988</b>		
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: <b>EPA 300.0</b>		Analysis Date: 3/5/2013				SeqNo: <b>1539082</b>				
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



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# **CHAIN OF CUSTODY RECORD**

3/1/2013 4:19:39 PM

Page 1 OF 1

	<b>–</b>						3 // 2010 4.10.00 / W	Ŭ.	<u> </u>
Project Name PG		k (	Container:	1x1 Liter	1x1 Liter	1x1 Liter			
Location Topoci		Droc	ervatives:	4°C	4°C	4°C			
Project Manager	Jay Piper	ries	ervauves.						1
Sample Manager S	Shawn Du	ffy	Filtered:	NA	NA	NA		l	
		Holo	ling Time:	14	14	14			
Project Number 4 Task Order	423575.IHF בט , אח.	GM.	03	Specific		_			
Project 2013-GMI	P-191SAM	PLEM	ETHOD	lic C	o ₹	lka		Number	
Turnaround Time	10 Day	S		onc	Hon	in i <del>,</del>		nbe	
Shipping Date: 3/	/1/2013			ducta	ide,	(S)		of of	
COC Number: 15	5			Conductance	<sup>A</sup> nions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)			
				(E1	e S	08)		ntai	
·	DATE	TIME	Matrix	(E120.1)			NO09742	Containers	COMMENTS
MW-47-115-191	2/27/2013	15:09	Water	х	х	х		1	
MW-50-200-191	2/27/2013	15:53	Water	X	х	х	-2	1	
MW-59-100-191	2/27/2013	10:25	Water	х	х	Х	<b>→</b> -3	1	
		•					TOTAL NUMBER OF CONTAINERS	3	

Date/Time 3~1~13\_ 1645 Signatures **Shipping Details Special Instructions:** Approved by ATTN: Feb 4 - Feb 28, 2013 Method of Shipment: courier Sampled by On Ice: Jes 1 no 2.6°C Airbill No: LC#1 Sample Custody Relinquished by 1645 Airbill No: Received by and Relinquished by Received by Lab Name: ADVANCED TECHNOLOGY LABORATO Marion Lab Phone: (702) 307-2659

Report Copy to Shawn Duffy (530) 229-3303

# Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions o	r further in	struction, pleas	e contact our F	Project Coord	dinator at (702	) 307-2659.		
Cooler Received/Opened On:	3/1/2013				Workorder:	N009742		
Rep sample Temp (Deg C):	2.6				IR Gun ID:	1		
Temp Blank:	Yes	<b>☑</b> No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	<b>✓</b> Ice	☐ Ice Pack	Dry ice	Other	☐ None			
		S	ample Receip	ot Checklis	t			
1. Shipping container/cooler in	good condi				Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	, dated on s	hippping contain	er/cooler?		Yes 🔲	No 🗌	Not Present	$\checkmark$
3. Custody seals intact on sam	ple bottles?	ı			Yes	No 🗔	Not Present	$\checkmark$
4. Chain of custody present?					Yes 🗹	No 🗌		
5. Sampler's name present in 6	COC?				Yes 🗹	No 🗀		
6. Chain of custody signed who	en relinquisl	ned and received	?		Yes 🗹	No 🗔		
7. Chain of custody agrees wit	h sample la	bels?			Yes 🔽	No 🗔		
8. Samples in proper container	/bottle?				Yes 🗹	No 🗀		
9. Sample containers intact?					Yes 🗹	No 🗔		
10. Sufficient sample volume f	or indicated	test?			Yes 🗸	No 🗌		
11. All samples received within	holding tim	ne?			Yes 🗸	No 🗆		
12. Temperature of rep sample	or Temp B	lank within accep	otable limit?		Yes 🗹	No 🗌	NA	
13. Water - VOA vials have ze	ro headspa	ce?			Yes [	No 🗌	NA	V
14. Water - pH acceptable upon Example: pH > 12 for (C		for Metals			Yes 🗌	No 🗀	NA	$\checkmark$
15. Did the bottle labels indica	te correct p	reservatives used	i?		Yes 🗌	No 🗔	NA	V
16. Were there Non-Conforma	nce issues las Client no	_			Yes ☐ Yes ☐	No 🗌 No 🗔	NA NA	,
Comments:			· Note that the second					
Checklist Completed B	мвс	73/4/13				Reviewed By:	40	forting.

# Sample ID: N009742-001A @ pH 7.63

# A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na<sub>2</sub>CO<sub>3</sub> solution (MS/MSD Stock Solution)

B, mL Na2CO3 solution taken for tritration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na<sub>2</sub>CO<sub>3</sub>, ACS Grade (1.00 ml = 2500 ug as CaCO<sub>3</sub>): Dissolve 2.650 grams of Na<sub>2</sub>CO<sub>3</sub> in distilled water and dilute to 1 liter.

**LCS** Na $_2$ CO $_3$ , ACS Grade (1.00 ml = 2500 ug as CaCO $_3$ ): Dissolve 2.650 grams of Na $_2$ CO $_3$  in distilled water and dilute to 1 liter. The reagent must be purchased from a secondary source

### Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (12.025 mL)

= 0.02079 N

### B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as CaCO<sub>3</sub>), mg/L = M<sub>vol</sub> \* N H<sub>2</sub>SO<sub>4</sub> \* DF \* 1000

Where:

M<sub>vol.</sub>, volume titrant used to reach pH 4.5, ml N, Normality of H<sub>2</sub>SO<sub>4</sub> DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as  $CaCO_3$ ), mg/L = (2.35mL) (0.02079N) (1) \* 1000

= 48.86 mg/L

# Reporting results in two significant figures,

# = 49 mg/L as CaCO<sub>3</sub>

### C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as CaCO<sub>3</sub> = 
$$P_{vol.}$$
 \* N H<sub>2</sub>SO<sub>4</sub> \* DF \* 1000  
= (0) (0.02079) (1) \* 1000  
= **0**

**Total Alkalinity** 

T alkalinity, mg/L as 
$$CaCO_3 = M_{vol.} * N H_2SO_4 * DF * 1000$$
  
= (2.35 mL) (0.02079) (1) \* 1000  
= 48.86 mg/L as CaCO3

### Where:

 $P_{vol.}$  - volume titrant used to reach pH 8.3, ml  $M_{vol.}$  - volume titrant used to reach pH 4.5, ml

N - Normality of H<sub>2</sub>SO<sub>4</sub>

DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

## Then OH, CO<sub>3</sub>, HCO<sub>3</sub> alkalinities as CaCO<sub>3</sub> will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO <sub>3</sub>	CO <sub>3</sub> Alkalinity as CaCO <sub>3</sub>	HCO <sub>3</sub> Alkalinity as CaCO <sub>3</sub>
P=0	0	0	T
P<1/2T	0	2P	T – 2P
P=1/2 T	0	2P	0
P>1/2 T	2P – T	2(T – P)	0
P=T	T	0	0

### Therefore,

OH Alkalinity as CaCO<sub>3</sub> = 0

CO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 0

HCO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 48.86 mg/L

Reporting results in two significant figures,

OH Alkalinity as CaCO<sub>3</sub> = 0

CO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = **0** 

HCO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = **49 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:

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:

Chloride, mg/L = 4.152 \* 1000

4152 mg/L

Chloride, mg/L 4200 March 26, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: 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

for grogesmunds

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



# Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

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

**Date:** 26-Mar-13

Lab Order: N009805

### SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



# Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.02.GM.03 Work Order Sample Summary

**Date:** 26-Mar-13

Lab Order: N009805

Contract No: 2013-GMP-191S

Lab Sample ID	Client Sample ID	Matrix	<b>Collection Date</b>	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

Print Date: 26-Mar-13

Advanced Technology Laboratories, Inc.

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

**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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

Advanced Technology Laboratories, Inc.

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

**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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

Advanced Technology Laboratories, Inc.

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

**SPECIFIC CONDUCTANCE** 

**EPA 120.1** 

 RunID:
 WETCHEM\_130313B
 QC Batch:
 R88046
 PrepDate:
 Analyst:
 QBM

 Specific Conductance
 2100
 0.10
 umhos/cm
 1
 3/13/2013

Qualifiers: B

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

Advanced Technology Laboratories, Inc.

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

**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:

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

Advanced Technology Laboratories, Inc.

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

**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:

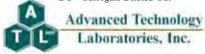
Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 26-Mar-13

**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: <b>EPA 120.1</b> Analysis Date: <b>3/13/2013</b> SeqNo: <b>1539760</b>	
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: <b>DUP</b>	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 88046	
Client ID: ZZZZZZ	Batch ID: R88046	TestNo: <b>EPA 120.1</b> Analysis Date: <b>3/13/2013</b> SeqNo: <b>1539766</b>	
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	
Sample ID: N009805-003A MS Client ID: ZZZZZZ	SampType: MS Batch ID: R88046	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 88046           TestNo: EPA 120.1         Analysis Date: 3/13/2013         SeqNo: 1539767	
			Qual
Client ID: ZZZZZZ	Batch ID: <b>R88046</b>	TestNo: EPA 120.1 Analysis Date: 3/13/2013 SeqNo: 1539767	Qual
Client ID: ZZZZZZ	Batch ID: R88046 Result	TestNo: EPA 120.1 Analysis Date: 3/13/2013 SeqNo: 1539767  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit	Qual
Client ID: ZZZZZZ  Analyte  Specific Conductance	Batch ID: <b>R88046</b> Result  3510.000	TestNo: EPA 120.1         Analysis Date: 3/13/2013         SeqNo: 1539767           PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLimit           0.20         1412         2110         99.2         75         125         125	Qual
Client ID: ZZZZZZ Analyte Specific Conductance Sample ID: N009805-003A MSD	Batch ID: R88046  Result  3510.000  SampType: MSD	TestNo: EPA 120.1       Analysis Date: 3/13/2013       SeqNo: 1539767         PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       RPD Ref Val       %RPD       RPDLimit         0.20       1412       2110       99.2       75       125       RunNo: 88046	Qual

### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

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



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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	
ALKALINITY, SPECIATED								
			SM	2320 B				
RunID: WETCHEM_130315A	QC Batch: <b>R88089</b>			PrepDa	ite:		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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
ALKALINITY, SPECIATED							
			SM	1 2320 B			
RunID: WETCHEM_130315A	QC Batch: R88	089	PrepDate:				Analyst: QBM
Alkalinity, Bicarbonate (As CaCO3)	65	1.2	5.0	r	mg/L	1	3/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	r	mg/L	1	3/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	r	mg/L	1	3/15/2013
Alkalinity, Total (As CaCO3)	65	1.2	5.0	r	mg/L	1	3/15/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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			
ALKALINITY, SPECIATED										
	SM 2320 B									
RunID: WETCHEM_130315A	QC Batch: R880	QC Batch: <b>R88089</b>		PrepDate:			Analyst: QBN			
Alkalinity, Bicarbonate (As CaCO3)	94	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)	94	1.2	5.0		mg/L	1	3/15/2013			

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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		Units	DF	Date Analyzed					
ALKALINITY, SPECIATED										
	SM 2320 B									
RunID: WETCHEM_130315A	QC Batch: R880	QC Batch: <b>R88089</b>		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	1	mg/L	1	3/15/2013			
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	1	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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
ALKALINITY, SPECIATED										
	SM 2320 B									
RunID: WETCHEM_130315A	QC Batch: R880	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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CH2M HILL

N009805

ANALYTICAL QC SUMMARY REPORT

**Date:** 26-Mar-13

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

TestCode: 2320\_W\_SP

Sample ID: LCS-R88089 Client ID: LCSW	SampType: LCS  Batch ID: R88089	TestCode: 232 TestNo: SM			Prep Date Analysis Date		13	RunNo: <b>880</b> SegNo: <b>15</b> 4		
Analyte	Result	PQL SPK	value SPK Ref Val	%REC	•		RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCo	O3) 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: 232	0_W_SP Units: mg/L		Prep Date	ə:		RunNo: 880	089	
Client ID: PBW	Batch ID: R88089	TestNo: SM	2320 B		Analysis Date	e: <b>3/15/20</b>	13	SeqNo: 154	41601	
Analyte	Result	PQL SPK	value SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaC	O3) 2.128	5.0								
Alkalinity, Carbonate (As CaCO	3) ND	5.0								
Alkalinity, Hydroxide (As CaCO3	B) ND	5.0								
Alkalinity, Total (As CaCO3)	2.128	5.0								
Sample ID: N009806-011A-DUI	SampType: <b>DUP</b>	TestCode: 232	0_W_SP Units: mg/L		Prep Date	e:		RunNo: 880	089	
Client ID: ZZZZZZ	Batch ID: R88089	TestNo: SM	2320 B		Analysis Date	e: <b>3/15/20</b>	13	SeqNo: 154	41618	
Analyte	Result	PQL SPK	value SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaC	O3) 101.064	5.0					104.3	3.11	30	
Alkalinity, Carbonate (As CaCO	3) ND	5.0					0	0	30	
		5.0					0	0	30	
Alkalinity, Hydroxide (As CaCO3	B) ND									
* * *	3) ND 101.064	5.0					104.3	3.11	30	
Alkalinity, Hydroxide (As CaCO3)  Alkalinity, Total (As CaCO3)  Sample ID: N009806-012AMS			0_W_SP Units: mg/L		Prep Date	e:	104.3	3.11 RunNo: <b>88</b> (		
Alkalinity, Total (As CaCO3)	101.064	5.0			Prep Date Analysis Date				089	
Alkalinity, Total (As CaCO3)  Sample ID: N009806-012AMS	101.064 SampType: <b>MS</b>	5.0 TestCode: 232 TestNo: SM		%REC	Analysis Date	e: <b>3/15/20</b>		RunNo: 880	089	Qual
Alkalinity, Total (As CaCO3)  Sample ID: N009806-012AMS  Client ID: ZZZZZZ	SampType: MS Batch ID: R88089 Result	5.0  TestCode: 232  TestNo: SM  PQL SPK	2320 B		Analysis Date	e: <b>3/15/20</b>	13	RunNo: 880 SeqNo: 154	089 41620	Qual

### Qualifiers:

**CLIENT:** 

**Project:** 

Work Order:

B Analyte detected in the associated Method Blank

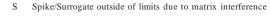
ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

Calculations are based on raw values





CH2M HILL **CLIENT:** 

ANALYTICAL QC SUMMARY REPORT

N009805 Work Order:

TestCode: 2320\_W\_SP **Project:** PG&E Topock, 423575.MP.02.GM.03

Sample ID: N009806-012AMSD	SampType: MSD	TestCod	le: <b>2320_W_S</b>	P Units: mg/L		Prep Dat	ie:		RunNo: 880	189	
Client ID: ZZZZZZ	Batch ID: R88089	TestN	lo: SM 2320 E	3		Analysis Da	te: <b>3/15/20</b>	13	SeqNo: 154	1621	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Total (As CaCO3)	201.064 201.064	5.0 5.0	100.0 100.0	102.1 102.1	98.9 98.9	75 75	125 125	201.1 201.1	0	20 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

RPD outside accepted recovery limits Calculations are based on raw values

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



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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 CHROMAT	OGRAPHY			
		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 CHROMAT	OGRAPHY			
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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 CHROMAT	OGRAPHY			
		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 CHROMAT	OGRAPHY			
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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							
ANIONS BY ION CHROMATO	OGRAPHY									
	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 CHROMATO	OGRAPHY									
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMATO	GRAPHY		
		EPA 300.0	
RunID: IC2_130315A	QC Batch: R88148	PrepDate:	Analyst: <b>QBM</b>
Chloride	440 1.1	50 mg/L	100 3/15/2013 03:08 PM
ANIONS BY ION CHROMATO	GRAPHY		
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 26-Mar-13

### Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses	Result MDL	PQL Qual Units	DF Date Analyzed
ANIONS BY ION CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130315A	QC Batch: R88148	PrepDate:	Analyst: QBM
Chloride	930 2.2	100 mg/L	200 3/15/2013 03:19 PM
ANIONS BY ION CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130315A	QC Batch: R88148	PrepDate:	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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**CLIENT:** CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT N009805

**Project:** PG&E Topock, 423575.MP.02.GM.03 TestCode: 300\_W\_CLPGE

**Date:** 26-Mar-13

Sample ID: MB-R88148_CL	SampType: MBLK	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>88148</b>
Client ID: PBW	Batch ID: R88148	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/15/2013	SeqNo: <b>1543669</b>
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: <b>88148</b>
Client ID: LCSW	Batch ID: R88148	TestNo: EPA 300.0	Analysis Date: 3/15/2013	SeqNo: <b>1543670</b>
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: <b>DUP</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>88148</b>
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0	Analysis Date: 3/15/2013	SeqNo: <b>1543680</b>
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: <b>EPA 300.0</b>	Analysis Date: 3/15/2013	SeqNo: <b>1543683</b>
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: <b>EPA 300.0</b>	Analysis Date: 3/15/2013	SeqNo: <b>1543684</b>
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

ND Not Detected at the Reporting Limit

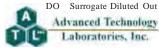
E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

Calculations are based on raw values





CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009805

Project: PG&E Topock, 423575.MP.02.GM.03 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: <b>1543689</b>				
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



CH2M HILL **CLIENT:** 

# ANALYTICAL QC SUMMARY REPORT

N009805 Work Order:

**Project:** 

TestCode: 300\_W\_SO4PGE PG&E Topock, 423575.MP.02.GM.03

Sample ID: MB-R88148_SO4	SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>88148</b>
Client ID: PBW	Batch ID: R88148	TestNo: EPA 300.0	Analysis Date: 3/15/2013	SeqNo: <b>1543723</b>
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: <b>88148</b>
Client ID: LCSW	Batch ID: R88148	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/15/2013	SeqNo: <b>1543724</b>
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: <b>DUP</b>	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>88148</b>
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/15/2013	SeqNo: <b>1543732</b>
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: <b>88148</b>
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/15/2013	SeqNo: <b>1543735</b>
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: <b>88148</b>
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/15/2013	SeqNo: <b>1543736</b>
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
- ND Not Detected at the Reporting Limit

- E Value above quantitation range
- RPD outside accepted recovery limits Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
  - Spike/Surrogate outside of limits due to matrix interference



CH2M HILL **CLIENT:** 

ANALYTICAL QC SUMMARY REPORT

N009805 Work Order:

**Project:** PG&E Topock, 423575.MP.02.GM.03 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	TestN	TestNo: EPA 300.0		Analysis Date: 3/15/2013			13	SeqNo: <b>1543740</b>		
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

RPD outside accepted recovery limits Calculations are based on raw values

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



CH2MHIL	L .						CHAIN OF CUSTODY RECORD         3/12/2013 4:47:42 PM         Page1	OF .	1
Project Name Po Location Topoc Project Manager	k		ontainer: rvatives:	1x1 Liter 4°C	1x1 Liter 4°C	1x1 Liter 4°C			
Sample Manager	Shawn Dut		Filtered:	NA 14	NA 14	NA 14			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 3 COC Number: 22	<i>. 0</i> P-191SAMI 10 Days //12/2013	R.GM. Ø PLEME	THOD	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)		Number of Containers	COMMENTS
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	х	х	х	-2	1	
MW-19-191	3/12/2013	11:27	Water	х	x	x	- <b>3</b> %	1	7
MW-20-070-191	3/12/2013	16:17	Water	х	х	Х	-4	1	-
MW-26-191	3/12/2013	14:03	Water	х	х	х	2.5	1	

TOTAL NUMBER OF CONTAINERS

5

Date/Time 3~12-13 1715 Signatures **Shipping Details** Special Instructions: Approved by ATTN: Feb 4 - Feb 28, 2013 Method of Shipment: courier Sampled by @1 no 3.4 /CE 1291 On Ice: Relinquished by Sample Custody 3-12-13 1715 3/12/13 1935 Airbill No: Received by and Report Copy to Relinquished by Received by Lab Name: ADVANCED TECHNOLOGY LABORATO Marlon Shawn Duffy Lab Phone: (702) 307-2659 (530) 229-3303

# Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions o		se contect our r	roject Coordinate	n et (102	., 501 -2535.		
Cooler Received/Opened On:	3/12/2013		W	orkorder:	N009805		
Rep sample Temp (Deg C):	3.4			Gun ID:			
Temp Blank:	☐ Yes ☑ No						
Carrier name:	ATL						
Last 4 digits of Tracking No.:	NA		Packing Mate	ial Used:	None		
Cooling process:	✓ Ice ☐ Ice Pack	☐ Dry Ice	Other	None			
4 00:		Sample Receip		[2]			
1. Shipping container/cooler in			Yes		No 🗀	Not Present	_
2. Custody seals intact, signed	요즘 시간을 하는데 하는데 있었다.	ner/cooler?	Yes	_	No □	Not Present	
3. Custody seals intact on sam	ipie domes?		Yes		No □	Not Present	Y.
4. Chain of custody present?	<b>~~~</b>		Yes		No □		
5. Sampler's name present in (			Yes		No □ No □		
6. Chain of custody signed who			Yes	V	No □		
7. Chain of custody agrees wit	화가 가지 얼마나는 걸 보다				No □ No □		
8. Samples in proper container	i,bodde?						
9. Sample containers intact?				V	No 🗔		
10. Sufficient sample volume f	원래(1915년 1일 - 1916년 1916년			<b>2</b>	No 🗆		
11. All samples received within				Ø.	No 🗌		
12. Temperature of rep sample		eptable limit?		<u> </u>	No 🗔	지하는 사람	
13. Water - VOA vials have ze	경화하다 하는 것이 없는 것이 없다.		Yes		No □		<b>V</b>
<ol> <li>Water - pH acceptable upon</li> <li>Example: pH &gt; 12 for (Company)</li> </ol>	entroller (Nitropental) en et al income		Yes		No 🗌	NA	V
15. Did the bottle labels indica	ite correct preservatives use	od?	Yes		No 🗆	NA	Ø
16. Were there Non-Conforma	ance issues at login?		Yes	. 🗆	No 🗆	NA	V
<b>V</b>	/as Client notified?		Yes		No 🗆	NA	Ø
	이 사이 이 사이를 시작되었다. 의 투자하는 그 모든 하다		Yes		No □	N <sup>A</sup>	

# Sample ID: N009805-001A @ pH 7.66

### A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na<sub>2</sub>CO<sub>3</sub> solution (MS/MSD Stock Solution)

B, mL Na2CO3 solution taken for tritration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na<sub>2</sub>CO<sub>3</sub>, ACS Grade (1.00 ml = 2500 ug as CaCO<sub>3</sub>): Dissolve 2.650 grams of Na<sub>2</sub>CO<sub>3</sub> 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,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.75mL)

= 0.02128 N

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as CaCO<sub>3</sub>), mg/L = M<sub>vol.</sub> \* N H<sub>2</sub>SO<sub>4</sub> \* DF \* 1000

Where:

M<sub>vol.</sub>, volume titrant used to reach pH 4.5, ml N, Normality of H<sub>2</sub>SO<sub>4</sub> DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as  $CaCO_3$ ), mg/L = (11.65mL) (0.02128N) (1) \* 1000

= 247.91 mg/L

m f 3/2x/13 47 Reporting results in two significant figures,

### C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as CaCO<sub>3</sub> = 
$$P_{vol.}$$
 \* N H<sub>2</sub>SO<sub>4</sub> \* DF \* 1000  
= (0) (0.02128) (1) \* 1000  
= **0**

**Total Alkalinity** 

T alkalinity, mg/L as 
$$CaCO_3 = M_{vol.} * N H_2SO_4 * DF * 1000$$
  
= (11.65 mL) (0.02079) (1) \* 1000  
= 247.91 mg/L as CaCO3

### Where:

 $P_{\text{vol.}}$ - volume titrant used to reach pH 8.3, ml - volume titrant used to reach pH 4.5, ml

N - Normality of H2SO4

DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO<sub>3</sub>, HCO<sub>3</sub> alkalinities as CaCO<sub>3</sub> will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO <sub>3</sub>	CO <sub>3</sub> Alkalinity as CaCO <sub>3</sub>	HCO <sub>3</sub> Alkalinity as CaCO <sub>3</sub>
P = 0	0	0	Τ
P < ½ T	0	2P	T – 2P
P = 1/2 T	0	2P	0
P > 1/2 T	2P – T	2(T – P)	0
P = T	Т	0	0

## Therefore,

OH Alkalinity as CaCO<sub>3</sub> = 0

CO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 0

HCO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 247.91 mg/L

Reporting results in two significant figures,

OH Alkalinity as CaCO<sub>3</sub> = **0** 

 $CO_3$  Alkalinity as  $CaCO_3 = 0$ 

 $HCO_3$  Alkalinity as  $CaCO_3 = 25 \frac{o}{Mg/L}$ 

m fn 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:

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:

Chloride, mg/L = 4.749 \* 500

= 2374.5 mg/L

Reporting N009805-001A results in two significant figures,

Chloride, mg/L = 2400 /

March 29, 2013

Shawn P. Duffy

CH2M HILL

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

RE: PG&E Topock, 423575.MP.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.

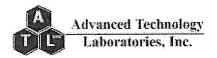
Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

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.



CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

Workorder No.: N009835

## **Advanced Technology Laboratories, Inc.**

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.06.TS CASE NARRATIVE

**Date:** 29-Mar-13

Lab Order: N009835

### SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



# Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.06.TS Work Order Sample Summary

Date: 29-Mar-13

Lab Order: N009835

Contract No: 2013-GMP-191S

Lab Sample ID Client Sample ID	Matrix	<b>Collection Date</b>	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

Print Date: 29-Mar-13

Advanced Technology Laboratories, Inc.

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

**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 Ana

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 29-Mar-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-20-130-191

**Lab Order:** N009835 **Collection Date:** 3/14/2013 1:10:00 PM

**Project:** PG&E Topock, 423575.MP.06.TS **Matrix:** WATER

**Lab ID:** N009835-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 29-Mar-13

Advanced Technology Laboratories, Inc.

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

**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 de

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 29-Mar-13

**CLIENT:** CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT N009835

Project: PG&E Topock, 423575.MP.06.TS

TestCode:	120.1	WPGE
i corcouc.	140.1	WIGE

Sample ID: LCS-R88101 Client ID: LCSW	SampType: LCS Batch ID: R88101	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 88101           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 Qua	ıal
Specific Conductance	1522.000	0.10 1412 0 108 85 115	
Sample ID: N009834-002A-DUP Client ID: ZZZZZZ Analyte	SampType: DUP  Batch ID: R88101  Result	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 88101 TestNo: EPA 120.1 Analysis Date: 3/18/2013 SeqNo: 1541981  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qua	ual
Specific Conductance	2450.000	0.10 2460 0.407 10	
Sample ID: N009834-002A MS Client ID: ZZZZZZ	SampType: MS Batch ID: R88101	TestCode: 120.1_WPGE         Units: umhos/cm         Prep Date:         RunNo: 88101           TestNo: EPA 120.1         Analysis Date: 3/18/2013         SeqNo: 1541982	
·		1 - 1	ıal
Client ID: ZZZZZZ Analyte	Batch ID: R88101 Result	TestNo: EPA 120.1 Analysis Date: 3/18/2013 SeqNo: 1541982  PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qua	

### Qualifiers:

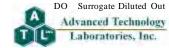
B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

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

RPD outside accepted recovery limits Calculations are based on raw values



CH2M HILL **CLIENT:** N009835 Work Order:

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock, 423575.MP.06.TS

TestCode: 120.1\_WPGE

Sample ID: LCS-R88102	SampType: <b>LCS</b>	TestCode: 120.1_WPGE Units: umhos/cm Prep Date: RunNo: 88102	
Client ID: LCSW	Batch ID: R88102	TestNo: <b>EPA 120.1</b> Analysis Date: <b>3/18/2013</b> SeqNo: <b>1541989</b>	
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: <b>DUP</b>	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

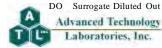
ND Not Detected at the Reporting Limit

E Value above quantitation range

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



RPD outside accepted recovery limits Calculations are based on raw values



Print Date: 29-Mar-13

### Advanced Technology Laboratories, Inc.

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 M	DL PQL	Qual Units	DF	Date Analyzed
ALKALINITY, SPECIATED					
		8	M 2320 B		
RunID: WETCHEM_130319B	QC Batch: R8812	6	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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 29-Mar-13

## Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-20-130-191

**Lab Order:** N009835 **Collection Date:** 3/14/2013 1:10:00 PM

Project: PG&E Topock, 423575.MP.06.TS Matrix: WATER

**Lab ID:** N009835-002

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM	2320 B			
RunID: WETCHEM_130319B	QC Batch: R881	126		PrepDa	ate:		Analyst: QBM
Alkalinity, Bicarbonate (As CaCO3)	76	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)	76	1.2	5.0		mg/L	1	3/19/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 29-Mar-13

## Advanced Technology Laboratories, Inc.

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

**CLIENT:** 

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM	2320 B			
RunID: WETCHEM_130319B	QC Batch: R88	126		PrepDa	ate:		Analyst: QBM
Alkalinity, Bicarbonate (As CaCO3)	92	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)	92	1.2	5.0		mg/L	1	3/19/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 29-Mar-13

**CLIENT:** CH2M HILL

Project:

Work Order:

N009835

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: <b>R88126</b>	TestNo: <b>SM 2320 B</b>	Analysis Date: 3/19/2013	SeqNo: <b>1542727</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Alkalinity, Bicarbonate (As CaCC	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: <b>88126</b>
Client ID: PBW	Batch ID: R88126	TestNo: <b>SM 2320 B</b>	Analysis Date: 3/19/2013	SeqNo: <b>1542728</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Alkalinity, Bicarbonate (As CaCC	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: <b>DUP</b>	TestCode: 2320_W_SP Units: mg/L	Prep Date:	RunNo: 88126
Client ID: ZZZZZZ	Batch ID: R88126	TestNo: <b>SM 2320 B</b>	Analysis Date: 3/19/2013	SeqNo: <b>1542735</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Alkalinity, Bicarbonate (As CaCC	93) 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: <b>SM 2320 B</b>	Analysis Date: 3/19/2013	SeqNo: <b>1542738</b>
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Alkalinity, Bicarbonate (As CaCo	03) 173.820	5.0 100.0 76.18	97.6 75 125	
Alkalifility, bicarbonate (AS Cacc	,			

### Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



CH2M HILL **CLIENT:** N009835 Work Order:

ANALYTICAL QC SUMMARY REPORT

**Project:** PG&E Topock, 423575.MP.06.TS

TestCode:	2320	$\mathbf{W}$	SP	
-----------	------	--------------	----	--

Sample ID: N009835-002A MSD	SampType: <b>MSD</b>	TestCoo	le: <b>2320_W_S</b>	P Units: mg/L		Prep Da	te:		RunNo: 881	126	
Client ID: ZZZZZZ	Batch ID: R88126	TestN	lo: SM 2320 E	3		Analysis Da	te: <b>3/19/20</b>	13	SeqNo: 154	12739	
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

RPD outside accepted recovery limits Calculations are based on raw values

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference



Print Date: 29-Mar-13

## Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130320A	QC Batch: R88162	PrepDate:	Analyst: <b>QBM</b>
Chloride	560 1.1	50 mg/L	100 3/20/2013 05:28 PM
ANIONS BY ION CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130320A	QC Batch: R88162	PrepDate:	Analyst: <b>QBM</b>
Sulfate	370 3.5	50 mg/L	100 3/20/2013 05:28 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 29-Mar-13

### Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-20-130-191

**Lab Order:** N009835 **Collection Date:** 3/14/2013 1:10:00 PM

Project: PG&E Topock, 423575.MP.06.TS Matrix: WATER

**Lab ID:** N009835-002

Analyses	Result MDL	PQL Qual Ur	nits DF Date Analyzed
ANIONS BY ION CHROMAT	OGRAPHY		
		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 CHROMAT	OGRAPHY		
		EPA 300.0	
RunID: IC2_130320A	QC Batch: R88162	PrepDate:	Analyst: <b>QBM</b>
Sulfate	1100 7.0	100 mg/l	200 3/20/2013 06:31 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 29-Mar-13

### Advanced Technology Laboratories, Inc.

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
ANIONS BY ION CHROMAT	OGRAPHY		
		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 CHROMAT	OGRAPHY		
		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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



**Date:** 29-Mar-13

**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: <b>88162</b>
Client ID: PBW	Batch ID: R88162	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/20/2013	SeqNo: <b>1544047</b>
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: <b>LCS</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>88162</b>
Client ID: LCSW	Batch ID: R88162	TestNo: EPA 300.0	Analysis Date: 3/20/2013	SeqNo: <b>1544048</b>
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: <b>DUP</b>	TestCode: 300_W_CLPG Units: mg/L	Prep Date:	RunNo: <b>88162</b>
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0	Analysis Date: 3/20/2013	SeqNo: <b>1544050</b>
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: <b>88162</b>
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/20/2013	SeqNo: <b>1544054</b>
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: <b>88162</b>
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0	Analysis Date: 3/20/2013	SeqNo: <b>1544055</b>
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

ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

RPD outside accepted recovery limits Calculations are based on raw values



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

CH2M HILL **CLIENT:** N009835 Work Order:

ANALYTICAL QC SUMMARY REPORT

**Project:** PG&E Topock, 423575.MP.06.TS

TestCode: 300\_W\_CLPGE

Sample ID: N009834-001AMS	SampType: MS	TestCod	TestCode: 300_W_CLPG Units: mg/L		Prep Date:			RunNo: 88162			
Client ID: ZZZZZZ	Batch ID: R88162	TestN	lo: EPA 300.0	1		Analysis Da	te: <b>3/20/20</b> 1	13	SeqNo: <b>15</b> 4	14063	
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

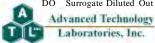
ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

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



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N009835

TestCode: 300\_W\_SO4PGE

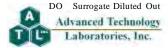
Project:	PG&E 10p0ck, 4235/5.MP.06.15	

Sample ID: MB-R88162_SO4	SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>88162</b>
Client ID: PBW	Batch ID: R88162	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/20/2013	SeqNo: <b>1544091</b>
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: <b>LCS</b>	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>88162</b>
Client ID: LCSW	Batch ID: R88162	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/20/2013	SeqNo: <b>1544092</b>
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: <b>88162</b>
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/20/2013	SeqNo: <b>1544094</b>
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: <b>88162</b>
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/20/2013	SeqNo: <b>1544095</b>
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: <b>DUP</b>	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: <b>88162</b>
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: <b>EPA 300.0</b>	Analysis Date: 3/20/2013	SeqNo: <b>1544096</b>
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
- ND Not Detected at the Reporting Limit
- ed Method Blank 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



CH2M HILL **CLIENT:** 

**Project:** 

ANALYTICAL QC SUMMARY REPORT

N009835 Work Order:

PG&E Topock, 423575.MP.06.TS

TestCode: 300\_W\_SO4PGE

Sample ID: N009834-001AMS	SampType: MS	TestCod	de: <b>300_W_S</b> (	D4P Units: mg/L		Prep Da	te:		RunNo: 881	62	
Client ID: ZZZZZZ	Batch ID: R88162	TestN	No: EPA 300.0	1		Analysis Da	te: 3/20/2013		SeqNo: <b>154</b>	4105	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD F	ef 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

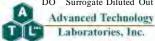
ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

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



CH2MHILL				CHAIN OF CUSTODY RECORD         3/15/2013 12:10:00 PM         Page 1	OF	_1
Project Name PG&E Topock Container:	Liter	1x1 Liter	1x1 Liter			
Location Topock Project Manager Jay Piper  Preservatives:	4°C	4°C	4°C			
Sample Manager Shawn Duffy Filtered:		NA	NA			
Holding Time:	14	14	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  DATE TIME Matrix	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-20-100-191 3/13/2013 13:52 Water	Х	Х	Х	NW09835-)	1	

~ 2

- 3

1

3

TOTAL NUMBER OF CONTAINERS

MW-20-130-191

MW-51-191

3/14/2013

3/14/2013

13:10

10:33

Water

Water

X

X

X

X

X

X

Date/Time 3ー(5ーパ) 人3つ Signatures **Shipping Details** Special Instructions: Approved by ATTN: Feb 4 - Feb 28, 2013 Method of Shipment: courier Sampled by On Ice: no 4-6 7

3/08/13 1230 Airbill No: 1 P # 1 Sample Custody Relinquished by Received by and Report Copy to Lab Name: ADVANCED TECHNOLOGY LABORATO Relinquished by Received by Shawn Duffy Marion Lab Phone: (702) 307-2659 (530) 229-3303

#### Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions of	r further in	struction, pleas	e contact our F	Project Coord	linator 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:	<b>✓</b> Ice	[] Ice Pack	Dry Ice	Other	None			
		s	ample Recei	pt Checklist	<b>.</b>			
1. Shipping container/cooler in	good condi				Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	l, dated on s	shippping contain	er/cooler?		Yes 🗌	No 🗌	Not Present	V
3. Custody seals intact on sam	ple bottles?	?			Yes 🗌	No 🗌	Not Present	<b>V</b>
4. Chain of custody present?					Yes 🗸	No 🗌		
5. Sampler's name present in	COC?				Yes 🔽	No 🗀		
6. Chain of custody signed wh	en relinquis	hed and received	?		Yes 🗹	No 🗀		
7. Chain of custody agrees wit	h sample la	bels?			Yes 🗸	No 🗀		
7. Chain of custody agrees with sample labels?  8. Samples in proper container/bottle?  9. Sample containers intent?					Yes 🗸	No 🗀		
9. Sample containers intact?					Yes 🗹	No 🗀		
10. Sufficient sample volume t	or indicated	l test?			Yes 🗸	No 🗀		
11. All samples received within	n holding tin	ne?			Yes 🗹	No 🗌		
12. Temperature of rep sample	e or Temp E	Blank within accep	otable limit?		Yes 🗹	No 🗀	NA	
13. Water - VOA vials have ze	ro headspa	ce?			Yes 🗌	No 🗌	NA	<b>Y</b>
14. Water - pH acceptable upo Example: pH > 12 for (C		for Metals			Yes 🗌	No 🗀	NA	
15. Did the bottle labels indica	te correct p	reservatives used	1?		Yes	No 🗔	NA	V
16. Were there Non-Conforma	nce issues	at login?			Yes	No 🗔	NA	*****
	las Client n	otified?	aggi, e maggaggag ( ), ga garaga ka angga ngi may panahan a manahay ing a magalaga		Yes 🗌	No 🗀	NA	<u>V</u>
Comments:								
Checklist Completed B	мвс /	wac 2/1×12				Reviewed By:	がべ	

#### Sample ID: N009835-001A @ pH 7.92

#### A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na<sub>2</sub>CO<sub>3</sub> solution (MS/MSD Stock Solution)

B, mL Na2CO3 solution taken for tritration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

**MS/MSD Stock** Na<sub>2</sub>CO<sub>3</sub>, ACS Grade (1.00 ml = 2500 ug as CaCO<sub>3</sub>): Dissolve 2.650 grams of Na<sub>2</sub>CO<sub>3</sub> 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,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.65mL)

= 0.02146 N

#### B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as CaCO<sub>3</sub>), mg/L =  $M_{vol.}$  \* N H<sub>2</sub>SO<sub>4</sub> \* DF \* 1000

Where:

 $M_{vol.}$ , 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,

Total Alkalinity (as  $CaCO_3$ ), mg/L = (5.55mL) (0.02146N) (1) \* 1000

= 119.10 mg/L

-5 fm 3/27/13 42 Reporting results in two significant figures,

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#### C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as CaCO<sub>3</sub> = 
$$P_{vol.}$$
 \* N H<sub>2</sub>SO<sub>4</sub> \* DF \* 1000  
= (0) (0.02146) (1) \* 1000  
= **0**

**Total Alkalinity** 

T alkalinity, mg/L as 
$$CaCO_3 = M_{vol.} * N H_2SO_4 * DF * 1000$$
  
= (5.55 mL) (0.02146) (1) \* 1000  
= 119.10 mg/L as CaCO3

Where:

P<sub>vol.</sub> - volume titrant used to reach pH 8.3, ml M<sub>vol.</sub> - volume titrant used to reach pH 4.5, ml

N - Normality of H<sub>2</sub>SO<sub>4</sub>

DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO<sub>3</sub>, HCO<sub>3</sub> alkalinities as CaCO<sub>3</sub> will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO <sub>3</sub>	CO <sub>3</sub> Alkalinity as CaCO <sub>3</sub>	HCO <sub>3</sub> Alkalinity as CaCO <sub>3</sub>
P = 0	0	0	Т
P < 1/2 T	0	2P	T – 2P
P = ½ T	0	2P	0
P > 1/2 T	2P – T	2(T – P)	0
P = T	Т	0	0

Therefore,

OH Alkalinity as  $CaCO_3 = 0$ 

CO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 0

HCO<sub>3</sub> Alkalinity as CaCO<sub>3</sub> = 119.10 mg/L

Reporting results in two significant figures,

OH Alkalinity as  $CaCO_3 = 0$ 

 $CO_3$  Alkalinity as  $CaCO_3 = \mathbf{0}$ 

 $HCO_3$  Alkalinity as  $CaCO_3 = 12 \frac{5}{m} g/L$ 

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## **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:

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:

Chloride, mg/L = 5.615 \* 100

= 561.5 mg/L

Reporting N009835-001A results in two significant figures,

Chloride, mg/L = 560

## 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

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

Oakland, California 94612

Dear Mr. Duffy:

January 23, 2013

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** 



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

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

Oakland, CA 94612

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

Laboratory No.: 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	рН	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Himani Vaishnav
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.: 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	pН	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	pН	4.00

ND: Non Detected (below reporting limit)

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

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

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

300

## TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



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Page 1 of 8

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Printed 1/23/2013

Laboratory No. 805561

#### REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

Release Number:

Samples Received on 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 - E	PA 120.1		Batch	01EC13D				
Parameter		Unit Analyzed		DF	MDL	RL	Result	
805561-001 Specific Conducti	ivity	umhos/	umhos/cm 01/07/2013		1.00	0.116	2.00	4490
805561-002 Specific Conducti	ivity	umhos/	cm 01/07	7/2013	1.00	0.116	2.00	8000
Method Blank								
Parameter Specific Conductivity  Duplicate	Unit umhos	DF 1.00	Result ND				Lab ID =	805561-001
Parameter Specific Conductivity Lab Control Sample	Unit umhos	DF 1.00	Result 4500	Expected 4490	R	RPD 0.222	Accepta 0 - 10	nce Range
Parameter Specific Conductivity Lab Control Sample Du	Unit umhos	DF 1.00	Result 697	Expected 706	R	decovery 98.7	Accepta 90 - 110	nce Range
Parameter Specific Conductivity  MRCCS - Secondary	Unit umhos	DF 1.00	Result 702	Expected 706	R	Recovery 99.4	Accepta 90 - 110	nce Range
Parameter Specific Conductivity MRCVS - Primary	Unit umhos	DF 1.00	Result 701	Expected 706	R	decovery 99.3	Accepta 90 - 110	nce Range
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 988	Expected 998	R	lecovery 99.0	Accepta 90 - 110	nce Range



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Chrome VI by EPA 218.0	6		Batch	01CrH13B				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
805561-001 Chromium, Hex	avalent	ug/L	01/03	3/2013 15:30	00.1	0.00920	0.20	8.1
Method Blank								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	805375-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.97	Expected 2.01		RPD 1.90	Accepta 0 - 20	ince Range
Low Level Calibration								_
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.196	Expected 0.200		Recovery 98.0	70 - 130	ince Range )
Lab Control Sample								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 4.79	Expected 5.00		Recovery 95.8	90 - 110	
Matrix Spike							Lab ID =	805375-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.950	Expected/Adde 1.00(1.00)	ed	Recovery 95.0	Accepta 90 - 110	nce Range
Matrix Spike							Lab ID =	805375-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.915	Expected/Adde 1.00(1.00)	ed	Recovery 91.5	Accepta 90 - 110	ince Range
Matrix Spike							Lab ID =	805375-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 9.49	Expected/Adde 9.91(5.00)	ed	Recovery 91.6	Accepta 90 - 110	nce Range
Matrix Spike							Lab ID =	805375-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 6.82	Expected/Adde 7.01(5.00)	ed	Recovery 96.3	Accepta 90 - 110	nce Range
Matrix Spike							Lab ID =	805375-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.964	Expected/Adde 1.00(1.00)	ed	Recovery 96.4	Accepta 90 - 110	nce Range
Matrix Spike							Lab ID =	805375-006
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.948	Expected/Adde 1.00(1.00)	ed	Recovery 94.8	Accepta 90 - 110	nce Range



Client: E2 Consulting E	ngineers, Ind		roject Name: roject Number	PG&E Topock Pro: 456827.01.DM	pject	Page 3 of 8 Printed 1/23/2013
Matrix Spike						Lab ID = 805375-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.958	Expected/Added 1.00(1.00)	Recovery 95.8	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805375-008
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.901	Expected/Added 1.00(1.00)	Recovery 90.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805375-009
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 39.1	Expected/Added 39.9(20.0)	Recovery 96.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805375-011
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 44.3	Expected/Added 45.2(25.0)	Recovery 96.3	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805375-012
Parameter Chromium, Hexavalent	Unit ug/L	DF 50.0	Result 1460	Expected/Added 1470(750)	Recovery 97.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805375-013
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.982	Expected/Added 1.00(1.00)	Recovery 98.2	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805375-014
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.972	Expected/Added 1.00(1.00)	Recovery 97.2	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805375-015
Parameter Chromium, Hexavalent	Unit ug/L	DF 100	Result 3880	Expected/Added 3980(2000)	Recovery 95.0	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805375-016
Parameter Chromium, Hexavalent	Unit ug/L	DF 50.0	Result 1750	Expected/Added 1750(1000)	Recovery 99.8	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805561-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 17.9	Expected/Added 18.1(10.0)	Recovery 98.7	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805562-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.938	Expected/Added 1.05(1.00)	Recovery 89.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805562-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.62	Expected/Added 5.04(5.00)	Recovery 91.6	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Printed 1/23/2013

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Chromium, Hexavalent	by SM 350	0-CrB	Batch	01CrH13B				
Parameter		Unit	Ana	lyzed i	)F	MDL	RL	Result
805561-002 Chromium, Hex	avalent	ug/L	01/03	3/2013 14:17 2	5.0	37.5	250	897
Method Blank								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	805561-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 25.0	Result 897	Expected 897	F	RPD 0	Accepta 0 - 20	ince Range
Lab Control Sample								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 102	Expected 100	F	Recovery 102	90 - 110	
Matrix Spike								805561-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 25.0	Result 3510	Expected/Adde 3400(2500)	d F	Recovery 105	Accepta 85 - 125	ince Range
MRCCS - Secondary								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 63.2	Expected 60.0	F	Recovery 105	Accepta 90 - 110	ince Range
MRCVS - Primary								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 60.8	Expected 60.0	F	Recovery 101	Accepta 90 - 110	nce Range
MRCVS - Primary								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 60.8	Expected 60.0	F	Recovery 101	Accepta 90 - 110	nce Range



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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pH by SM 4500-H B			Batch	01PH13B				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
805561-001 pH		рН	01/03	/2013 09:35	1.00	0.0784	4.00	7.59
805561-002 pH		рН	01/03	/2013 09:37	1.00	0.0784	4.00	7.26
Duplicate							Lab ID =	805561-002
Parameter	Unit	DF	Result	Expected	RPD		Accepta	ance Range
pН	рН	1.00	7.27	7.26		0.138	0 - 20	_
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pΗ	рН	1.00	7.03	7.00		100		)
Lab Control Sample	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	рН	1.00	7.05	7.00		101	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery Acceptance		ance Range
pН	рΗ	1.00	7.03	7.00		100	90 - 110	)
<b>Total Dissolved Solids</b> Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
805561-001 Total Dissolved	Solids	mg/L		/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	F	RPD	Accepta	ance Range
Total Dissolved Solids	mg/L	1.00	31500	29600		6.16	0 - 10	
Duplicate							Lab ID =	805650-001
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ince Range
Total Dissolved Solids	mg/L	1.00	3930	3960		0.760	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Total Dissolved Solids	mg/L	1.00	492	500		98.4	90 - 110	١



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Metals by EPA 200.8, D	issolved		Batch	011613B				
Parameter		Unit	Ana	ılyzed D	F	MDL	RL	Result
805561-001 Chromium		ug/L	01/16	6/2013 22:21 1.	0.00	.0920	1.0	8.0
805561-002 Chromium		ug/L	01/16	6/2013 22:57 20	0.0 1.	.84	4.0	925
Method Blank	ija, segisti							
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	805561-00°
Parameter	Unit	DF	Result	Expected	RPD	)	Accepta	ınce Range
Chromium	ug/L	1.00	7.84	8.03	2.4	4	0 - 20	
Low Level Calibratio	n Verification							
Parameter	Unit	DF	Result	Expected	Reco	overy	Accepta	ince Range
Chromium	ug/L	1.00	0.231	0.200	110	6	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	Reco	overy	Accepta	ince Range
Chromium	ug/L	1.00	47.5	50.0	94.	.9	85 - 115	5
Matrix Spike							Lab ID =	805561-00°
Parameter	Unit	DF	Result	Expected/Added	Reco	overy	Accepta	nce Range
Chromium	ug/L	1.00	54.1	58.0(50.0)	92.	.1	75 - 125	;
Matrix Spike Duplica	ite						Lab ID =	805561-00°
Parameter	Unit	DF	Result	Expected/Added	Reco	overy	Accepta	nce Range
Chromium	ug/L	1.00	53.3	58.0(50.0)	90.	.5	75 - 125	;
MRCCS - Secondary	y							
Parameter	Unit	DF	Result	Expected	Reco	overy	Accepta	nce Range
Chromium	ug/L	1.00	20.2	20.0	10 <sup>-</sup>	1	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Reco	overy	Accepta	nce Range
Chromium	ug/L	1.00	19.1	20.0	95.	.3	90 - 110	)
MRCVS - Primary								
Parameter	Unit	Unit DF Result Expected		Expected	Reco	overy	Accepta	nce Range
Chromium	ug/L 1.00 19.3 20.0		20.0	96.	.3	90 - 110	)	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Reco	overy	Accepta	nce Range
Chromium	romium ug/L 1.00 19.5 20.0		20.0	97.	5	90 - 110	1	



Client: E	E2 Consi	ultina	Engineers,	inc.
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Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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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 S	tandard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check S	tandard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check S	tandard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.5	80 - 120
Interference Check S	tandard 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.

Mona Nassimi

Manager, Analytical Services



#### 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 =

Where:

A = weight of dish + residue in grams.

B = weight of dish in grams. C = mL of sample filtered.  $\left(\frac{A-B}{C}\right) \times 10^6$ 

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	492	500	98.4%	90-110%	Yes
LCSD					

**Duplicate Determinations Difference Summary** 

Daphoure D	ctciiiiiiiati	Olio Dilici Ci	10C Callin	riai y	
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

LCS Recovery

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

P = Percent recovery.

LC= Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

**Duplicate Determination Difference** 

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

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

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

C = Average weight in (g).

Maksim G.

Reviewer Printed Name

Reviewer Signature

Jenny T.

Analyst Printed Name

#### Total Dissolved Solids by SM 2540 C

### TDS/EC CHECK

Batch: 01TDS13B Date Analyzed: 1/9/13

Laboratory Number	EC	TDS/EC Ratio: 0.559	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
	- 14-14-4			



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-202] **2055**[1

10 Days TURNAROUND TIME DATE 01/02/13 PAGE 1 OF 1

												A P			₩								
COMPANY	CH2M HILL /E2	2					/	/	/	7	$\overline{}$	/	$\overline{}$	$\overline{}$	$\overline{}$	$\overline{}$	$\overline{}$		/	///	$\overline{}$	7	MMENTS
PROJECT NAME	PG&E Topock	IM3Plant-EV	٧				/_					,	•	,	,	,	,	,			//	/ "	MINIENTS
PHONE	530-229-3	303	FAX _ 53	0-339-3303_		,	, *e,eo	/ ,	/ /	/ /	/ /	/	Re	c'd O	01/0	)2/13 <b>= =</b>	6	4	/	/ /	/, /		
ADDRESS	155 Grand Ave	Ste 1000					ab fil					,	SI	6c 🕻	) U	)   	6	- /	′ /	/ /	F.R.S		
	Oakland, CA 94	4612				1	:/_	3															
P.O. NUMBER	456827.01.DN	1				[30]	(ئ/ھ)		/ /	/_/	/ /	/ /	/ ,	/ ,	/ ,	/ ,	/		/	S	/		
SAMPLERS (SIGNA	ATURE 2	n Phel	ps			, eq. (	3500.	0.0)E	60.7)	678.6										6 E			
SAMPLE I.D.		DATE	TIME	DESCRIPTION	No.	Cr(V)	PH (1500-CrB)	70S (20120 2)	Cr(VI) (2)											SIMBER OF CONTAIL			
<u> </u>		<del></del>	T -		1	<del>/                                    </del>	$\overline{}$		-		-					<del></del>	├─	$\leftarrow$					
PE-01-202		01/02/13	11:15	Ground water	X		Х	Х	X								<u> </u>	<u> </u>	4	į	)H=6	7 00	7.7
TW-03D-2	02	01/02/13	11:22	Ground water	X	Х	Х	Х											4		DH=6	TIO,	7
				AL		R	SERVICE N	SECTION I															
				LOVI		Ш			).														
					- 9 <sup>9</sup>		dishinishinini di	Z 🐷	olashaqua consume.														
<u> </u>			A	<del></del>	<del></del>		L	( <del></del>		<u></u>				<del></del>			<del></del>	<b>.</b>	8	ТО	TAL NUN	BER OF C	ONTAINERS
																			E		•		

	CHAIN OF CUSTODY SI	GNATURE RE	ECORD		SAMPLE CONDITIONS
Signature (Relinquished)	Printed Ryan Phelps	Company/ Agency	7	ate/ 1-2-13 me 15:30	received cool $\square$ warm $\square$ $3.4^{\circ}$ $\square$
Signature (Received)	Davila Name Ra for	Company/ 7 Agency 7		nte/ /- 2 - 13 ne /5 - 3 0	CUSTODY SEALED YES \( \begin{array}{cccccccccccccccccccccccccccccccccccc
Signature (Relinquished)	Davi Name Kataci	Company/		ne 2/13	SPECIAL REQUIREMENTS:
Signature (Received) Shabun	rina Name Luglar	Company/ / Agency /	7ZI Da	ne 1/2/13 2/18-0	
Signature (Relinquished)	Printed Name	Company/ Agency		ite/ ne	
Signature (Received)	Printed Name	Company/ Agency		ite/ ne	For Sample Conditions
				,	See Form Attached

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
01/03/13	805561-1	7	2 ml	9.5	10:15 Am	HAV
7	1 -2	1,	1	1	10:20 AM	HAV
01/03/13	805562-1	7	2 ml	9.5	10:25 AM	HAV
	-2				10:30 AM	]
1	1 -3	1		1	10:35 Am	1
			, (			
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	. 1		AMP OF A CONTRACTOR			
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/m/1-1"

HAV



Turbidity/pH Check

			Turbic	dity/pH C	heck			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
E~5593	7\$136	<u> </u>	1-2-13	136	xzs		110/13	pH < 2
805596	71	1			l l			P
8 05594	ì							-
8 3597								
83 5598								
804599(1-4)								
8 676 62 (1 - 4								
2,5612								
505614(14923)		7.2				8:00	1/10/13 PH	22
405380	41	72	1-8-17	的	yes	10:30		
805305(1-16,21-2	) 41	42	1-8-13	ES	yus			-5,10 turbidity >1
305419-6	ZI	72	1	1	yes yus No	1:30	1/10 (12 pt	
805 (22 (1-4)	1	1			4	T		
8058 38	<b>۲۱</b>	72	1-9-13	BE	No	il waam	יוויט עיווין	12
805649(1-3)		1				J	1/10/12 1	H L2
805632	41	42	7	DC	Yes			
805630	41	42						
805628	41	22						
805631								
805627								
805629	V		l l		<b>J</b>			
805633	SOL		L L	DC	TTIC			
805662	7.1	7-2	11013	ES	ys ys	9:10 an	1/18/13 15:30	HCZ
805 504	L1	22	1110113	以	yus			
805375(1-7,8-12	) <u>L</u>	12	1					
15-187								
805506(1-3)	41	22						
805528(1-5)		72						
805 561 (1-2)						10:00		Filtered then oxid
805 962 (1-3		22						
305 650	<u> </u>	72	<u> </u>			10:00		· .
805560	SLU	DGE	1/14/13	ES	TTLC			
805651(1-5,8-11	4) 41	L2 L2			yes			TOTAL/DISSOLVE
805 652 (1-5)	<u> </u>		V	<u> </u>				
805663(10-12)		.72	1115/13	BIT	NC	19. VV	1/18/13 15:30	PHCZ
305669	۷١	Z2	1/15/13	ES	Yes			
805675								
805 677					_			
805 679		_						
805 680								
805 681								
805686								
805732					1,			
805733	1	4	+	<b>₽</b>	T	1		

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



# Sample Integrity & Analysis Discrepancy Form

Clien	t: E2	_ Lab # 80556/
Date	Delivered: <u>∅/</u> / <u>ℓ/2</u> / 13 Time: <u>2/-80</u> By: □Mail Ø	ÍField Service □Client
1.	Was a Chain of Custody received and signed?	প্ৰYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ¤N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ☑AN/A
<i>5</i> .	Were all requested analyses understood and acceptable?	,∄'Yes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>3.4°C</u>	ÀYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆNYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ZIN/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?	ØYes □No □N/A
<b>1</b> 1.	Did sample labels indicate proper preservation? Preserved (if yes) by: □ <b>Truesdail</b> □Client	□Yes □No
12.	Were samples pH checked? pH = <u>Sel</u> C. O. C	ÆlYes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ÆYes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b>	ØYes □No □N/A
15.	Sample Matrix: DLiquid Drinking Water Ground	d Water
	□Sludge □Soil □Wipe □Paint □Solid	Other TI
16.	Comments:	vel III QC
17	Sample Check-In completed by <b>Truesdail</b> Log-In/Receiving:	Luda

## 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 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 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.

Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

## TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

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

Oakland, CA 94612

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

Laboratory No.: 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	Bita 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 II	) 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	pН	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	рH	4.00

ND: Non Detected (below reporting limit)

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

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

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

## TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



Established 1931

Page 1 of 9

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

Printed 3/5/2013

Laboratory No. 806202

#### REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Samples Received on 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 Conductiv	rity - EPA 120.1			Batch	02EC13B				
Parameter		Unit	neuther Teet, ever	Ana	lyzed	DF	MDL	RL	Result
806202-001 Specific C	onductivity	umhos/	/cm	02/06	/2013	1.00	0.116	2.00	4490
806202-002 Specific C	onductivity	umhos/	/cm	02/06	/2013	1.00	0.116	2.00	8260
Method Blank									
Parameter	Unit	DF	Re	esult					
Specific Conductivity	umhos	1.00	N	D					
Duplicate								Lab ID =	806201-002
Parameter	Unit	DF	Re	esult	Expected	F	RPD	Accepta	nce Range
Specific Conductivity	umhos	1.00	7	500	7500		0	0 - 10	
Duplicate								Lab ID =	806202-002
Parameter	Unit	DF	Re	esult	Expected	F	RPD	Accepta	nce Range
Specific Conductivity	umhos	1.00	8:	250	8260		0.121	0 - 10	
Lab Control Sar	mple								
Parameter	Unit	DF	Re	esult	Expected	F	Recovery	Accepta	ance Range
Specific Conductivity	umhos	1.00	6	93	706		98.2	90 - 110	)
Lab Control Sar	mple Duplicate								
Parameter	Unit	DF	Re	esult	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	6	98	706		98.9	90 - 110	)
MRCCS - Seco	ndary								
Parameter	Unit	DF	Re	esult	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	6	98	706		98.9	90 - 110	)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Printed 3/5/2013

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Chrome VI by EPA 218.6	Parameter		Unit Analyzed		OF MDL	RL	Result
306202-001 Chromium, Hex	avalent	ug/L	02/07	7/2013 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 =	806099-00
Parameter	Unit	DF	Result	Expected	RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	10.0	494	426	14.8	0 - 20	
Low Level Calibration	Verification	1					
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200	106	70 - 130	כ
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Recovery Acceptance	
Chromium, Hexavalent	ug/L	1.00	5.08	5.00	102	90 - 110	_
Matrix Spike						Lab ID =	806074-00
Parameter	Unit	DF	Result	Expected/Adde	d Recovery	Accepta	ance 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/Adde	d Recovery	Accepta	ance 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/Adde	d Recovery	Accepta	ance 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/Adde	d Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	1.44	1.44(1.00)	99.4	90 - 110	_
Matrix Spike						Lab ID =	806201-00
Parameter	Unit	DF	Result	Expected/Adde	d Recovery	Accepta	ance 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/Adde	d Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	50.0	1780	1770(1000)	102	90 - 110	_



Client: E2 Consulting En	gineers, Inc		Project Name: Project Number	PG&E Topock Pro: 456827.01.DM	eject	Page 4 of 9 Printed 3/5/2013
Matrix Spike						Lab ID = 806202-001
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 17.6	Expected/Added 17.7(10.0)	Recovery 99.3	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.93	Expected 5.00	Recovery 98.6	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.3	Expected 10.0	Recovery 103	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc.

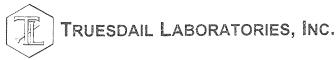
Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Chromium, Hexavalen	t by SM 350	0-CrB	Batch	03CrH13A				
Parameter		Unit	Ana	lyzed [	DF MDL	RL	Result	
806202-002 Chromium, He	exavalent	ug/L	03/01	/2013 15:33 2	5.0 110	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 Accepta		ance Range	
Chromium, Hexavalent	ug/L	25.0	1040	1020	2.48	0 - 20	0 - 20	
Lab Control Sample	) at the state							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range	
Chromium, Hexavalent	ug/L	1.00	107	100	107	90 - 110	)	
Matrix Spike						Lab ID =	806202-002	
Parameter	Unit	DF	Result	Expected/Added	d Recovery	Accepta	ance Range	
Chromium, Hexavalent	ug/L	25.0	3390	3520(2500)	94.9	85 - 115	5	
MRCCS - Secondar	у							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range	
Chromium, Hexavalent	ug/L	1.00	107	100	107	90 - 110	)	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range	
Chromium, Hexavalent	ug/L	1.00	63.2	60.0	105	90 - 110	)	

pH by SM 4500-H B			Batch	02PH13D					
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result	
806202-001 pH		рΗ	02/06	6/2013 10:30	1.00	1.00 0.0784		7.52	
806202-002 pH	2-002 pH pH		02/06	6/2013 10:33	1.00	1.00 0.0784 4.00 7.22			
Duplicate					Lab ID = 80		806202-002		
Parameter	Unit	DF	Result	Expected	RPD		Acceptance Range		
рН	pН	1.00	7.23	7.22		0.138		0 - 20	
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range	
рН	рН	1.00	7.01	7.00		100	90 - 110	כ	
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range	
pН	рН	1.00	7.05	7.00		101	90 - 110	)	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Batch 02TDS13C Total Dissolved Solids by SM 2540 C Unit DF Parameter Analyzed 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 Unit DF Parameter Result **Total Dissolved Solids** mg/L 1.00 ND **Duplicate** Lab ID = 806202-002 Parameter Unit DF Result Expected **RPD** Acceptance Range 5120 Total Dissolved Solids mg/L 1.00 5110 0.196 0 - 10Lab Control Sample Unit DF Result Expected Parameter Recovery Acceptance Range Total Dissolved Solids 1.00 492 500 98.4 mg/L 90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Parameter 806202-001 Chromium		Unit	Analyzed 02/07/2013 13:47		DF	MDL	RL	Result
		ug/L			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	ı	RPD	Accepta	ance 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 Calibratio	n Verification	)						
Parameter	Unit	DF	Result	Expected	J	Recovery	Accepta	ance 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	F	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	52.6	50.0		105	85 - 115	5
Manganese	ug/L	2.00	51.3	50.0		102	85 - 115	5
Matrix Spike							Lab ID =	806147-001
Parameter	Unit	DF	Result	Expected/Adde	d f	Recovery	Accepta	nce Range
Chromium	ug/L	2.00	68.2	66.0(50.0)		104	75 - 125	5
Manganese	ug/L	2.00	138	134(50.0)		107	75 - 125	5
Matrix Spike Duplica	ate						Lab ID =	806147-001
Parameter	Unit	DF	Result	Expected/Adde	d f	Recovery	Accepta	ince Range
Chromium	ug/L	2.00	67.2	66.0(50.0)		102	75 - 125	5
Manganese	ug/L	2.00	136	134(50.0)		103	75 - 125	5
MRCCS - Secondar	<b>y</b> filipina and							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince 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	F	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	21.0	20.0		105	90 - 110	_



Client: E2 Consulting Er	gineers, Inc	·-	Project Name: Project Number:	PG&E Topock 456827.01.DM	<u>-</u>	Page 9 of 9 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.

Mona Nassimi

Manager, Analytical Services



Truesdail Laboratories, Inc.

#### Total Dissolved Solids by SM 2540 C

#### Calculations

Batch: 02TDS13C Date Analyzed: 2/11/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL,	Reported Value, ppm	DF
Blank	100	69.3378	69.3378	69.3378	0.0000	No	0.0000	0.0	25.0	ND	1
806202-1	20	50.5022	50.5556	50.5555	0.0001	No	0,0533	2665.0	125.0	2665.0	1
806202-2	10	49.8808	49.9322	49.9320	0.0002	No	0.0512	5120.0	250.0	5120.0	1
806217	100	77.5511	77.575	77.5746	0.0004	No	0.0235	235.0	25.0	235.0	1
806234	965	173.3542	173.3549	173.3549	0.0000	No	0.0007	0.7	2.6	ND	<u> </u>
QC3050	100	77.2937	77.323	77.3226	0.0004	No	0.0289	289.0	25.0	289.0	1
QC3050	100	68.3736	68.4024	68.4022	0.0002	No	0.0286	286.0	25.0	286.0	11
PE3050	100	71.3051	71.3325	71.3321	0.0004	No	0.0270	270.0	25.0	270.0	1
PE3050	100	74.1505	74.1777	74.1774	0.0003	No	0.0269	269.0	25.0	269.0	1
806202-2D	10	72.6354	72.6867	72.6865	0.0002	No	0.0511	5110.0	250.0	5110.0	1
LCS	100	76.5373	76.5865	76.5865	0.0000	No	0.0492	492.0	25.0	492.0	1

Calculation as follows:

Where:

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

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

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

Laboratory Control Sample (LCS) Summary

QC Std i.D.			Percent Rec	Acceptance Limit	QC Within Control?
LCS1	492	500	98.4%	90-110%	Yes
LCSD					

**Duplicate Determinations Difference Summary** 

Lab	Sample	Sample Dup	% RPD	Acceptance	QC Within
Number	Weight, g	Weight, g		Limit	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**

% Difference = 
$$\begin{bmatrix} A & or B = C \end{bmatrix} \times 1006$$

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

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

C = Average weight in (g).

Maksim G.

Reviewer Printed Name

Jenny T.

### Total Dissolved Solids by SM 2540 C

#### TDS/EC CHECK

Batch: 02TDS13C
Date Analyzed: 2/11/13

Laboratory Number	EC	TDS/EC Ratio: 0.559	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
806202-1	4540	0.59	2951	0.90
806202-2	8340	0.61	5421	0.94
806217	377	0.62	245.05	0.96
806234	0.82	ND	0.533	ND
QC3050				
QC3050				
PE3050				
PE3050				
806202-2D	8340	0.61	5421	0.94
LCS				
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TRUESDAIL LABORATORIES, INC. 14201 Franklin Avenue, Tustin, CA 92780-7008

#### **CHAIN OF CUSTODY RECORD**

(714)730-6239 FAX: (714) 730-6462 www.truesdail.com						[IM3Plant-EW-203]				DATE 1			11/06/	110 -		SE 1	OF <u>1</u>						
COMPANY	CH2M HILL /E	2		<u></u>	T		$\overline{}$	$\overline{}$	7		7	$\overline{}$	$\overline{}$	7	7		$\overline{}$	$\overline{}$	$\overline{}$		<b>77</b>	COL	IMENTS
PROJECT NAME	PG&E Topock	: IM3Plant-EV	٧		ļ																/ /	CON	IMEN I S
PHONE	530-229-3	3303	FAX _530	0-339-3303_		,	$t_{\text{fe}}$	/ ,	/ ,	/ ,	/ ,	/ ,	/ ,	/ ,	/		/ ,	/ ,	/ ,	/ /.			
ADDRESS	155 Grand Av	e Ste 1000					ab fill		_ /							' /				WERS.	]		
	Oakland, CA 9	94612				/ \	~/_	/ 5	1.7											TRES	7		
P.O. NUMBER	456827.01.D	M		-	/	180	ر رې/	$\mathcal{L}_{\mathcal{O}}^{\mathcal{L}}$	/_ ,		/ ,	/ /	/ /	/ /	/	/ .	/ /	/ ,	/ /				
SAMPLERS (SIGI	NATURE					$\frac{\mathcal{O}}{\mathcal{O}_{\mathfrak{g}}}$	3500	60/	60.1	278/										0			
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SAMPLE I.D.	<u> </u>	02/05/13	TIME	DESCRIPTION		/ 0			ŀ	$\leftarrow$	$\leftarrow$	$\leftarrow$		$\leftarrow$	-	$\leftarrow$		-	<u> </u>	<del></del>		1-1	(2)
PE-01-20		<del>- </del>	1425	Ground water	Х		X	X	X							<u> </u>			$\vdash$		<u> </u>	-4	[Z00.7]
TW-03D-	203	02/05/13	1432	Ground water	X	Х	Х	X	ļ										4	رد			
									F	SCHOOL STATE	Δ			TŞ	1		100						
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Signature (Relinquished)	Cakeul Dav	Printed Name	Za Lo	Company Agency	" 7	-h	- I	-	Da Tin	ne	21	-/3  -/3	À		CIAL	REQUI	REMEN	NTS:		***************************************		······	<del></del>
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(Relinquished) Signature (Received)		Printed Name	·····	Company Agency	1			····	Da Tin	te/													

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	I ah Number	Initial nU	Buffer Added (mL)	Final nH	Time Buffered	Initials
02/01/13		1				
02/01/12	806148-1	9.5	NIA	NIA	NIA	HAY
	1, -3					
1 (1)	7.	4	<u> </u>	4.	<u> </u>	<u> </u>
3	806201-1	7	2 ml	9.5	10 : 50 AM	HAV
7,	J -2		4		10:05 AM	HAV
02/06/13	806202-1	<del></del>	2 ml	9.5	10:10 AM	HAY.
<u></u>	4-2		4.	4	10:20 AM	ITAY
02/06/13	406203-1	9.5	NIA	NIA	NIA	HAY
	-2					
	-3					
	-4					
	-5					
	-6					
	7					
	-8					
02/08/13	306237-1	9.5	MA	MIA	NIA	RB
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/m 2-11-17





Turbidity/pH Check

Turbidity/pH Check													
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments					
106 202(1-2)	41	72	2/6/19	E>	Chs	2:01		Filterenta					
506212(11-13)	<1	72	2/7/13	BF	ys ~c	8:coAm		1					
5.0 (2-304-3)		72	2-8-13	B 2-	No	7: 30A							
8062 (9612)	>1	<b>12</b>	1	1	Xes								
806821	1	72XBE			1	7:30AA	h						
806922		<2											
806224						· · · · · · · · · · · · · · · · · · ·		·					
806234					7								
80622034628)	<1	72	2-6-13	BE	4 25								
80599611-10)	,(		01/3 -13	1									
Ea 599511-9)			7										
806243	41	42	2/8/13	or	ges								
806244	41	12	707.										
806 265	41	L2	1										
806267 OF	۲)	<b>L2</b>											
20626844)		<b>〈2</b>	2-11-13	BE	Xes								
886269614)				1									
206237	< \	<b>12</b>	1	1		-							
806211	7716												
80629611-41	۲١	<b>۲</b> 2	2-12-13	BZ									
306 263	72	12	2/12/13	ES	ijis								
806275 (1-2)	1	1	1		1								
(106 242 (1-8)				1 -									
806245													
806 286 (1-2)													
606287						_							
606291 (1-4)							-						
806292													
806329	<u> </u>	72	2-13-13	BE	yes	81.30 A	η						
806330(1-4,9-11)		< <b>\</b>	1	1	1								
80634164-6)	<1	>2		-	₩°	13:30							
806322		1					2-19-13	PH <z< td=""></z<>					
506339	71	72	2/13/13	De	Yes	14:30	, .,						
806299	41	. 42		I	- F3								
896337 (-6)	<u> </u>	>2	214-13	Bi	NO	6.30	2-15-13	PHCZ					
806341086	ì	İ	1	1	1								
€ ° 6346 (1-18)													
8 6347 (1.3)						,							
206348 (1-294)					1	·							
806 304	21	<u> </u>	2/14/13	ES	yes	4	- V	у					
806 305			-117117	<i>\(\nu\)</i>	2,2								
806 306								f					
806 308			1			·							
50 JUD	4	~	~				· · · · · · · · · · · · · · · · · · ·						

#### Notes:

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

## Sample Integrity & Analysis Discrepancy Form

Clie	ent:E2	Lab # 80620
Dat	e Delivered:ℓ½ / ℓ5 / 13 Time:ℓ½ 80 By: □Mail Æi	Field Service
1.	Was a Chain of Custody received and signed?	
) 	Does Customer require an acknowledgement of the COC?	□Yes □No ДN/A
	Are there any special requirements or notes on the COC?	□Yes □No ÞÍN/A
	If a letter was sent with the COC, does it match the COC?	□Yes □No ÆN/A
	Were all requested analyses understood and acceptable?	ØYes □No □N/A
	Were samples received in a chilled condition? Temperature (if yes)? <u> </u>	ØYes □No □N/A
	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	AYes □No □N/A
	Were sample custody seals intact?	□Yes □No diN/A
	Does the number of samples received agree with COC?	Aryes □No □N/A
	Did sample labels correspond with the client ID's?	ÁYes □No □N/A
	Did sample labels indicate proper preservation?  Preserved (if yes) by:   Truesdail   Client	□Yes □No ÆN/A
	Were samples pH checked? pH = <u>Sel</u> C. O. C.	AYes □No □N/A
	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ÁYes □No □N/A
	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ RUSH ☑ Std	ØYes □No □N/A
	Sample Matrix: DLiquid Drinking Water Ground V	Vater □Waste Water
	□Sludge □Soil □Wipe □Paint □Solid □	Other
	Comments:	-
-	Sample Check-In completed by Truesdail Log-In/Receiving:	Luda Sliabuniu

**EXCELLENCE IN INDEPENDENT TESTING** 



Established 1931

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008

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

March 25, 2013

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

Dear Mr. Duffy:

SUBJECT:

REVISED CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-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.

Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

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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

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



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Client: E2 Consulting Engineers, Inc.

155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

Laboratory No.: 806669

Date Received: March 5, 2013

## **Analytical Results Summary**

Lab Sample II	) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
Lab Gampie II		metriou —	- Inctriod	- Campie Date	11110				114
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	pН	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	pН	4.00

ND: Non Detected (below reporting limit)

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

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Page 1 of 8

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Printed 3/21/2013

Laboratory No. 806669

#### REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

Release Number:

Samples Received on 3/5/2013 10:30:00 PM

Field ID		Lab			llected	Matrix		
PE-01-204 TW-03D-204		806669-001 806669-002				/2013 10:45 /2013 10:45	Water Water	
Specific Conductivity -	EPA 120.1		Batcl	n 03EC13C				
Parameter		Unit	Ana	alyzed	DF	MDL	RL	Result
806669-001 Specific Condu	uctivity	umhos/cn	n 03/06	6/2013	1.00	0.116	2.00	4410
806669-002 Specific Condu	uctivity	umhos/cm 03/06		6/2013	1.00	0.116	2.00	8150
Method Blank								
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result ND					
Duplicate							Lab ID =	806668-012
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range
Specific Conductivity	umhos	1.00	874	874		0	0 - 10	
Duplicate							Lab ID =	806670-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
Specific Conductivity	umhos	1.00	7440	7440		0	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	710	706		100	90 - 110	)
Lab Control Sample	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	703	706		99.6	90 - 110	)
MRCCS - Secondar	<b>У</b> баран <sub>13</sub> .							
Parameter	Unit	DF	Result	Expected	F	Recovery	•	nce 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 authorization from Truesdail Laboratories.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Chrome VI by EPA 218	8.6		Batch	03CrH13E			
Parameter		Unit	Ana	lyzed C	F MDL	RL	Result
806669-001 Chromium, He	exavalent	ug/L	03/08	/2013 20:34 1.	0.00920	0.20	6.5
Method Blank							
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND				
Duplicate						Lab ID =	806632-007
Parameter	Unit	DF	Result	Expected	RPD	•	nce Range
Chromium, Hexavalent	ug/L	500	7470	7410	0.776	0 - 20	
Low Level Calibrati	on Verification						
Parameter	Unit	DF	Result	Expected	Recovery	•	ince Range
Chromium, Hexavalent	ug/L	1.00	0.194	0.200	96.8	70 - 130	)
Lab Control Sample	<b>e</b> .						
Parameter	Unit	DF	Result	Expected	Recovery	•	ince Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.3	90 - 110	
Matrix Spike						Lab ID =	806632-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.982	Expected/Added 1.00(1.00)	Recovery 98.2	Accepta 90 - 110	ince Range
Matrix Spike	ug/L	1.00	0.302	1.00(1.00)	90.2		, 806632-002
and the state of t	a gára a l	DE	<b>5</b>	<b>5</b>			
Parameter Chromium Hovevelont	Unit	DF 1.00	Result 1.16	Expected/Added 1.17(1.00)	Recovery 99.2	90 - 110	ince Range
Chromium, Hexavalent	ug/L	1.00	1.10	1.17(1.00)	99.2		
Matrix Spike							806632-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 100	Result 4500	Expected/Added 4580(2000)	Recovery 96.0	Accepta 90 - 110	ince Range
Matrix Spike	ug/L	100	+300	4300(2000)	90.0		, 806632-007
		1 112					
Parameter	Unit	DF 500	Result 15100	Expected/Added	•	Accepta 90 - 110	ince Range
Chromium, Hexavalent	ug/L	500	15100	14900(7500)	103		
Matrix Spike							806632-009
Parameter	Unit	DF	Result	Expected/Added	•	•	ince Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.02(1.00)	101	90 - 110	
Matrix Spike						Lab ID =	806632-010
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.982	Expected/Added 1.00(1.00)	Recovery 98.2	Accepta 90 - 110	ince Range )



Client: E2 Consulting Eng	gineers, Ind		oject Name: oject Numbe	PG&E Topock Pror: 456827.01.DM	pject	Page 4 of 8 Printed 3/21/2013
Matrix Spike						Lab ID = 806632-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 806632-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.988	Expected/Added 1.00(1.00)	Recovery 98.8	Acceptance Range 90 - 110 Lab ID = 806669-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 16.6	Expected/Added 16.5(10.0)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 806670-002
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 50.0	Result 1490	Expected/Added 1470(750)	Recovery 102	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.87	Expected 5.00	Recovery 97.4	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.0	Expected 10.0	Recovery 100	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	ÐF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Chromium, Hexavalent I	by SM 350	10-CrB	Batch	03CrH13B					
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result	
806669-002 Chromium, Hexa	avalent	ug/L	03/12	2/2013 14:33	25.0	110	250	867	
Method Blank									
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND						
Duplicate							Lab ID =	806669-002	
Parameter Chromium, Hexavalent	Unit ug/L	DF 25.0	Result 838	Expected 867		RPD 3.45	Acceptance Rang 0 - 20		
Lab Control Sample									
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 96.5	Expected 100		Recovery 96.5	90 - 110 Lab ID = 806669		
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 25.0	Result 3330	Expected/Ac 3370(2500)		Recovery 98.7	ance Range		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 96.5	Expected 100		Recovery 96.5	Acceptance F 90 - 110		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 58.5	Expected 60.0		Recovery 97.5	Accepta 90 - 110	ance Range )	
pH by SM 4500-H B			Batch	03PH13E					
Parameter		Unit		lyzed	DF	MDL	RL	Result	
806669-001 pH		pН		3/2013 11:10	1.00	0.0784	4.00	7.53	
806669-002 pH		pH		5/2013 11:12	1.00	0.0784	4.00	7.25	
Duplicate					·		Lab ID =	806669-002	
Parameter pH	Unit pH	DF 1.00	Result 7.25	Expected 7.25	RPD 0		Accepta 0 - 20	ince Range	
Lab Control Sample									
Parameter pH	Unit pH	DF 1.00	Result 7.02	Expected 7.00	Recovery 100		Acceptance Ran 90 - 110		
MRCVS - Primary									
Parameter pH	Unit pH	DF 1.00	Result 7.02	Expected 7.00		Recovery 100	Accepta 90 - 110	ince Range )	

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Printed 3/21/2013

Project Number: 456827.01.DM

Total Dissolved Solids	Total Dissolved Solids by SM 2540 C							
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806669-001 Total Dissolved Solids		mg/L	03/06	5/2013	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	F	RPD	Accepta	ance Range
Total Dissolved Solids	mg/L	1.00	4710	4580		2.80	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Total Dissolved Solids	mg/L	1.00	510	500		102	90 - 110	)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806669-001 Chromium		ug/L	03/15	5/2013 14:12 1	.00	0.0920	1.0	6.6
806669-002 Chromium		ug/L	03/15	5/2013 14:18 1	0.0	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	ı	RPD	Accepta	ance Range
Chromium	ug/L	1.00	ND	0		0	0 - 20	
Low Level Calibration	n Verification	I						
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.246	0.200		123	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	I	Recovery	Acceptance Ran	
Chromium	ug/L	1.00	50.4	50.0		101	85 - 115	5
Matrix Spike							Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Adde	d I	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	47.4	50.0(50.0)		94.8	75 - 125	5
Matrix Spike Duplicat	te i						Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Adde	d I	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	47.7	50.0(50.0)		95.5	75 - 125	5
MRCCS - Secondary	Primarilian periodo en 1949 -							
Parameter	Unit	DF	Result	Expected	ŀ	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	20.7	20.0		104	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	ļ	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	21.6	20.0		108	90 - 110	-
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Chromium	ug/L	1.00	20.8	20.0		104	90 - 110	_
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Chromium	ug/L	1.00	20.4	20.0		102	90 - 110	_



Client: E2 Consulting Eng	gineers, Inc	<b>:</b> .	Project Name: Project Number:	PG&E Topock 456827.01.DN		Page 8 of 8 Printed 3/21/2013
Interference Check St	andard A					
Parameter Chromium Interference Check Sta	Unit ug/L andard A	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check St	Unit ug/L andard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check Sta	Unit ug/L andard AB	DF 1.00	Result 21.0	Expected 20.0	Recovery 105	Acceptance Range 80 - 120
Parameter Chromium Serial Dilution	Unit ug/L	DF 1.00	Result 19.7	Expected 20.0	Recovery 98.6	Acceptance Range 80 - 120 Lab ID = 806670-002
Parameter Chromium	Unit ug/L	DF 50.0	Result 699	Expected 693	RPD 0.816	Acceptance Range 0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

to - Mona Nassimi

Manager, Analytical Services



#### Total Dissolved Solids by SM 2540 C

#### Calculations

Batch: 03TDS13B
Date Analyzed: 3/6/13

Laboratory Number	Sample volume, mi	lnitial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL,	Reported Value, ppm	DF
Blank	100	75.2726	75.2726	75.2726	0.0000	No	0,0000	0.0	25.0	ND	1
806627	50	76.7671	76.801	76.801	0.0000	No	0.0339	678.0	50.0	678.0	1
806669-1	20	47.8554	47.9122	47.9119	0.0003	No	0.0565	2825.0	125.0	2825.0	1
806669-2	_10	49.4982	49.5514	49.5511	0.0003	No	0.0529	5290.0	250.0	5290.0	1
806670-1	10	49.1798	49.221	49.2209	0.0001	No	0.0411	4110.0	250.0	4110.0	- 1
806670-2	_10	50.7475	50.7937	50.7933	0.0004	No	0.0458	4580.0	250.0	4580.0	1
806682-7	_100	74.1501	74.1850	74.1848	0.0002	No	0.0347	347.0	25.0	347.0	1
806695-1	100	66.7983	66.8252	66.8248	0.0004	No	0.0265	265.0	25.0	265.0	1
MDL5	1000	110.7246	110.7279	110.7278	0.0001	No	0.0032	3.2	2.5	3.2	1
MDL6	1000	110.9390	110.9407	110.9407	0.0000	No	0.0017	1.7	2.5	ND_	1
MDL7	1000	109.8982	109.9003	109.9002	0.0001	No	0.0020	2.0	2.5	ND	1
806670-2D	10	48.5475	48.5946	48.5946	0.0000	No	0.0471	4710.0	250.0	4710.0	1
LCS	100	78.3693	78.4205	78.4203	0.0002	No	0.0510	510.0	25.0	510.0	1
					-						
						_					
				1							
						-					

Calculation as follows:

Filterable residue (TDS), mg/L =

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std 1.D.	Measurd Value, ppm	Percent Rec		Acceptance Limit	QC Within Control?
LCS1	510	500	102.0%	90-110%	Yes
LCSD					

**Duplicate Determinations Difference Summary** 

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
806670-2	0.0458	0.0471	1.4%	≤5%	Yes

LCS Recovery

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

P = Percent recovery.

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

**Duplicate Determination Difference** 

% Difference = 
$$\frac{\begin{vmatrix} A & or B - C \end{vmatrix}}{C} \times 100$$

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

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

C = Average weight in (g).

Maksim G.

Jenny T.

Analyst Printed Name

#### Total Dissolved Solids by SM 2540 C

#### TDS/EC CHECK

Batch: 03TDS13B
Date Analyzed: 3/6/13

Laboratory Number	EC	TDS/EC Ratio: 0.559	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				
	* '			







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#### **CHAIN OF CUSTODY RECORD**

[IM3Plant-EW-204]

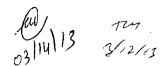
URNAF	ROUND TIME	10 Day	/S		
DATE	03/05/13	PAGE	1	OF	1

· · · · · · · · · · · · · · · · · · ·																				
COMPANY	CH2M HILL /E2								$\overline{}$		-/	7	/				$\overline{}$	$\overline{}$	$\overline{}$	COMMENTS
PROJECT NAME	PG&E Topock I	M3Plant-EV	V																	/ / GOMMENTS
PHONE	530-229-33	303	FAX _53(	0-339-3303_		,	$\langle e_{red} \rangle$	/ ,	/ ,	/	/ ,	/ ,	/ ,	/ /	/	/ ,	/ ,	/ ,	/ ,	/ / /
ADDRESS	155 Grand Ave	Ste 1000					ab fil													
ı	Oakland, CA 94	1612				/ <	ž/	/ 5			/			/			/			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
P.O. NUMBER	456827.01.DM	— . //	)	MANAGEMENT AND A STATE OF THE S	/	Cr (200	pH (15)	EC (120 4)		(6)	/ ,	/ /	/ /	/ /	/	/ /	/ /	/	/ /	MER OF CONTAINERS
SAMPLERS (SIGN	ATURE	us Kn	9				1 (35) 1 / 1 / 1	TDS (4.0) EC (	Cr(VI) (2	(218.6)										
SAMPLE I.D.		DATE	TIME	DESCRIPTION	V Sign	\& }	/ Fa		\\		/		/	/ ,	/	/	/	/		
PE-01-204	1	03/05/13	10:45	Ground water	Х		Х	Х	Х										4	n11=6 } zoo
TW-03D-2	.04	03/05/13	10:45	Ground water	Х	Х	Х	Х											4	n11=6)
								1,181,1		1.	S. S.	46			-800 St.	4 MAS				
	A		7- 11				.3			A PARTY		70								
		LLIN							Jan 1		200	1. 1.	#17							
	Lev	elII							ė.					W X 3 3						
		THE PERSON NAMED OF THE PERSON NAMED IN COLUMN		<u> </u>		L	L	L	4			1	<u> </u>	<u></u>		<u> </u>	<u> </u>		8	

	CHAIN OF CUSTODY SI	GNATURE RECORD		SAMPLE CONDITIONS
	Signature (Relinquished) Chr. Kem Printed Name CHRW LGNR	Company/ - Agency CH 2m Hn U	Date/ 3-5-/3 Time /5:30	RECEIVED COOL $\square$ WARM $\square$ 3.2 °
	Signature (Received) Rafaet   City   Printed   Cafaet   City   CName   Cafaet   Color	Company/ Agency / / / I	Date/ 3 - 5 - / 3 Time / 5 : 3 0	CUSTODY SEALED YES NO 🗖
	Signature (Relinquished) Rake Day, La Name Ray	Company/ Agency T. /	Date/ 3-5-/3 Time	SPECIAL REQUIREMENTS:
d	Signature (Received) Shakuus na Name Lude	Company/ Agency	Date/ 5/5//3 22/3 Time	يا ا
)45	Signature Printed (Relinquished) Name	Company/ Agency	Date/ Tìme	·
	Signature Printed (Received) Name	Company/ Agency	Date/ Time	

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial	рН	Buffer A	dded (mL)	Fina	l pH	Time E	Buffered	Init	ials
315/15	3 806635-9	9.	5_	1	A	10	14	21	1	R.	ns
	-10					<u> </u>		i			-
	-11			·							
	-12								-		
	-13										·····
	-14										
	-15	.e		1		1		1		J.	
3/6/13	803668-1	9,5		NIE	1	NE	1	NIA		Thy	,
	~2										
	-3										
	-4										
	- 3.										
	-6										
	-7										
	-9		_							_	
	-9										
	-10										
	-11									_	
	-12		_							$-\!\!\!\!\!+$	
	-13		-								
	-(4		$\dashv$							_	_
	-15		-			-+					$\dashv$
0/1/12	-16 806669-i	7 2		V	100 44 6	<u> </u>		10:20		7711	$\dashv$
3/6/63			-	-Luch	0066	4/1		10-20		THY	$\dashv$
3/6/13	-2 806 670 -1	7.0	+	2 mil.	Donal	9.5	_	16 : 2 :	ر«	<del>\</del>	$\dashv$
J/0/13	-2	1.	$\dashv$	]	JUPAL L	<u></u> 1		10:20		TM	$\dashv$
3/6/13	806673	9.5	+	N/A		NIA		W/A		tu	$\dashv$
3/6/13	806696-1	7.0	$\top$		100mc		-+	15:4	1		$\exists$
1	1 -2	J		Zml/	. 1	V		<u>,                                    </u>	_	TM	$\dashv$
V	·	<u> </u>		2000	- 43						$\dashv$







Turbidity/pH Check

				dity/pH C				
Sample Number	Turbidity	pН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41	12	2/25/13	DC	Yes			
806520	. 71	42		1	1			
806493(1-5)	71	' 12						
806494(1-5)	71	62	<u> </u>					-
306552	< \	72	2-27-13	Br	×es	11:00		
806553L1-4)	1	42						
80655461-4)								
806358 F134-3	r)							
806542(1-3)		72			<b>√</b> 0	12:00	2/28/13 2 15:35	
80 8545		7				1	J	
806537	41	42	1	n	yes		<u> </u>	
806565	41	72	ı l	+	ges	14:00	2/28/13 10 15:30	
806562(1-14)	41	72	2 28/13	ES	no	9:30	3/1/13 00 16:00	01/2
806567(10-12)	1				1	1	J. (1,2 0,0)	$\frac{r - r}{\nu}$
806570(1-2)	71	ZZ			ye			
806 572 (1-2)	71	42		7.	igis			
806586 (1,2)	41	72	1	0c	yes	15:30		
306617	71 ET IND	.42	3/4/13	or	yes	70.70		-
506632 (1-12)	<1 ×1	I	3-5-13	BL	9			
806833(1-12)								
8066344193-6							•	
806135 (1-508-14)								
806620(1-2,4)	21	72	3/5/13	ŁŚ	NO	12:00		
806627 (16,23)		1		. 1	1	j		
806625		<b>Z</b> 2			Ges			
806626		T			1			<del></del>
906 688 L1-27512	<1	<2	3-6-13	BE	ores			
806669 (1-2)		72	1					Lab filt A cicliful
80667061-27								
808679(1-5)		<b>۲</b> ۷	1					
806643	71	۷2	· i	DC	izes			
806651	41	J.		1	. 1			
806688	71	>2	1		y	12:30		
906667	<1	77		BI-	Vo	14100		
80666361-3	T		J	1	L	15 mn B.	v	
806694610-12				1		15:00		
806682(4-6)								
806650	41	12	3/4/13	or	yes			
806649	1	i		1				
806648								
8016647								
806646								
806652								
806671		.L	1	•	J			

#### Notes:

84

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

# Sample Integrity & Analysis Discrepancy Form

Clie	ent: <u>E 2</u>	Lab # _ <u>&amp;</u>	06669
Dat	e Delivered:№3 / <u>05</u> / 13 Time: <u>&amp;2.'80</u> By: □Mail Ø	Field Service	Client
1.	Was a Chain of Custody received and signed?	<b>⊠</b> Yes □No	□ <i>N/A</i>
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ↓	ÁN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No (	<b>Ž</b> N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No [	ZINIA
<b>5</b> .	Were all requested analyses understood and acceptable?	ØYes □No [	⊐ <i>N/A</i>
<b>6</b> .	Were samples received in a chilled condition? Temperature (if yes)? <u>ろ。ん。C</u>	ØYes □No [	⊃ <i>N/A</i>
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ДYes □No □	] <i>N/A</i>
8.	Were sample custody seals intact?	□Yes □No Œ	ÍN/A
9.	Does the number of samples received agree with COC?	<b>∄</b> Yes □No □	I <i>N/A</i>
10.	Did sample labels correspond with the client ID's?	ØYes □No □	IN/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: □ <b>Truesdail</b> □Client	□Yes □No Æ	HN/A
12.	Were samples pH checked? pH = See C. O. C	<b>⊠</b> Yes □No □	I <i>N/A</i>
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	⊠yes □No □	IN/A
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b> □ Std	ØYes □No □	N/A
<b>5</b> .	Sample Matrix: □Liquid □Drinking Water ☐Ground □Sludge □Soil □Wipe □Paint □Solid 反		
6.	Comments:	·	
7	Sample Check-In completed by Truesdail Log-In/Receiving:	Luda	



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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.

Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

Established 1931



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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		<u> </u>	
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			

EXCELLENCE IN INDEPENDENT TESTING

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Laboratory No.: 805651

Date Received: January 8, 2013

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

Attention: Shawn Duffy

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

### **Analytical Results Summary**

		Analysis	Extraction		Sample				
Lab Sample II	Field ID	Method	Method	Sample Date	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 CaCO3)	123	mg/L	5.00
805651-001	C-BNS-D-189	SM2320B	NONE	1/8/2013	13:28	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	120	mg/L	5.00
805651-002	C-I-3-D-189	SM2320B	NONE	1/8/2013	11:29	Alkalinity, Carbonate (As CaCO3)	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	рH	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.

		Analysis	Extraction		Sample	_			
Lab Sample ID	Field ID	Method	Method	Sample Date	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 CaCO3)	121	mg/L	5.00
805651-003	C-I-3-S-189	SM2320B	NONE	1/8/2013	11:49	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	129	mg/L	5.00
805651-004	C-MAR-D-189	SM2320B	NONE	1/8/2013	9:16	Alkalinity, Carbonate (As CaCO3)	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	pН	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.
		E120.1	NONE	1/8/2013	9:31	EC	916	umhos/cm	2.00
805651-005	C-MAR-S-189		FLDFLT	1/8/2013	9:31 9:31		ND		0.20
805651-005	C-MAR-S-189 C-MAR-S-189	E218.6 E300	NONE	1/8/2013	9.31 9:31	Chromium, Hexavalent Nitrate as N	ND ND	ug/L	0.500
805651-005							120	mg/L	5.00
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity		mg/L	
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity, Bicarbonate (As CaCO3)	120	mg/L	5.00
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	124	mg/L	5.00
805651-008	C-R22A-D-189	SM2320B	NONE	1/8/2013	12:44	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805651-008	C-R22A-D-189	SM2540D	NONE	1/8/2013	12:44	Suspended Solids (Residue, Non-Filterable)	NĐ	mg/L	10.0
805651-008	C-R22A-D-189	SM4500HB	NONE	1/8/2013	12:44	PH	8.30	pН	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

	e: 1.15	Analysis	Extraction	0	Sample	Parameter	Daniel	11!4	D.
Lab Sample ID	Field ID	Method	Method	Sample Date	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	pН	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	pН	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



l ah Samala IF	) Eigld ID	Analysis	Extraction	Cample Date	Sample	Downwater	Daguilé	l lmita	DI.
Lab Sample ID	rieia iD	Method	Method	Sample Date	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 CaCO3)	129	mg/L	5.00
805651-011	C-R27-S-189	SM2320B	NONE	1/8/2013	14:16	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	124	mg/L	5.00
805651-012	C-TAZ-D-189	SM2320B	NONE	1/8/2013	10:25	Alkalinity, Carbonate (As CaCO3)	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	pН	4.00
805651-012	C-TAZ-D-189	SW6010B <sup>-</sup>	FLDFLT	1/8/2013	10:25 <sup>.</sup>	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

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	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	рH	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	pН	4.00
805651-014	R63-189	SW6010B	FLDFLT		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.

**EXCELLENCE IN INDEPENDENT TESTING** 



Established 1931

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Printed 1/24/2013

Laboratory No. 805651

#### REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

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

Release Number:

Samples Received on 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				Result
Parameter	Unit	Analyzed	DF	MDL	RL	
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

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 1.00 805651-014 Nitrate as Nitrogen mg/L 01/09/2013 21:16 0.00830 0.500 ND Method Blank Unit DF Parameter Result Nitrate as Nitrogen mg/L 1.00 ND **Duplicate** Lab ID = 805651-001 DF Parameter Unit Result Expected **RPD** Acceptance Range 1.00 ND 0.287 Nitrate as Nitrogen mg/L 0 - 200 Lab Control Sample Unit DF Expected Parameter Result Recovery Acceptance Range Nitrate as Nitrogen mg/L 1.00 4.00 4.00 99.9 90 - 110 Lab ID = 805651-001 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range 2.41 Nitrate as Nitrogen mg/L 1.00 2.29(2.00)106 85 - 115 MRCCS - Secondary DF Recovery Parameter Unit Result Expected Acceptance Range mg/L 1.00 3.99 4.00 Nitrate as Nitrogen 99.8 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 3.00 mg/L 1.00 3.00 99.8 Nitrate as Nitrogen 90 - 110 MRCVS - Primary DF Parameter Unit Result Expected Recovery Acceptance Range 90 - 110 Nitrate as Nitrogen mg/L 1.00 2.98 3.00 99.5 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range mg/L 1.00 2.98 3.00 99.4 90 - 110 Nitrate as Nitrogen MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 1.00 3.00 3.00 99.9 90 - 110 Nitrate as Nitrogen mg/L



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Alkalinity by SM 2320B		Batch 01ALK13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
305651-001 Alkalinity as CaCO3	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
305651-002 Alkalinity as CaCO3	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
305651-003 Alkalinity as CaCO3	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
05651-004 Alkalinity as CaCO3	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
05651-005 Alkalinity as CaCO3	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
05651-008 Alkalinity as CaCO3	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
05651-009 Alkalinity as CaCO3	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
05651-010 Alkalinity as CaCO3	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
05651-011 Alkalinity as CaCO3	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
05651-012 Alkalinity as CaCO3	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
05651-013 Alkalinity as CaCO3	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
05651-014 Alkalinity as CaCO3	mg/L	01/11/2013	1.00	0.555	5.00	120

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805651-014 Bicarbonate (Calculated)		mg/L	mg/L 01/11/2013			0.555	5.00	120			
Carbonate (Ca	alculated)	mg/L	mg/L 01/11/2013		1.00	0.555	5.00	ND			
Method Blank											
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result ND								
Duplicate							Lab ID =	805651-001			
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result 124	Expected 123		RPD Acceptance 0.810 0 - 20		ince Range			
Lab Control Sample	)										
Parameter Alkalinity as CaCO3 Lab Control Sample	Unit mg/L Duplicate	DF 1.00	Result 96.0	Expected 100		ecovery 96.0	Acceptance Rang 90 - 110				
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result 96.0	Expected 100		ecovery 96.0	Accepta 90 - 110	ince Range			
Matrix Spike							Lab ID =	805651-014			
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result 220	Expected/Adde 220(100)		ecovery 100	Accepta 75 - 125	nce Range			



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<b>Specific Conductivity</b> -	EPA 120.1			Batch	01EC13G				
Parameter		Unit Analyzed		lyzed	DF	MDL	RL	Result	
05651-001 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 Condu	ıctivity	umhos/	/cm	01/14/2013		1.00	0.0380	2.00	863
805651-009 Specific Condu	ıctivity	umhos/	/cm	01/14/2013		1.00	0.0380	2.00	847
805651-010 Specific Condւ	ıctivity	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 ND						
Specific Conductivity	umhos	1.00							
Duplicate								Lab ID =	805651-012
Parameter	Unit	DF	Res	sult	Expected	R	PD.	Acceptance Rang	
Specific Conductivity	umhos	1.00	84	7	856		1.06	0 - 10	_
Duplicate								Lab ID =	805651-01
Parameter	Unit	DF	Res	sult	Expected	. R	PD	Accepta	nce Range
Specific Conductivity	umhos	1.00	86	2	864	•	0.232	0 - 10	
Lab Control Sample									
Parameter	Unit	DF	Res	sult	Expected	R	ecovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	66	3	706		93.9	90 - 110	)
Lab Control Sample	Duplicate	e establisheda (aleksishesi 1886)	in stori - La - Machinel		San San San San San San San San San San		September a makanang pelakatanah	Nederlander († 1947) Nederlander († 1946)	ender gelegte de konstruktion op de
Parameter	Unit	DF	Res	sult	Expected	R	ecovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	66	0	706		93.5	90 - 110	1
MRCCS - Secondary	1								
		DF	Res	sult	Expected	R	ecovery	Accepta	nce Range
Parameter	Unit						•	•	_
Parameter Specific Conductivity	Unit umhos	1.00	66	1	706		93.6	90 - 110	•
			66	1 Visibili	706		93.6	90 - 110	
Specific Conductivity			66 Res		706 Expected	R	93.6 ecovery		nce Range

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Metals by EPA 6010B, T	otal		Batch	012113B-Th2			
Parameter		Unit	Ana	lyzed D	F MDL	RL	Result
805651-001 Iron		ug/L	01/21	/2013 17:34 1.0	9.50	20.0	26.3
805651-002 Iron		ug/L	01/21	/2013 17:40 1.0	00 9.50	20.0	22.2
805651-003 Iron		ug/L	01/21	/2013 18:13 1.0	00 9.50	20.0	21.1
805651-004 Iron		ug/L	01/21	/2013 18:19 1.0	9.50	20.0	940
805651-005 Iron		ug/L	01/21	/2013 18:25 1.0	9.50	20.0	490
805651-008 Iron		ug/L	01/21	/2013 18:32 1.0	9.50	20.0	22.4
805651-009 Iron		ug/L	01/21	/2013 18:38 1.0	9.50	20.0	ND
805651-010 Iron		ug/L	01/21	/2013 18:44 1.0	9.50	20.0	ND
805651-011 Iron		ug/L	01/21	/2013 18:50 1.0	9.50	20.0	ND
805651-012 Iron		ug/L	01/21	/2013 18:56 1.0	9.50	20.0	23.3
805651-013 Iron		ug/L	01/21	/2013 19:03 1.0	9.50	20.0	24.2
805651-014 Iron		ug/L	01/21	/2013 19:09 1.0	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	Accepta	ance Range
Iron	ug/L	1.00	21.9	22.2	1.36	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Iron	ug/L	1.00	2140	2000	107	85 - 118	5
Matrix Spike						Lab ID =	805651-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	ance Range
Iron	ug/L	1.00	2050	2020(2000)	101	75 - 128	5
MRCCS - Secondary						til for store en en en en en en en en en en en en en	
Parameter	Unit	DF	Result	Expected	Recovery	•	ance Range
Iron	ug/L	1.00	5010	5000	100	90 - 110	)
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery		ance Range
Iron	ug/L	1.00	5150	5000	103	90 - 110	)
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	•	ance Range
Iron	ug/L	1.00	5130	5000	103	90 - 110	1

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Parameter         Unit         Analyzed           805651-001 Chromium, Hexavalent         ug/L         01/09/2013 19:31           805651-002 Chromium, Hexavalent         ug/L         01/09/2013 19:42           805651-003 Chromium, Hexavalent         ug/L         01/09/2013 20:02           805651-004 Chromium, Hexavalent         ug/L         01/09/2013 20:02           805651-005 Chromium, Hexavalent         ug/L         01/09/2013 20:44           805651-006 Chromium, Hexavalent         ug/L         01/09/2013 20:54           805651-007 Chromium, Hexavalent         ug/L         01/09/2013 21:05           805651-008 Chromium, Hexavalent         ug/L         01/09/2013 21:15           805651-009 Chromium, Hexavalent         ug/L         01/09/2013 21:26           805651-010 Chromium, Hexavalent         ug/L         01/09/2013 21:36           805651-011 Chromium, Hexavalent         ug/L         01/09/2013 21:47           805651-012 Chromium, Hexavalent         ug/L         01/09/2013 22:07           805651-014 Chromium, Hexavalent         ug/L         01/09/2013 22:07           805651-015 Chromium, Hexavalent         ug/L         01/09/2013 22:18           805651-015 Chromium, Hexavalent         ug/L         01/09/2013 22:49           Method Blank           Paramete	1.00 1.00 1.00 1.00 1.00 1.00 1.00	MDL 0.00920 0.00920 0.00920 0.00920 0.00920 0.00920	RL 0.20 0.20 0.20 0.20 0.20	Result  ND  ND  ND  ND  ND
805651-002 Chromium, Hexavalent ug/L 01/09/2013 19:42 805651-003 Chromium, Hexavalent ug/L 01/09/2013 19:52 805651-004 Chromium, Hexavalent ug/L 01/09/2013 20:02 805651-005 Chromium, Hexavalent ug/L 01/09/2013 20:44 805651-006 Chromium, Hexavalent ug/L 01/09/2013 20:54 805651-007 Chromium, Hexavalent ug/L 01/09/2013 21:05 805651-008 Chromium, Hexavalent ug/L 01/09/2013 21:15 805651-009 Chromium, Hexavalent ug/L 01/09/2013 21:26 805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L ND	1.00 1.00 1.00 1.00 1.00	0.00920 0.00920 0.00920 0.00920 0.00920	0.20 0.20 0.20	ND ND
805651-003 Chromium, Hexavalent ug/L 01/09/2013 19:52 805651-004 Chromium, Hexavalent ug/L 01/09/2013 20:02 805651-005 Chromium, Hexavalent ug/L 01/09/2013 20:44 805651-006 Chromium, Hexavalent ug/L 01/09/2013 20:54 805651-007 Chromium, Hexavalent ug/L 01/09/2013 21:05 805651-008 Chromium, Hexavalent ug/L 01/09/2013 21:15 805651-009 Chromium, Hexavalent ug/L 01/09/2013 21:26 805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 01/09/2013 22:49  Duplicate	1.00 1.00 1.00 1.00 1.00	0.00920 0.00920 0.00920 0.00920	0.20 0.20	ND
805651-004 Chromium, Hexavalent ug/L 01/09/2013 20:02 805651-005 Chromium, Hexavalent ug/L 01/09/2013 20:44 805651-006 Chromium, Hexavalent ug/L 01/09/2013 20:54 805651-007 Chromium, Hexavalent ug/L 01/09/2013 21:05 805651-008 Chromium, Hexavalent ug/L 01/09/2013 21:15 805651-009 Chromium, Hexavalent ug/L 01/09/2013 21:26 805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L ND  Duplicate	1.00 1.00 1.00 1.00	0.00920 0.00920 0.00920	0.20	
805651-005 Chromium, Hexavalent ug/L 01/09/2013 20:44 805651-006 Chromium, Hexavalent ug/L 01/09/2013 20:54 805651-007 Chromium, Hexavalent ug/L 01/09/2013 21:05 805651-008 Chromium, Hexavalent ug/L 01/09/2013 21:15 805651-009 Chromium, Hexavalent ug/L 01/09/2013 21:26 805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00 1.00 1.00	0.00920 0.00920		ND
805651-006 Chromium, Hexavalent ug/L 01/09/2013 20:54 805651-007 Chromium, Hexavalent ug/L 01/09/2013 21:05 805651-008 Chromium, Hexavalent ug/L 01/09/2013 21:15 805651-009 Chromium, Hexavalent ug/L 01/09/2013 21:26 805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	
805651-007 Chromium, Hexavalent ug/L 01/09/2013 21:05 805651-008 Chromium, Hexavalent ug/L 01/09/2013 21:15 805651-009 Chromium, Hexavalent ug/L 01/09/2013 21:26 805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00			ND
805651-008 Chromium, Hexavalent ug/L 01/09/2013 21:15 805651-009 Chromium, Hexavalent ug/L 01/09/2013 21:26 805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	•		0.20	ND
805651-009 Chromium, Hexavalent ug/L 01/09/2013 21:26 805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	ND
805651-010 Chromium, Hexavalent ug/L 01/09/2013 21:36 805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate		0.00920	0.20	ND
805651-011 Chromium, Hexavalent ug/L 01/09/2013 21:47 805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	ND
805651-012 Chromium, Hexavalent ug/L 01/09/2013 21:57 805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	ND
805651-013 Chromium, Hexavalent ug/L 01/09/2013 22:07 805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	ND
805651-014 Chromium, Hexavalent ug/L 01/09/2013 22:18 805651-015 Chromium, Hexavalent ug/L 01/09/2013 22:49  Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	ND
Method Blank  Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	ND
Method Blank  Parameter Unit DF Result  Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	ND
Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND  Duplicate	1.00	0.00920	0.20	ND
Chromium, Hexavalent ug/L 1.00 ND  Duplicate				
Duplicate				
Parameter Unit DF Result Expected			Lab ID =	805581-005
•	F	RPD	Accepta	ınce Range
Chromium, Hexavalent ug/L 1.00 0.0658 0.0611		7.41	0 - 20	
Low Level Calibration Verification				
Parameter Unit DF Result Expected	F	Recovery	Accepta	nce Range
Chromium, Hexavalent ug/L 1.00 0.200 0.200		100	70 - 130	J
Lab Control Sample				
Parameter Unit DF Result Expected	F	Recovery	Accepta	nce 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/A		Recovery	•	nce 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/A		Recovery	•	nce Range
Chromium, Hexavalent ug/L 1.00 1.01 1.06(1.00)		95.0	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 processed authorization from Truesdail Laboratories.



Client: E2 Consulting En	gineers, Inc		roject Name: roject Numbel	PG&E Topock Pror: 423575.MP.02.RM	=	Page 10 of 23 Printed 1/24/2013
Matrix Spike						Lab ID = 805650-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.81	Expected/Added 5.06(5.00)	Recovery 94.9	Acceptance Range 90 - 110 Lab ID = 805651-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.992	Expected/Added 1.02(1.00)	Recovery 96.6	Acceptance Range 90 - 110 Lab ID = 805651-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.942	Expected/Added 1.03(1.00)	Recovery 91.4	Acceptance Range 90 - 110 Lab ID = 805651-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.03(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 805651-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.958	Expected/Added 1.02(1.00)	Recovery 93.8	Acceptance Range 90 - 110 Lab ID = 805651-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.09	Expected/Added 1.02(1.00)	Recovery 107	Acceptance Range 90 - 110 Lab ID = 805651-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.04(1.00)	Recovery 96.9	Acceptance Range 90 - 110 Lab ID = 805651-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.04(1.00)	Recovery 96.3	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 97.8	Lab ID = 805651-008  Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.983	Expected/Added 1.02(1.00)	Recovery 96.4	Lab ID = 805651-009 Acceptance Range 90 - 110
Matrix Spike Parameter	Unit	DF 1.00	Result	Expected/Added	Recovery 96.8	Lab ID = 805651-010  Acceptance Range 90 - 110
Chromium, Hexavalent  Matrix Spike	ug/L	1.00	0.989	1.02(1.00)	<b>90.0</b>	Lab ID = 805651-011
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 97.8	Acceptance Range 90 - 110

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Client: E2 Consulting En	gineers, In	c.	Project Name: Project Number	PG&E Topock Pro: 423575.MP.02.RM	-	Page 11 of 23 Printed 1/24/2013
Matrix Spike						Lab ID = 805651-012
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.11	Expected/Added 1.03(1.00)	Recovery 108	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805651-013
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.998	Expected/Added 1.02(1.00)	Recovery 97.4	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805651-014
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 97.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805651-015
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.04(1.00)	Recovery 99.5	Acceptance Range 90 - 110
MRCCS - Secondary						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 4.69	Expected 5.00	Recovery 93.9	Acceptance Range 90 - 110
MRCVS - Primary						
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.92	Expected 10.0	Recovery 99.2	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.97	Expected 10.0	Recovery 99.7	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
MRCVS - Primary					_	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.0	Expected 10.0	Recovery 100	Acceptance Range 95 - 105
MRCVS - Primary						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.0	Expected 10.0	Recovery 100.	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Chromium Manganese         ug/L Ug/L Ug/L Ug/L Ug/L Ug/L Ug/L Ug/L U	Metals by EPA 6020A, Dissolved		Batch 011713B	Bridge Co.				
Chromium Manganese         ug/L Manganese         01/17/2013 22:59         1.00         0.0920         1.0         ND ND ND ND ND ND ND ND ND ND ND ND ND N	Parameter	Unit	Analyzed	DF	MDL	RL	Result	
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 0.0920 1.0 ND Manganese 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 23:34 1.00 0.0860 0.50 1.3 805651-003 Arsenic ug/L 01/17/2013 23:40 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:40 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:40 1.00 0.0920 1.0 ND Manganese 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 0.68 805651-004 Arsenic ug/L 01/17/2013 23:46 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:46 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:46 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese u	805651-001 Arsenic	ug/L	01/17/2013 22:59	1.00	0.100	0.50	2.5	
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 23:34 1.00 0.0860 0.50 1.3 805651-003 Arsenic ug/L 01/17/2013 23:40 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:40 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:46 1.00 0.0860 0.50 0.68 805651-004 Arsenic ug/L 01/17/2013 23:46 1.00 0.0860 0.50 0.68 805651-004 Arsenic ug/L 01/17/2013 23:46 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:46 1.00 0.0920 1.0 ND Manganese 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 23:45 1.00 0.0860 0.50 23.2 805651-005 Arsenic ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:52 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:01 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:	Chromium	ug/L	01/17/2013 22:59	1.00	0.0920	1.0	ND	
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 Chromium         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           805651-004 Arsenic         ug/L         01/17/2013 23:46         1.00         0.0860         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         2.4           Chromium         ug/L         01/17/2013 23:46         1.00         0.0920         1.0         ND           Manganese         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         2.4           Chromium         ug/L         01/17/2013 23:58         1.00	Manganese	ug/L	01/17/2013 22:59	1.00	0.0860	0.50	0.71	
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         0.0920         1.0         ND           Manganese         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 23:55         1.00         0.0920         1.0         ND           805651-008 Arsenic         ug/L         01/17/2013 23:58         1.00         0.0920         1.0         ND           Manganese         ug/L         01/17/2013 23:58         1.00 </td <td>805651-002 Arsenic</td> <td>ug/L</td> <td>01/17/2013 23:34</td> <td>1.00</td> <td>0.100</td> <td>0.50</td> <td>2.6</td>	805651-002 Arsenic	ug/L	01/17/2013 23:34	1.00	0.100	0.50	2.6	
805651-003 Arsenic         ug/L         01/17/2013 23:40         1.00         0.100         0.50         2.4           Chromium Anganese         ug/L         01/17/2013 23:40         1.00         0.0920         1.0         ND           805651-004 Arsenic         ug/L         01/17/2013 23:46         1.00         0.0860         0.50         0.68           805651-004 Arsenic         ug/L         01/17/2013 23:46         1.00         0.0920         1.0         ND           Manganese         ug/L         01/17/2013 23:46         1.00         0.0920         1.0         ND           805651-005 Arsenic         ug/L         01/17/2013 23:45         1.00         0.0920         1.0         ND           Amaganese         ug/L         01/17/2013 23:52         1.00         0.0920         1.0         ND           805651-005 Arsenic         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         0.0920         1.0         ND           Manganese         ug/L         01/17/2013 23:5	Chromium	ug/L	01/17/2013 23:34	1.00	0.0920	1.0	ND	
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         0.0920         1.0         ND           B05651-005 Arsenic         ug/L         01/17/2013 23:52         1.00         0.0860         0.50         2.4           Chromium         ug/L         01/17/2013 23:52         1.00         0.0920         1.0         ND           805651-008 Arsenic         ug/L         01/17/2013 23:52         1.00         0.0860         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         0.0960         0.50         2.4           Chromium         ug/L         01/18/2013 00:04         1.00	Manganese	ug/L	01/17/2013 23:34	1.00	0.0860	0.50	1.3	
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 23:58         1.00         0.0920         1.0         ND           805651-008 Arsenic         ug/L         01/17/2013 23:58         1.00         0.0860         0.50         2.4           Chromium         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         0.0860         0.50         0.96           805651-010 Arsenic         ug/L         01/18/2013 00:04	805651-003 Arsenic	ug/L	01/17/2013 23:40	1.00	0.100	0.50	2.4	
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         805651-008 Arsenic       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       0.0920       1.0       ND         Manganese       ug/L       01/17/2013 23:58       1.00       0.0920       1.0       ND         805651-009 Arsenic       ug/L       01/18/2013 20:58       1.00       0.0920       1.0       ND         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<	Chromium	ug/L	01/17/2013 23:40	1.00	0.0920	1.0	ND	
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 0.0920 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 23:55 1.00 0.0860 0.50 19.7 MD Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0960 0.50 0.96 805651-009 Arsenic ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0860 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND	Manganese	ug/L	01/17/2013 23:40	1.00	0.0860	0.50	0.68	
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         0.0920         1.0         ND           805651-009 Arsenic         ug/L         01/18/2013 00:04         1.00         0.0860         0.50         0.96           805651-010 Arsenic         ug/L         01/18/2013 00:04         1.00         0.0920         1.0         ND           805651-010 Arsenic         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 <td>805651-004 Arsenic</td> <td>ug/L</td> <td>01/17/2013 23:46</td> <td>1.00</td> <td>0.100</td> <td>0.50</td> <td>2.4</td>	805651-004 Arsenic	ug/L	01/17/2013 23:46	1.00	0.100	0.50	2.4	
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 0.0860 0.50 19.7 805651-008 Arsenic ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0860 0.50 0.96 805651-009 Arsenic ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese 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 0.0860 0.50 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0860 0.50 0.81 805651-012 Arsenic ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND 0.0920 1.0 ND 0.0920 1.0 ND 0.0920 1.0 ND 0.0920 1.0 ND 0.0920 1.0 ND 0.0920 1.0 ND 0.0920 1.0 ND 0.0920 1.0 ND 0.	Chromium	ug/L	01/17/2013 23:46	1.00	0.0920	1.0	ND	
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 0.0920 1.0 ND Manganese ug/L 01/17/2013 23:58 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0860 0.50 0.96 805651-009 Arsenic ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0860 0.50 0.81 805651-012 Arsenic ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese	Manganese	ug/L	01/17/2013 23:46	1.00	0.0860	0.50	23.2	
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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0860 0.50 1.0  805651-010 Arsenic ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 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 0.0860 0.50 1.0  Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0860 0.50 0.81  805651-012 Arsenic ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND	805651-005 Arsenic	ug/L	01/17/2013 23:52	1.00	0.100	0.50	2.4	
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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:04 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0860 0.50 1.0 S05651-010 Arsenic ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0860 0.50 1.0 S05651-011 Arsenic ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0860 0.50 0.84 S05651-013 Arsenic ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese	Chromium	ug/L	01/17/2013 23:52	1.00	0.0920	1.0	ND	
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 0.0920 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:10 1.00 0.0920 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:16 1.00 0.0920 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND	Manganese	ug/L	01/17/2013 23:52	1.00	0.0860	0.50	19.7	
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 00:22         1.00         0.0860         0.50         0.81           805651-012 Arsenic         ug/L         01/18/2013 00:22         1.00	805651-008 Arsenic	ug/L	01/17/2013 23:58	1.00	0.100	0.50	2.4	
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 0.0920 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 0.0920 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:22 1.00 0.0920 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND	Chromium	ug/L	01/17/2013 23:58	1.00	0.0920	1.0	ND	
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 0.0920 1.0 ND Manganese 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 0.0920 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND	Manganese	ug/L	01/17/2013 23:58	1.00	0.0860	0.50	0.96	
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         0.0920         1.0         ND           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           805651-013 Arsenic         ug/L         01/18/2013 00:28         1.00         0.0920         1.0         ND           Chromium         ug/L         01/18/2013 00:28         1.00	805651-009 Arsenic	ug/L	01/18/2013 00:04	1.00	0.100	0.50	2.4	
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 0.0920 1.0 ND Manganese 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND	Chromium	ug/L	01/18/2013 00:04	1.00	0.0920	1.0	ND	
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 0.100 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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese 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	Manganese	ug/L	01/18/2013 00:04	1.00	0.0860	0.50	1.0	
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       0.0920       1.0       ND         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	805651-010 Arsenic	ug/L	01/18/2013 00:10	1.00	0.100	0.50	2.5	
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 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0920 1.0 ND Manganese ug/L 01/18/2013 00:28 1.00 0.0860 0.50 1.0	Chromium	ug/L	01/18/2013 00:10	1.00	0.0920	1.0	ND	
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 0.0920 1.0 ND Manganese 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	Manganese	ug/L	01/18/2013 00:10	1.00	0.0860	0.50	1.0	
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	805651-011 Arsenic	ug/L	01/18/2013 00:16	1.00	0.100	0.50	2.4	
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	Chromium	ug/L	01/18/2013 00:16	1.00	0.0920	1.0	ND	
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	Manganese	ug/L	01/18/2013 00:16	1.00	0.0860	0.50	0.81	
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	805651-012 Arsenic	ug/L	01/18/2013 00:22	1.00	0.100	0.50	2.4	
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	Chromium	ug/L	01/18/2013 00:22	1.00	0.0920	1.0	ND	
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	Manganese	ug/L	01/18/2013 00:22	1.00	0.0860	0.50	0.84	
Manganese ug/L 01/18/2013 00:28 1.00 0.0860 0.50 1.0	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	
805651-014 Arsenic ug/L 01/18/2013 00:45 1.00 0.100 0.50 2.6	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	

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 E	ngineers, In		roject Name: roject Numbe	oject M	Page 13 of 23 Printed 1/24/2013		
805651-014 Chromium		ug/L	01/18	3/2013 00:45 1.0	0.0920	1.0	ND
Manganese		ug/L	01/18	3/2013 00:45 1.0	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	Accepta	nce 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	los (filoso)					
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce 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	Accepta	nce 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	Accepta	nce 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	i
Manganese	ug/L	1.00	50.8	50.7(50.0)	100	75 - 125	i
Matrix Spike Duplicat	e					Lab ID =	805651-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce 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	ı
Manganese	ug/L	1.00	45.5	50.7(50.0)	89.6	75 - 125	



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Metals by EPA 6020A, D	Dissolved		Batcl	1 011813B				
Parameter		Unit	Ana	alyzed	DF	MDL	RL	Result
805651-001 Molybdenum		ug/L	01/18	3/2013 14:16	2.00	0.414	2.0	4.4
Selenium		ug/L	01/18	3/2013 14:16	2.00	0.160	5.0	ND
805651-002 Molybdenum		ug/L	01/18	3/2013 14:46	2.00	0.414	2.0	4.6
Selenium		ug/L	01/18	3/2013 14:46	2.00	0.160	5.0	ND
805651-003 Molybdenum		ug/L	01/18	3/2013 14:52	2.00	0.414	2.0	4.6
Selenium		ug/L	01/18	3/2013 14:52	2.00	0.160	5.0	ND
805651-004 Molybdenum		ug/L	01/18	3/2013 14:58	2.00	0.414	2.0	4.9
Selenium		ug/L	01/18	3/2013 14:58	2.00	0.160	5.0	ND
805651-005 Molybdenum		ug/L	01/18	3/2013 15:03	2.00	0.414	2.0	4.4
Selenium		ug/L	01/18	3/2013 15:03	2.00	0.160	5.0	ND
805651-008 Molybdenum		ug/L	01/18	3/2013 15:09	2.00	0.414	2.0	4.2
Selenium		ug/L	01/18	3/2013 15:09	2.00	0.160	5.0	ND
805651-009 Molybdenum		ug/L	01/18	3/2013 15:15	2.00	0.414	2.0	4.1
Selenium		ug/L	01/18	3/2013 15:15	2.00	0.160	5.0	ND
805651-010 Molybdenum		ug/L	01/18	3/2013 15:21	2.00	0.414	2.0	4.2
Selenium		ug/L	01/18	3/2013 15:21	2.00	0.160	5.0	ND
805651-011 Molybdenum		ug/L	01/18	3/2013 15:27	2.00	0.414	2.0	4.1
Selenium		ug/L	01/18	3/2013 15:27	2.00	0.160	5.0	ND
805651-012 Molybdenum		ug/L	01/18	3/2013 15:33	2.00	0.414	2.0	4.0
Selenium		ug/L	01/18	3/2013 15:33	2.00	0.160	5.0	ND
805651-013 Molybdenum		ug/L	01/18	3/2013 15:39	2.00	0.414	2.0	4.2
Selenium		ug/L	01/18	3/2013 15:39	2.00	0.160	5.0	ND
805651-014 Molybdenum		ug/L	01/18	3/2013 15:57	2.00	0.414	2.0	4.4
Selenium		ug/L	01/18	3/2013 15:57	2.00	0.160	5.0	ND
Method Blank	and the second s	ta salah dari dari dari dari dari dari dari dari		14 (15 m) (17 m)				
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	F	Recovery	Accepta	nce Range
Selenium	ug/L	1.00	0.824	1.00		82.4	70 - 130	)



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Low Level Calibrat	ion Verification	) 1998/has 1942)				
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.469	0.500	93.8	70 - 130
Lab Control Samp	le					
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 Duplic	ca <b>te</b>					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 - Seconda	агу					
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	
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



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Metals by EPA 6010B, Di	ssolved		Batch	012113A-Th2				
Parameter		Unit	Ana	lyzed ·	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	R	PD	•	nce Range
Iron	ug/L	1.00	ND	0		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	R	Recovery	•	nce Range
Iron	ug/L	1.00	2150	2000		107	85 - 115	
Matrix Spike							Lab ID =	805651-003
Parameter	Unit	DF	Result	Expected/Adde	d R	decovery	•	nce Range
Iron	ug/L	1.00	2070	2000(2000)		104	75 - 125	
MRCCS - Secondary			an andara ya kafa a sakani wa 1,500 da a 1,500 da		Selection (Constitution) References			of the makes the property of the species of
Parameter	Unit	DF	Result	Expected	R	ecovery	•	nce Range
Iron	ug/L	1.00	5110	5000 .		102	90 - 110	
MRCVS - Primary								_
Parameter	Unit	DF 1.00	Result 5260	Expected 5000	R	ecovery 105	Accepta 90 - 110	nce Range
Iron	ug/L	1.00	3200			100 V.,	90-110	
MRCVS - Primary			Service Control of th			Alker b		
Parameter Iron	Unit ug/L	DF 1.00	Result 5100	Expected 5000	К	ecovery 102	90 - 110	nce Range
HOH	ug/L	1.00	3100	5500		102	30 - 110	

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575 MP 02 RM

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•	Project Number: 423575.MP.02.RM		Printed 1/24/2013					
Interference Check	Standard A							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accept	ance Range
Iron	ug/L	1.00	2270	2000		114	80 - 12	0
Interference Check	Standard A							
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ance Range
Iron	ug/L	1.00	2160	2000		108	80 - 12	0
Interference Check	Standard AB							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Iron	ug/L	1.00	2280	2000		114	80 - 12	0
Interference Check	Standard AB							
Parameter	Unit	DF	Result	Expected	· F	Recovery	•	ance Range
Iron	ug/L	1.00	2170	2000		109	80 - 12	0
pH by SM 4500-H B			Batch	01PH13G				
Parameter		Unit	Ana	lyzed	DF	MDL	RL_	Result
805651-001 pH		pН	01/09	/2013 10:40	1.00	0.0784	4.00	8.28
805651-002 pH		рН	01/09	/2013 10:43	1.00	0.0784	4.00	8.31
805651-003 pH		рН	01/09	/2013 10:45	1.00	0.0784	4.00	8.30
805651-004 pH		рН	01/09	/2013 10:48	1.00	0.0784	4.00	8.14
805651-005 pH		рН	01/09	/2013 10:50	1.00	0.0784	4.00	8.16
805651-008 pH		рН	01/09	/2013 10:52	1.00	0.0784	4.00	8.30
805651-009 pH		рН	01/09	/2013 10:55	1.00	0.0784	4.00	8.33
Duplicate							Lab ID =	805651-009
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
pH	pН	1.00	8.34	8.33	•	0.120	0 - 20	J
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
. pH	рН	1.00	7.01	7.00		100	90 - 110	_
Lab Control Sample	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
pΗ	рН	1.00	7.01	7.00		100	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
pН	pН	1.00	7.02	7.00		100	90 - 110	)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

pH by SM 4500-H B			Batch	01PH13H				
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result
805651-010 pH		pН	01/09	9/2013 11:07	1.00	0.0784	4.00	8.27
805651-011 pH		pН	01/09	9/2013 11:10	1.00	0.0784	4.00	8.27
805651-012 pH		рΗ	01/09	9/2013 11:12	1.00	0.0784	4.00	8.34
805651-013 pH		рΗ	01/09	9/2013 11:15	1.00	0.0784	4.00	8.32
805651-014 pH		рН	01/09	)/2013 11:17	1.00	0.0784	4.00	8.33
Duplicate							Lab ID =	805651-014
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ince Range
рН	рН	1.00	8.33	8.33		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
рН	рН	1.00	7.00	7.00		100	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	. F	Recovery	Accepta	nce Range
pН	pН	1.00	7.03	7.00		100	90 - 110	)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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<b>Total Suspended Solids</b>	by SM 25	40 D	Batch	01TSS13E				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
805651-001 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-002 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-003 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-004 Total Suspende	5651-004 Total Suspended Solids m		01/11	/2013	1.00	0.349	10.0	40.8
805651-005 Total Suspende	51-005 Total Suspended Solids mg/		01/11	/2013	1.00	0.349	10.0	14.8
805651-008 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-009 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-010 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-011 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-012 Total Suspende	l Suspended Solids mg		01/11	/2013	1.00	0.349	10.0	ND
805651-013 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0 N	
805651-014 Total Suspende	d 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	F	RPD	Accepta	nce 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	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	98.0	100		98.0	90 - 110	)
Lab Control Sample D	Duplicate							
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	101	100		101	90 - 110	)

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

+₀ - Mona Nassimi

Manager, Analytical Services





### Total Suspended Solids by SM 2540 D

#### Calculations

Batch: 01TSS13E Date Analyzed: 01/11/13

Dish Number	Laboratory Number	Sample volume, ml	lnitial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference , g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL,	Reported Value, ppm
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	0.000.0	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:

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

A = weight of dish + residue in grams.

RL= reporting limit.

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

ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value,	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	98	100	98.0%	90-110%	Yes
LCSD	101	1:00	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

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

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

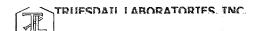
A = Weght of the first sample in (g).

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

C = Average weight in (g).

Maksim G. Reviewer Printed Name





## Alkalinity by SM 2320B



Analytical Batch: 01ALK13C Matrix: WATER Date of Analysis: 1/11/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO <sub>3</sub> (ppm)	CO3 Alkalinity as CaCO <sub>3</sub> (ppm)	OH Alkalinity as CaCO <sub>3</sub> (ppm)	Low Alkalinity as CaCO <sub>3</sub> (<20ppm)
BLANK	6.46	50	0.02	i .	0.0	0.00		0.0	5	ND	ND	ND	ND	
805651-1	8.34	50	0.02	0.0	0.0	6.15		123.0	5	123.0	123.0	0	ND	
805651-1 DUP	8.29	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
805651-2	8.30	50	0.02	0.00	0.0	6.00		120.0	5	120.0	120.0	ND	ND	
805651-3	8.29	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	ND	
805651-4	8.08	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
805651-5	8.12	50	0.02		0.0	6.00		120.0	5	120.0	120.0	ND	ND	
805651-8	8.30	50	0.02	0.0	0.0	6.20		124.0	5	124.0	124.0	ND	ND	
805651-9	8.30	50	0.02	0.0	0.0	5.95		119.0	5	119.0	119.0	ND	ND	
805651-10	8.26	50	0.02		0.0	6,00	İ	120.0	5	120.0	120.0	ND	ND	İ
805651-11	8.26	50	0.02		0.0	6.45	Ī	129.0	5	129.0	129.0	ND	ND	
805651-12	8.33	50	0.02	0.0	0.0	6.20		124.0	5	124.0	124.0	0	ND	
805651-13	8.32	50	0.02	0.0	0.0	5.65		113.0	5	113.0	113.0	0	ND	
805651-14	8.31	50	0.02	0.0	0.0	6.00		120.0	5	120.0	120.0	0	ND	
805651-14 MS	9.48	50	0.02	2.2	44.0	11.00		220.0	5	220.0	132.0	88	ND	
LCS	10.38	50	0.02	2.2	43.0	4.80		96.0	5	96.0	10.0	86	ND	
LCSD	10.47	50	0.02	2.2	44.0	4.80		96.0	5	96.0	8.0	88	ND	
							ļ							
				ļ										
	<u> </u>	1												
		<del> </del>		ļ										

Calculations as follows:

Tor P=

Where:

mL sample

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

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

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

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

<5

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	96	100	96.0%	90-110	Yes
LCSD	96	100	96.0%	90-110	Yes

QC Within

Control?

Yes

**Duplicate Determination Difference Summary** 

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
805651-1	123	124	0.8%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

-ampio maci	x opino (i	10,11102,	Jannina, y									
Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
805651-14	120	1	100	100	220	220.00	100%	75-125	Yes			
000001114		1	100	100				75-125			1 1	

Melissa S. Analyst Printed Name

**Blank Summary** 

Measured

Value, ppm

0

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name



805651

**CH2MHILL** 

**CHAIN OF CUSTODY RECORD** 

1/8/2013 3:45:15 PM

OF 2

Project Name PG	&E Topoc	k (	Container:	3X250 ml Poly	250 Poly	500 mi Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Location Topock Project Manager	Jay Piper		ervatives:	(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			
Sample Manager §	Shawn Dui	•	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA	* Where provided w/multiple		
Project Number 4 Task Order Project 2013-RMI Turnaround Time Shipping Date: 14 COC Number: 1	P-189 10 Days	.02.RN	ing Time:	8 Cr6 (E218.6 - river) Field Filtered	8 Field QC Cr6 (E218.6-river)	Metals (60108) 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)	14 РН (SM4500HB)	14 TSS (SM2540)	* Where provided w/multiple wolfles for Cr6 + diss multiple please analyze /+ hold 2	Number of Containers	COMMENTS
C-BNS-D-189	1/8/2013	13:28	Water	х		Х	Х	Х	Х	Х	Х	х	Х		9	$\overline{)}$
C-I-3-0-189	1/8/2013	11:29	Water	х		х	Х	Х	х	х	х	х	Х		9	
C-1-3-5-189	1/8/2013	11:49	Water	Х		x	Х	Х	х	х	Х	х	х		9	70H=2
C-MAR-D-189	1/8/2013	9:16	Water	X		×	х	X	Х	Х	Х	Х	Х		9	Metal
C-MAR-S-189	1/8/2013	9:31	Water	Х		Х	Х	Х	Х	Х	Х	Х	Х	MIERTI	9	1
C-MW-80-189	1/8/2013	12:05	Water		Х									ALLINA	1	Ĺ
C-MW-81-189	1/8/2013	13:10	Water		Х									Level III QU	ą	
C-R22A-D-189	1/8/2013	12:44	Water	х		х	х	х	Х	Х	х	х	Х	Consequent Constitution of Consequence Con	9	)
C-R22A-S-189	1/8/2013	13:01	Water	х		Х	Х	X	Х	X	х	X	Х		9	
C-R27-D-189	1/8/2013	14:00	Water	х		х	Х	Х	х	×	Х	×	X		9	111-2
C-R27-S-189	1/8/2013	14:16	Water	х		X	X	х	X	X	X	Х	X		9	metals
C-TAZ-D-189	1/8/2013	10:25	Water	X	<u> </u>	X	Х	Х	х	X	Х	Х	Х		9	
St. 1 Sec. 15. 10.02	L	<del> </del>		<del> </del>				Х	х	×	Х	X	X		9	
C-TAZ-S-189	1/8/2013	10:40	Water	X	1	X	X	J. 174.	. A.	2%	27%				47	

Approved by

Sampled by Referquished by

Received by

Signatures

Date/Time /-8-/3

Lab Name: Truesdail Laboratories, Inc.

**Shipping Details** 

Method of Shipment:

On Ice: yes / no

Special Instructions:

ATTN:

Jan 8-10, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303 CH2MHILL

805651 CHAIN OF CUSTODY RECORD

1/8/2013 3:45:16 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			
Location Topock		(NH4)2S	(NH4)2S	HNO3,	HNO3,	HNO3,	4°C	4°C	4°C	4°C	4°C			
Project Manager Jay Piper	eservatives:	H, 4°C	H, 4°C	4°C	4°C	4°C								
Sample Manager Shawn Duffy	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			•
Но	olding Time:	28	28	180	180	180	14	14	14	14	14			
Project Number 423575.MP.02.R	.W				m≩	- Te	Sp							
Task Order		Cr6	Field	₹	Metals Field	Metals	Specific	≥	<b>~</b>					
Project 2013-RMP-189				Metals	Filt.			Anions	llka	무	_		Numb	
Turnaround Time 10 Days		218 F:	) Cr6	\$ (60	(SW60: Filtered	)20/ CF	ònc	ıs (E	linity	IS) i	TSS (	ALEKIII	nbe	
Shipping Date: 1/8/2013		(E218.6 – Filtered	6 (E	(6010B)	> 20 €	(6020AFF) Field Filtered Chromium	Conductance	(E300.0)	Alkalinity (SM2320B)	РН (SM4500НВ)	(SM2540)		yr of	
COC Number: 1		river) ed	(E218.6		/SW	rie Fie	ance		123	9 1	2540	I Level III QQ	$\circ$	
		er) F	1 1 1	Total Fe	,Fe,	Id F	Ē	Nitrate	20B	В)	9	Control of the Contro	ontai	
		Field	river)	l Fe	3/SW6020Adis) s,Mn,Fe,Se,Mo	ilter	(E120.1)	ate					ne	
DATE TIME	Matrix				( No	ье	1)						S	COMMENTS
RMP-AB1-189 1/8/2013 14:25	5 Water		Х										1	
			<del>,                                     </del>									TOTAL NUMBER OF CONTAINERS	411	-

Approved by Sampled by

Received by

Religiuished by

Relinquished by

Signatures

/-8-13 /6:30 Airbill No: /-8-13 22:30 Lab Name: Truesdail Laboratories, Inc.

1/8/13 32 130 Lab Phone: (714) 730-6239

**Shipping Details** 

Method of Shipment:

On Ice: yes / no

Sample Custody

ATTN:

Report Copy to Shawn Duffy (530) 229-3303

Special Instructions:

Jan 8-10, 2013

# 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
1,	↓ -2	1	1	T	10:20 AM	HAV
	805562-1	7	2 ml	9.5	10:25 AM	HAV
	-2	].			10:30 AM	1
1	-3	1		Į,	10:35 AM	
01/04/13	805581-5	9	NIA	NIA	NIA	HAV
01/09/13	805650	7	2 ml	9-5	9:30 AM	HAV
01/09/13	805651-1	9.5	NIA	NIA	NIA	HAY
	-2			· .		
	-3					
	-4					
	-5					
	-6					
	-7				·	
	- %					·
	-9					
	10					
	11					
	-12					
	-13				<u> </u>	
	-14					4
<u> </u>	1, -15	<u> </u>	<u></u>		<u></u>	1
0/10/13	805671-1	9.5	NIA	NA	MIA	RB
	-2					
	-3			1		
	-5					
	-6					
	-7	<u> </u>				
	-8					<del> </del>
<u> </u>		<u> </u>		. * 1	111	

M-16-13





**Turbidity/pH Check** 

			I UI DIC	aity/pH C	HECK				
Sample Number	Turbidity	pН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments	
845543	7\$1BE	<2	1-2-13	136	x 2.5		110/13	pH < 2	
89596	71				1			P-13	
8 05594									
8-3547									
8: 4598									
806599(1-4)						,			
80560001-4									
2:5612									
305614(16923)		7.2.			<u> </u>	8400	1/10/13 PM	122	
<b>乗り5380</b>	41	72	1-8-17	ES	yes	10:30			
805 305 (1-14,21-12)	1 41	22	1-8-13	ES	No No			-5,10 tubidily	7
905619-6	Zi	72			No	1:30	1/10/12 11		
805622 (1-4)	V		1	d ,	4	<b>→</b>			
805838	ζ١	72	1-9-13	BE	No	11 100AM		12	
805649(1-3)			)		٦	4	1/10/17 P	H L2	
805632	41	42	4	PC	Yes				
805630	41	62							
805628	4	22							
805031	1							-	
805627									
805629	<b>/</b>	,	l l		J				•
805633	SOL	10	レ	DC	TTIC				
805662	77	72	1110/13	ES.	ys	9:10 an	1/18/13 15:30	PHCZ	
805 504	LR	L2	1/10/13	以	"yes				
205375(1-7,8-12)	L	12	1						
15-187	9~	~							
805506(1-3)	<b>1</b>	42							
805528(1-5)	1	V							
805 561 (1-2)		72				10:00		Filtered then c	widifu
805 9e2 (1-3		22							٠, ر
\$05 <b>650</b>	J	72	<b>₩</b>		V	10:00			
805560	SLU	DGE	1/14/13	ES	TTLC				
805651(1-5,8-14	) 41	12	)	1	yes			TOTAL/DISSO	WED
805652 (1-5)	21	L2	<b>V</b>	<b>→</b>	1/				
805663(10-12)	<١	.72	1/19/13	BI	NC	10 % AM	1/19/13 15:30	PHCZ	
305669	41	Z2	1/15/13	ES	Yes				
805675		1			(				
805 677		19							
805 679									
805 680									
805681									
805686									
805732	1								
805733			1	1	J		***		

#### Notes:

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



## Sample Integrity & Analysis Discrepancy Form

Clie	nt: <u>E</u> 2	Lab # <u>805651</u>
Date	e Delivered: <u>0 /</u> / <u>08</u> / 13 Time: <u>22 '30</u> By: □Mail Ø	Field Service
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ØN/A
<b>4</b> .	If a letter was sent with the COC, does it match the COC?	□Yes □No ਐN/A
<i>5</i> .	Were all requested analyses understood and acceptable?	≈dYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>3- 3 <b>°C</b></u>	ŹaYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ÆN/A
9.	Does the number of samples received agree with COC?	JÎYes □No □N/A
10.	Did sample labels correspond with the client ID's?	Ž¥es □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by ☑ <b>Truesdail</b> □ Client	ÆYes □No □N/A
12.	Were samples pH checked? pH = Selfc. Q. e	⊿Yes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	QYes □No □N/A
14.	Have Project due dates been checked and accepted?  Turn Around Time (TAT): □ RUSH	PYes □No □N/A
15.	Sample Matrix:	
	□Sludge □Soil □Wipe □Paint □Solid 🎗	Other Waker
16.	Comments:	
17.	Sample Check-In completed by Truesdail Log-In/Receiving:	2. Stralereis

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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.

Mona Nassimi

Manager, Analytical Services

Michael A

Michael Ngo

Quality Assurance/Quality Control Officer

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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			

**EXCELLENCE IN INDEPENDENT TESTING** 

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Laboratory No.: 805671

Date Received: January 9, 2013

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

Attention: Shawn Duffy

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

### **Analytical Results Summary**

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
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 CaCO3)	126	mg/L	5.00
805671-001	C-CON-D-189	SM2320B	NONE	1/9/2013	10:47	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	126	mg/L	5.00
805671-002	C-CON-S-189	SM2320B	NONE	1/9/2013	11:02	Alkalinity, Carbonate (As CaCO3)	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	рH	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		0.20
805671-003	C-MW-83-189	E218.6	FLDFLT	1/9/2013	13:02	Chromium, Hexavalent	ND	ug/L	0.20
805671-004	C-NR1-D-189	E120.1	NONE	1/9/2013	11:29	EC	861	ug/L umhos/cm	2.00
805671-005	C-NR1-D-189	E218.6	FLDFLT	1/9/2013	11:29	Chromium, Hexavalent	ND	umnos/cm ug/L	0.20
805671-005	C-NR1-D-189	E300	NONE	1/9/2013	11:29	Nitrate as N	ND	~	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 SM2320B	NONE	1/9/2013	11:29	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L 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	рН	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	рH	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 CaCO3)	127	mg/L	5.00
805671-007	C-NR3-D-189	SM2320B	NONE	1/9/2013	12:18	Alkalinity, Carbonate (As CaCO3)	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 CaCO3)	128	mg/L	5.00
805671-008	C-NR3-S-189	SM2320B	NONE	1/9/2013	12:35	Alkalinity, Carbonate (As CaCO3)	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	pН	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	FLDFL <b>T</b>	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 Camarla ID	Etald ID	Analysis	Extraction	Camarla Data	Sample	Devenueten	Desuit	Units	DI
Lab Sample ID	Field ID	Method	Method	Sample Date	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	pН	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	pН	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
	<u> </u>								
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 CaCO3)	125	mg/L	5.00
805671-011	R-19-189	SM2320B	NONE	1/9/2013	9:34	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	130	mg/L	5.00
805671-012	R-28-189	SM2320B	NONE	1/9/2013	9:13	Alkalinity, Carbonate (As CaCO3)	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	pН	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

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	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 CaCO3)	131	mg/L	5.00
805671-014	RRB-189	SM2320B	NONE	1/9/2013	10:02	Alkalinity, Carbonate (As CaCO3)	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	pН	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	pН	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.

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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:

Samples Received on 1/9/2013 10:30:00 PM

Laboratory No. 805671

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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
305671-011 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 printing authorization from Truesdail Laboratories.



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305671-014 Nitrate as Nitro	ogen	mg/L	01/10	/2013 17:30 1.0	0.00830	0.500 ND
Method Blank						
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result ND			
Duplicate						Lab ID = 805671-00
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result ND	Expected 0.292	RPD 0	Acceptance Range 0 - 20
Lab Control Sample						
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result 3.97	Expected 4.00	Recovery 99.3	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-00
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result 2.41	Expected/Added 2.29(2.00)	Recovery 106	Acceptance Range 85 - 115
MRCCS - Secondar	у					
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result 3.97	Expected 4.00	Recovery 99.3	Acceptance Range 90 - 110
MRCVS - Primary						
Parameter Nitrate as Nitrogen MRCVS - Primary	Unit mg/L	DF 1.00	Result 2.99	Expected 3.00	Recovery 99.7	Acceptance Range 90 - 110
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.5	90 - 110



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Alkalinity by SM 2320B		Batch 01ALK13D				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Alkalinity as CaCO3	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 CaCO3	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
305671-005 Alkalinity as CaCO3	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
305671-006 Alkalinity as CaCO3	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
305671-007 Alkalinity as CaCO3	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
305671-008 Alkalinity as CaCO3	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
305671-009 Alkalinity as CaCO3	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
305671-010 Alkalinity as CaCO3	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
305671-011 Alkalinity as CaCO3	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
305671-012 Alkalinity as CaCO3	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
305671-014 Alkalinity as CaCO3	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



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Method Blank						
Parameter	Unit	DF	Result			
Alkalinity as CaCO3	mg/L	1.00	ND			Lab ID = 805671-012
Duplicate						Lab ID = 9030/ I-012
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	129	130	0.772	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	99.0	100	99.0	90 - 110
Lab Control Sample D	Ouplicate					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	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 CaCO3	mg/L	1.00	227	231(100)	96.0	75 - 125



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Specific Conductivity - EPA 120.1				Batch 01EC13H						
Parameter		Unit	An	Analyzed		MDL	RL	Result		
805671-001 Specific Conductivity		umhos/	cm 01/1	01/14/2013		0.116	2.00	858		
805671-002 Specific Conductivity		umhos/	cm 01/1	01/14/2013		0.116	2.00	858		
805671-005 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	861		
805671-006 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	842		
805671-007 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	852		
805671-008 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	849		
805671-009 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	860		
805671-010 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	848		
805671-011 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	862		
805671-012 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	869		
805671-014 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	906		
805671-015 Specific Conductivity		umhos/	cm 01/1	01/14/2013		0.116	2.00	1060		
805671-016 Specific Conductivity		umhos/cm 0		4/2013	1.00	0.116	2.00	941		
Parameter Specific Conductivity  Duplicate	umhos	1.00	ND				Lab ID =	805671-00		
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 834	Expected 861	F	RPD 3.18	Accepta 0 - 10	ınce Range		
Duplicate							Lab ID =	805671-016		
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 943	Expected 941	RPD 0.212		Acceptance Rang 0 - 10			
Lab Control Sample										
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 682	•		Recovery 96.6	Acceptance Range 90 - 110			
Lab Control Sample [	Duplicate									
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 691	Expected 706	F	Recovery 97.9	Accepta 90 - 110	nce Range		
MRCCS - Secondary										
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 714	Expected 706	F	Recovery 101	Accepta 90 - 110	nce Range		



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Metals by EPA 6010B, T	Batch 011713A							
Parameter		Unit	Analyzed		DF	MDL	RL	Result
805671-001 Iron		ug/L	01/17	7/2013 14:10 1	.00	9.50	20.0	21.4
805671-002 Iron		ug/L	01/17	7/2013 14:53 1	.00	9.50	20.0	22.3
805671-005 Iron		ug/L	01/17	7/2013 14:59 1	.00	9.50	20.0	22.5
805671-006 Iron		ug/L	01/17	7/2013 15:05 1	.00	9.50	20.0	22.2
805671-007 Iron		ug/L	01/17	7/2013 15:11 1	.00	9.50	20.0	21.8
805671-008 Iron		ug/L	01/17	7/2013 15:16 1	.00	9.50	20.0	20.8
805671-009 Iron		ug/L	01/17	7/2013 15:22 1	.00	9.50	20.0	20.1
805671-010 Iron		ug/L	01/17	7/2013 15:28 1	.00	9.50	20.0	ND
805671-011 Iron		ug/L	01/17	7/2013 15:34 1	.00	9.50	20.0	ND
805671-012 Iron		ug/L	01/17	7/2013 15:40 1	.00	9.50	20.0	ND
805671-014 Iron		ug/L	01/17	7/2013 16:11 1	.00	9.50	20.0	112
Method Blank					Alian.		行いは言語と言	
Parameter	Unit	DF	Result					
Iron	ug/L	1.00	ND					
Duplicate							Lab ID =	805671-00°
Parameter	Unit	DF	Result Expected		RPD Accepta		Accepta	nce Range
Iron	ug/L	1.00	22.7	21.4		5.90	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	52.1	50.0		104	85 - 115	•
Matrix Spike							Lab ID =	805671-00 <sup>.</sup>
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	71.1	71.4(50.0)		99.4	75 - 125	
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5080	5000		102	90 - 110	ı
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	4620	5000		92.3	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	4530	5000		90.6	90 - 110	



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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, Hex	avalent	ug/L	01/15/2013 14:55		1.00	0.00920	0.20	ND
805671-003 Chromium, Hex	avalent	ug/L	01/15/2013 15:06		1.00	0.00920	0.20	ND
805671-004 Chromium, Hex	avalent	ug/L	01/15/2013 15:16		1.00	0.00920	0.20	ND
805671-005 Chromium, Hex	avalent	ug/L	01/15/2013 15:27		1.00	0.00920	0.20	ND
805671-006 Chromium, Hex	avalent	ug/L	01/15/2013 15:37		1.00	0.00920	0.20	ND
805671-007 Chromium, Hex	avalent	ug/L	01/15	/2013 15:47	1.00	0.00920	0.20	ND
805671-008 Chromium, Hex	avalent	ug/L	01/15	/2013 16:29	1.00	0.00920	0.20	ND
805671-009 Chromium, Hex	avalent	ug/L	01/15	/2013 17:11	1.00	0.00920	0.20	ND
805671-010 Chromium, Hex	805671-010 Chromium, Hexavalent		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	Parameter Unit D		Result	Expected	1	Recovery	Accepta	ince Range
Chromium, Hexavalent ug/L 1.0		1.00	0.188	0.200		94.0	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	nce 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/Ac	ided	Recovery	Accepta	nce 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 Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.936	Expected/Added 1.02(1.00)	Recovery 91.6	Acceptance Range 90 - 110 Lab ID = 805671-003		
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.910	Expected/Added 1.00(1.00)	Recovery 91.0	Acceptance Range 90 - 1101		
Matrix Spike						Lab ID = 805671-004		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.925	Expected/Added 1.00(1.00)	Recovery 92.5	Acceptance Range 90 - 110 Lab ID = 805671-005		
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.960	Expected/Added 1.02(1.00)	Recovery 94.1	Acceptance Range 90 - 110 Lab ID = 805671-006		
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.966	Expected/Added 1.02(1.00)	Recovery 95.1	Acceptance Range 90 - 110		
Matrix Spike						Lab ID = 805671-007		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.967	Expected/Added 1.01(1.00)	Recovery 95.3	Acceptance Range 90 - 110		
Matrix Spike						Lab ID = 805671-008		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.962	Expected/Added 1.02(1.00)	Recovery 94.6	Acceptance Range 90 - 110		
Matrix Spike						Lab ID = 805671-009		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.953	Expected/Added 1.02(1.00)	Recovery 93.5	Acceptance Range 90 - 110		
Matrix Spike						Lab ID = 805671-010		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.969	Expected/Added 1.02(1.00)	Recovery 95.4	Acceptance Range 90 - 110		
Matrix Spike						Lab ID = 805671-011		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.967	Expected/Added 1.02(1.00)	Recovery 94.9	Acceptance Range 90 - 110		
Matrix Spike						Lab ID = 805671-012		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.981	Expected/Added 1.02(1.00)	Recovery 96.2	Acceptance Range 90 - 110		
Matrix Spike						Lab ID = 805671-013		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.936	Expected/Added 1.00(1.00)	Recovery 93.6	Acceptance Range 90 - 110		

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



ug/L

1.00

Chromium, Hexavalent

Report Continued

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Matrix Spike						Lab ID = 805671-014
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.954	Expected/Added 1.02(1.00)	Recovery 93.5	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-015
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.964	Expected/Added 1.00(1.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 805671-016
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 0.953	Expected/Added 1.00(1.00)	Recovery 95.3	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.68	Expected 5.00	Recovery 93.7	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.80	Expected 10.0	Recovery 98.0	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.93	Expected 10.0	Recovery 99.3	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range

10.2

10.0

102

95 - 105



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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         0.142         2.5         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         0.160         5.0         ND           Molybdenum         ug/L         01/18/2013 19:13         2.00         0.172	Metals by EPA 6020A, Disso	lved	Batch 011813C				
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 0.414 2.0 4.2 Selenium ug/L 01/18/2013 18:04 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:07 2.00 0.200 0.50 2.4 0.00 Manganese ug/L 01/18/2013 19:07 2.00 0.184 1.0 ND Manganese ug/L 01/18/2013 19:07 2.00 0.184 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 MD Manganese ug/L 01/18/2013 19:107 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:13 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:13 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:13 2.00 0.160 5.0 ND MD 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 0.172 0.50 0.86 Molybdenum 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 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:13 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:49 2.00 0.16	Parameter	Unit	Analyzed	DF	MDL	RL	Result
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 0.414 2.0 4.2 Selenium ug/L 01/18/2013 19:07 2.00 0.160 5.0 ND  805671-002 Arsenic ug/L 01/18/2013 19:07 2.00 0.200 0.500 2.4 Chromium ug/L 01/18/2013 19:07 2.00 0.144 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 19:07 2.00 0.160 5.0 ND  Manganese ug/L 01/18/2013 19:13 2.00 0.184 1.0 ND  Manganese ug/L 01/18/2013 19:13 2.00 0.180 ND  Molybdenum 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 0.172 0.50 0.86  Molybdenum 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 0.172 0.50 0.86  Molybdenum ug/L 01/18/2013 19:13 2.00 0.172 0.50 0.86  Molybdenum ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND  Manganese ug/L 01/18/2013 19:19 2.00 0.160 5.0 ND  Manganese ug/L 01/18/2013 19:19 2.00 0.184 1.0 ND  Manganese ug/L 01/18/2013 19:19 2.00 0.184 1.0 ND  Manganese ug/L 01/18/2013 19:19 2.00 0.184 1.0 ND  Manganese ug/L 01/18/2013 19:19 2.00 0.184 1.0 ND  Manganese ug/L 01/18/2013 19:19 2.00 0.184 1.0 ND  Manganese ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND  805671-007 Arsenic ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND  805671-008 Arsenic ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND  Manganese ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND  Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  Manganese ug/L 01/18/2013 19:49 2.00 0.172 0.50 0.90  Selenium ug/L 01/18/2013 19:49 2.00 0.172 0.50 0.90  Selenium 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 0.160 5.0 ND  Manganese ug/L 01/18/2013 19:49 2.00 0.172 0.50 0.79  Molybdenum ug/L 01/18/2013 19:55 2.00 0.010 0.50 2.3  Chromium ug/L 01/18/2013 19:55 2.00 0.010 0.010 5.0 ND  Manganese ug/L 01/18/2013 19:55 2.00 0.010 0.010 5.0 ND	805671-001 Arsenic	ug/L	01/18/2013 18:44	2.00	0.200	0.50	2.4
Molybdenum ug/L 01/18/2013 18:44 2.00 0.414 2.0 4.2 ND 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 ND Manganese 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 0.414 2.0 4.6 Selenium ug/L 01/18/2013 19:07 2.00 0.414 2.0 4.6 ND Manganese 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 805671-006 Arsenic ug/L 01/18/2013 19:13 2.00 0.200 0.50 2.6 ND Manganese ug/L 01/18/2013 19:13 2.00 0.160 5.0 ND 805671-006 Arsenic 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 0.172 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 0.414 2.0 4.6 Selenium 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 0.414 2.0 4.6 Selenium ug/L 01/18/2013 19:13 2.00 0.414 2.0 4.6 Selenium ug/L 01/18/2013 19:19 2.00 0.414 2.0 4.6 Selenium ug/L 01/18/2013 19:19 2.00 0.414 2.0 4.6 Selenium ug/L 01/18/2013 19:19 2.00 0.414 2.0 4.6 Selenium 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 0.414 2.0 4.2 Selenium 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 0.414 2.0 4.2 Selenium ug/L 01/18/2013 19:19 2.00 0.414 2.0 4.2 Selenium ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND ND ND ND ND ND ND ND ND ND ND ND ND	Chromium	ug/L	01/18/2013 18:44	2.00	0.184	1.0	ND
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           Molybdenum         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         0.144         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         0.160         5.0         ND           Molybdenum         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         0.144         2.0         4.6           Selenium         ug/L         01/18/2013 19:13         2.00         0.160         5.0         ND           805671-006 Arsenic         ug/L         ug/L         01/18/2013 19:19         2	Manganese	ug/L	01/18/2013 18:44	2.00	0.172	0.50	0.89
805671-002 Arsenic   ug/L   01/18/2013 19:07   2.00   0.200   0.50   2.4	Molybdenum	ug/L	01/18/2013 18:44	2.00	0.414	2.0	4.2
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         0.414         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         0.184         1.0         ND           Manganese         ug/L         01/18/2013 19:13         2.00         0.172         0.50         2.6           Molybdenum         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         0.160         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         0.18	Selenium	ug/L	01/18/2013 18:44	2.00	0.160	5.0	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 0.414 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 0.414 2.0 4.6 Selenium 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 0.414 2.0 4.6 Selenium ug/L 01/18/2013 19:13 2.00 0.414 2.0 4.6 Chromium 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 0.200 0.50 2.4 Molybdenum 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 0.414 2.0 4.2 Selenium 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 0.414 2.0 4.2 Selenium ug/L 01/18/2013 19:25 2.00 0.50 2.3 Chromium ug/L 01/18/2013 19:25 2.00 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 0.172 0.50 0.90 Selenium ug/L 01/18/2013 19:49 2.00 0.184 1.0 ND Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  805671-008 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND Manganese ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  Manganese 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 0.160 5.0 ND  805671-009 Arsenic ug/L 01/18/2013 19:55 2.00 0.160 5.0 ND  805671-009 Arsenic ug/L 01/18/2013 19:55 2.00 0.160 5.0 ND  Manganese ug/L 01/18/2013 19:55 2.00 0.160 5.0 ND  805671-009 Arsenic ug/L 01/18/2013 19:55 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
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 0.414 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 0.160 5.0 ND Manganese ug/L 01/18/2013 19:19 2.00 0.184 1.0 ND Manganese ug/L 01/18/2013 19:19 2.00 0.184 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 19:19 2.00 0.160 5.0 ND 805671-007 Arsenic ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND 805671-007 Arsenic ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND 805671-007 Arsenic ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND 805671-007 Arsenic ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND 805671-008 Arsenic ug/L 01/18/2013 19:25 2.00 0.160 5.0 ND 805671-008 Arsenic 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 0.160 5.0 ND 805671-008 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-008 Arsenic 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 0.172 0.50 0.79 Molybdenum 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 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic 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 0.100 0.50 2.3 Molybdenum ug/L 01/18/2013 19:55 2.00 0.100 0.100 0.50 0.82 Molybdenum ug/L 01/18/2013 19:55	Chromium	ug/L	01/18/2013 19:07	2.00	0.184	1.0	ND
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         0.160         5.0         ND           805671-007 Arsenic         ug/L         01/18/2013 19:25         2.00         0.	Manganese	ug/L	01/18/2013 19:07	2.00	0.172	0.50	0.78
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         0.142         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         0.16	Molybdenum	ug/L	01/18/2013 19:07	2.00	0.414	2.0	4.6
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 0.414 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 0.414 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 0.184 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 19:49 2.00 0.160 5.0 ND 805671-008 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-008 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-008 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-008 Arsenic ug/L 01/18/2013 19:49 2.00 0.100 0.50 2.4 DA Molybdenum 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 0.172 0.50 0.79 Molybdenum ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic 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 0.184 1.0 ND Manganese ug/L 01/18/2013 19:55 2.00 0.184 1.0 ND Manganese ug/L 01/18/2013 19:55 2.00 0.184 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 0.172 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 19:07	2.00	0.160	5.0	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 0.414 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 0.414 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 0.200 0.50 2.3 Chromium 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 0.172 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 19:25 2.00 0.160 5.0 ND 805671-008 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-008 Arsenic 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 0.172 0.50 0.79 Molybdenum 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 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic 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 0.184 1.0 ND Manganese ug/L 01/18/2013 19:55 2.00 0.184 1.0 ND Manganese ug/L 01/18/2013 19:55 2.00 0.184 1.0 ND Manganese ug/L 01/18/2013 19:55 2.00 0.184 1.0 ND Manganese ug/L 01/18/2013 19:55 2.00 0.184 1.0 ND Manganese 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 0.172 0.50 0.82 Molybdenum 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	805671-005 Arsenic	ug/L	01/18/2013 19:13	2.00	0.200	0.50	2.6
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 0.200 0.50 2.3 Selenium 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 0.172 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 0.160 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 0.172 0.50 0.79 Molybdenum 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 0.172 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 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:55 2.00 0.160 5.0 ND 805671-009 Arsenic ug/L 01/18/2013 19:55 2.00 0.100 0.50 2.3 Chromium ug/L 01/18/2013 19:55 2.00 0.100 0.50 2.3 Molybdenum ug/L 01/18/2013 19:55 2.00 0.172 0.50 0.50 2.3 Molybdenum 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 0.172 0.50 0.82 Molybdenum 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 0.172 0.50 0.82 Molybdenum ug/L 01/18/2013 19:55 2.00 0.172 0.50 0.82	Chromium	ug/L	01/18/2013 19:13	2.00	0.184	1.0	ND
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 0.184 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 0.172 0.50 0.90 Selenium ug/L 01/18/2013 19:49 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 0.172 0.50 0.79 Molybdenum ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND 805671-009 Arsenic 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 0.200 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 0.172 0.50 0.82 Molybdenum 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 0.172 0.50 0.82	Manganese	ug/L	01/18/2013 19:13	2.00	0.172	0.50	0.86
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 0.160 5.0 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 0.172 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 0.184 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 0.172 0.50 0.79  Molybdenum ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  805671-009 Arsenic ug/L 01/18/2013 19:49 2.00 0.160 5.0 ND  805671-009 Arsenic 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 0.100 0.50 2.3  Chromium ug/L 01/18/2013 19:55 2.00 0.100 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 0.184 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 0.172 0.50 0.82  Molybdenum ug/L 01/18/2013 19:55 2.00 0.414 2.0 3.9	Molybdenum	ug/L	01/18/2013 19:13	2.00	0.414	2.0	4.6
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 0.172 0.50 0.90 Selenium 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 19:25 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 0.100 0.50 2.4 Chromium 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 0.172 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 19:49 2.00 0.414 2.0 4.4 Selenium ug/L 01/18/2013 19:55 2.00 0.100 5.0 ND Manganese ug/L 01/18/2013 19:55 2.00 0.160 5.0 ND MD Manganese ug/L 01/18/2013 19:55 2.00 0.160 5.0 ND MD Manganese 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 0.172 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 19:13	2.00	0.160	5.0	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 0.160 5.0 ND  805671-008 Arsenic ug/L 01/18/2013 19:49 2.00 0.184 1.0 ND  Manganese ug/L 01/18/2013 19:49 2.00 0.184 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 0.172 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 0.200 0.50 2.3  Chromium ug/L 01/18/2013 19:55 2.00 0.200 0.50 2.3  Molybdenum 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 0.172 0.50 0.82  Molybdenum ug/L 01/18/2013 19:55 2.00 0.414 2.0 3.9	805671-006 Arsenic	ug/L	01/18/2013 19:19	2.00	0.200	0.50	2.4
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 0.184 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 0.172 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 0.184 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 0.172 0.50 0.82 Molybdenum ug/L 01/18/2013 19:55 2.00 0.414 2.0 3.9	Chromium	ug/L	01/18/2013 19:19	2.00	0.184	1.0	ND
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 19:55         2.00         0.160         5.0         ND           805671-009 Arsenic         ug/L         01/18/2013 19:55         2.00         0.18	Manganese	ug/L	01/18/2013 19:19	2.00	0.172	0.50	0.83
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 19:49 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 0.172 0.50 0.82  Molybdenum ug/L 01/18/2013 19:55 2.00 0.414 2.0 3.9	Molybdenum	ug/L	01/18/2013 19:19	2.00	0.414	2.0	4.2
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 0.184 1.0 ND Manganese 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 19:19	2.00	0.160	5.0	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	805671-007 Arsenic	ug/L	01/18/2013 19:25	2.00	0.200	0.50	2.3
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	Chromium	ug/L	01/18/2013 19:25	2.00	0.184	1.0	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	Manganese	ug/L	01/18/2013 19:25	2.00	0.172	0.50	0.90
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 19:25	2.00	0.160	5.0	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	805671-008 Arsenic	ug/L	01/18/2013 19:49	2.00	0.200	0.50	2.4
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	Chromium	ug/L	01/18/2013 19:49	2.00	0.184	1.0	ND
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	Manganese	ug/L	01/18/2013 19:49	2.00	0.172	0.50	0.79
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	Molybdenum	ug/L	01/18/2013 19:49	2.00	0.414	2.0	4.4
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 19:49	2.00	0.160	5.0	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	805671-009 Arsenic	ug/L	01/18/2013 19:55	2.00	0.200	0.50	2.3
Molybdenum ug/L 01/18/2013 19:55 2.00 0.414 2.0 3.9	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
Selenium ug/L 01/18/2013 19:55 2.00 0.160 5.0 ND	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



Client: E2 Consulting En	gineers, Ind		Project Name: Project Number	PG&E Topo : 423575.MP.	=	ct	Printed 1	age 13 of 23 /25/2013
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				and the tile of the tree <b>size</b> to state	
Duplicate								805671-001
Parameter	Unit	DF	Result	Expected	F	RPD	•	nce 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 2.00	ND 0.840	0 0.888		0 5.56	0 - 20 0 - 20	
Manganese Malyhdanum	ug/L	2.00	4.35	4.22		2.99	0 - 20 0 - 20	
Molybdenum	ug/L	∠.00	4.00	7.44		2.00	0 - 20	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Low Level Calibration V	erification					
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 V	erification					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.590	0.500	118	70 - 130
Low Level Calibration V	erification					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.216	0.200	108	70 - 130
Low Level Calibration V	erification					
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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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Metals by EPA 6020A, D	issolved		Batch	012113A				
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result
805671-007 Molybdenum		ug/L	01/21	/2013 14:13 2	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	Accepta	ance Range
Molybdenum	ug/L	1.00	0.539	0.500		108	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	ance Range
Molybdenum	ug/L	2.00	48.2	50.0		96.3	85 - 11	5
Matrix Spike							Lab ID =	805671-001
Parameter	Unit	DF	Result	Expected/Adde	ed i	Recovery	Accepta	ance Range
Molybdenum	ug/L	2.00	58.6	54.3(50.0)		108	75 - 125	5
Matrix Spike Duplicat	е						Lab ID =	805671-001
Parameter	Unit	DF	Result	Expected/Adde	ed I	Recovery	Accepta	ance Range
Molybdenum	ug/L	2.00	54.3	54.3(50.0)		99.9	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	1	Recovery	•	ince Range
Molybdenum	ug/L	1.00	22.0	20.0		110	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	١	Recovery	•	ince Range
Molybdenum	ug/L	1.00	21.1	20.0		105	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	nce Range
Molybdenum	ug/L	1.00	20.3	20.0		101	90 - 110	)
Interference Check S	tandard A							
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	ince Range
Molybdenum	ug/L	1.00	ND	0				
Interference Check S	tandard A							
Parameter	Unit	DF	Result	Expected	l	Recovery	Accepta	nce Range
Molybdenum	ug/L	1.00	ND	0				



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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Metals by EPA 6010B, Di	issolved		Batch	012213A			
Parameter		Unit	Ana	llyzed D	F MDL	RL	Result
805671-001 Iron		ug/L	01/22	2/2013 15:21 1.	00 9.50	20.0	ND
805671-002 Iron		ug/L	01/22	2/2013 16:04 1.	00 9.50	20.0	ND
805671-005 Iron		ug/L	01/22	2/2013 16:09 1.6	00 9.50	20.0	ND
805671-006 Iron		ug/L	01/22	2/2013 16:15 1.	9.50	20.0	ND
805671-007 Iron		ug/L	01/22	2/2013 16:21 1.0	9.50	20.0	ND
805671-008 Iron		ug/L	01/22	2/2013 16:27 1.6	9.50	20.0	ND
805671-009 Iron		ug/L	01/22	2/2013 16:33 1.6	00 9.50	20.0	ND
805671-010 Iron		ug/L	01/22	2/2013 16:38 1.0	9.50	20.0	ND
805671-011 iron		ug/L	01/22	2/2013 16:44 1.0	00 9.50	20.0	ND
805671-012 Iron		ug/L	01/22	2/2013 16:50 1.6	9.50	20.0	ND
805671-014 Iron		ug/L	01/22	2/2013 16:56 1.0	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	Accepta	ance Range
Iron	ug/L	1.00	ND	0	0	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	•	ance 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	•	Accepta	ince Range
Iron	ug/L	1.00	57.4	50.0(50.0)	115	75 - 125	5
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ince Range
Iron	ug/L	1.00	5380	5000	108	90 - 110	)
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ince Range
Iron	ug/L	1.00	5310	5000	106	90 - 110	)
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	•	ince Range
Iron	ug/L	1.00	5220	5000	104	90 - 110	1



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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pH by SM 4500-H B			Batch	1 01PH13I				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
805671-001 pH		рН	01/10	)/2013 10:25	1.00	0.0784	4.00	8.43
805671-002 pH		рΗ	01/10	0/2013 10:27	1.00	0.0784	4.00	8.37
805671-005 pH		рН	01/10	0/2013 10:30	1.00	0.0784	4.00	8.37
805671-006 pH		рΗ	01/10	)/2013 10:33	1.00	0.0784	4.00	8.34
805671-007 pH		рН	01/10	)/2013 10:35	1.00	0.0784	4.00	8.35
805671-008 pH		рН	01/10	)/2013 10:37	1.00	0.0784	4.00	8.33
805671-009 pH		рН	01/10	)/2013 10:40	1.00	0.0784	4.00	8.32
805671-010 pH		рН	01/10	)/2013 10:42	1.00	0.0784	4.00	8.29
805671-011 pH		рН	01/10	)/2013 10:44	1.00	0.0784	4.00	8.42
805671-012 pH		pН	01/10	)/2013 10:50	1.00	0.0784	4.00	8.40
805671-014 pH		pН	01/10	)/2013 10:52	1.00	0.0784	4.00	8.16
805671-015 pH		pН	01/10	)/2013 10:55	1.00	0.0784	4.00	7.72
805671-016 pH		рН	01/10	/2013 10:57	1.00	0.0784	4.00	7.52
Duplicate							Lab ID =	805671-011
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
pН	pН	1.00	8.42	8.42		0	0 - 20	
Duplicate							Lab ID =	805671-016
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range
рН	рН	1.00	7.53	7.52		0.133	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
pН	pН	1.00	7.03	7.00		100	90 - 110	)
Lab Control Sample	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
pH	pН	1.00	7.02	7.00		100	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	nce Range
рН	рН	1.00	7.02	7.00		100	90 - 110	)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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<b>Total Suspended Solids</b>	by SM 25	40 D	Batch	01TSS13F				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
805671-001 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-002 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-005 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-006 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-007 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-008 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-009 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-010 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-011 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-012 Total Suspende	d Solids	mg/L	01/14	/2013	1.00	0.349	10.0	ND
805671-014 Total Suspende	d 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	F	RPD	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	ND	0		0	0 - 10	-
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Total Suspended Solids	mg/L	1.00	95.0	100		95.0	90 - 110	)
Lab Control Sample [	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce 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	lnitial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference , g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL, 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	1,000	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	8.0	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	0.000	No	0.0006	2.4	10.0	ND
E67	805671-140	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	LC5-1	1:00	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:

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.	Measurd 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

**Duplicate Determinations Difference Summary** 

Lab Number	Sample Weight,	mple Weight, Sample Dup % RPD Acceptance g Weight, g % RPD Limit		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

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

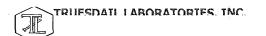
A = Weght of the first sample in (g).

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

C = Average weight in (g).

Maksim G. Reviewer Printed Name

Gautam S. Analyst Printed Name



## Alkalinity by SM 2320B

Analytical Batch: 01ALK13D WATER Matrix: Date of Analysis: 1/11/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO <sub>3</sub> (ppm)	CO3 Alkalinity as CaCO <sub>3</sub> (ppm)	OH Alkalinity as CaCO <sub>3</sub> (ppm)	Low Alkalinity as CaCO <sub>3</sub>
BLANK	6.73	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
805671-1	8.30	50	0.02	0.0	0.0	6.30		126.0	5	126.0	126.0	ND	ND	
805671-2	8.31	50	0.02	0.0	0.0	6.30		126.0	5	126.0	126.0	0	ND	
805671-5	8.28	50	0.02	İ	0.0	6.30		126.0	5	126.0	126.0	ND	ND	
805671-6	8.28	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
805671-7	8.26	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
805671-8	8.26	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
805671-9	8.23	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
805671-10	8.23	50	0.02		0.0	5.80		116.0	5	116.0	116.0	ND	ND	
805671-11	8.32	50	0.02	0,0	0.0	6.25	1	125.0	5	125.0	125.0	0	ND	
805671-12	8.32	50	0.02	0.0	0.0	6.50		130.0	5	130.0	130.0	0	ND.	
805671-12 DUP	8.33	50	0.02	0.0	0.0	6.45		129.0	5	129.0	129.0	0	ND	
805671-14	8.17	50	0.02		0.0	6.55		131.0	5	131.0	131.0	ND	ND ND	
805671-14 MS	9.45	50	0.02	2.3	45.0	11.35		227.0	5	227.0	137.0	90	ND	
LCS	10.50	50	0.02	2.2	44.0	4.95		99.0	5	99.0	11.0	88	ND	
LCSD	10.48	50	0.02	2.2	43.0	4.90	ļ	98.0	5	98.0	12.0	86	ND	
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					H								<u> </u>	<u> </u>

Calculations as follows:

Tor P=

Where:

mL sample

P = Phenolphthalein Alkalinity, mg CaCO3/L

T = Total Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

Low Alkalinity: = as mg/L CaCO3

(2 x B - C) x N x 50000 mL sample

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

<5

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	98	100	98.0%	90-110	Yes

QC WithIn

Control?

Yes

**Duplicate Determination Difference Summary** 

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?	
805671-12	130	129	0.8%	20%	Yes	

Sample Matrix Spike (MS/MSD) Summary

Jampio mair	× 0   0 (		<u> </u>									
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			
00307 [414		1	100	100				70-120			,	

Melissa S. Analyst Printed Name

**Blank Summary** 

Measured

Value, ppm

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name



CH2MHILL

**CHAIN OF CUSTODY RECORD** 

1/9/2013 4:17:41 PM

Page 1 OF 2

1	Project Name PG	*	k	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			
	Location Topoci	Jay Piper		ervatives:	(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	* where provided w/multiple bottles for Cru + diss. metals please analyze 1 + hold 2		
	Sample Manager S	Shawn Du	•	Filtered:	Field 28	NA	NA	Field 180	Field	NA	NA	NA 14	NA	NA 14	Mottles for Cru + diss. metals		l
Project Number 423575.MP.02.R Task Order Project 2013-RMP-189 Turnaround Time 10 Days Shipping Date: 1/9/2013 COC Number: 2			)2.RM		Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe		Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	14 Anions (E300.0) Nitrate	Alkalinity (SM2320B)	14 PH (SM4500HB)	TSS (SM2540)	please analyze 1 + hold 2  ALERT!!  Level III QC	Number of Containers		
		DATE	TIME	Matrix	(E218.6 - river) Field Filtered	/er)	Fe	)Adis) Se,Mo	tered	20.1)	ıte				POACLITI GO	iners	COMMENTS
	C-CON-D-189	1/9/2013	10:47	Water	х		Х	Х	X	Х	X	х	X	Х		9	) DH=2
2	C-CON-S-189	1/9/2013	11:02	Water	Х		Х	Х	Х	Х	X	Х	Х	X	For Sample Conditions See Form Attached	9	Inch
-1	C-MW-82-189	1/9/2013	10:15	Water		х									OL Dallibic golland	*	
4[	C-MW-83-189	1/9/2013	13:02	Water		×						,			Cao Form Attacheu	4	
5	C-NR1-D-189	1/9/2013	11:29	Water	X		Х	Х	х	Х	х	х	Х	х		9	
6	C-NR1-S-189	1/9/2013	11:46	Water	Х		х	Х	Х	X	X	Х	Х	×		9	
7	C-NR3-D-189	1/9/2013	12:18	Water	х		х	X	Х	Х	х	Х	x	Х		9	
S)	C-NR3-S-189	1/9/2013	12:35	Water	х		x	х	X	х	Х	X	х	X		9	
9	C-NR4-D-189	1/9/2013	13:14	Water	Х		х	X.	x	Х	х	Х	х	X		9	7
0	C-NR4-S-189	1/9/2013	13:29	Water	Х		х	Х	x	Х	Х	X	X	Х		9	DW=2
7	R-19-189	1/9/2013	9:34	Water	х		х	х	X	X	X	х	х	×		9	metal
ZÌ	R-28-189	1/9/2013	9:13	Water	Х		Х	Х	X	х	Х	Х	Х	Х		9	ノ
٠,	RMP-AB2-189	1/9/2013	13:35	Water		х										1	
1	'RRB-189	1/9/2013	10:02	Water	Х		х	х	х	x	х	Х	х	х	9-77-10-00-00-00-00-00-00-00-00-00-00-00-00-	9	nu =2
11.		1,	<del> </del>	<del></del>	ļ			-	ļ							<u></u>	Metals

Approved by

Sampled by

Received by

Remarkable Remarks Rem Received by

Relinquished by

Signatures

**Shipping Details** 

Method of Shipment:

On Ice: yes / no

Special Instructions:

Jan 8-10, 2013

Sample Custody

ATTN:

Report Copy to

Shawn Duffy (530) 229-3303

19/13 22/30 Lab Phone: (714) 730-6239

805671

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

1/9/2013 4:17:42 PM

Page 2 OF 2

Project Name PG	3&E Topoc	k C	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			
Location Topoci		Droce	anustivoe:	(NH4)2S O4/NH4O		HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	* Where provided w/multiple		
Project Manager .	Jay Piper	11630	ci vauves.	H, 4°C	H, 4°C	40	40	40						bottles for creatist metals		
Sample Manager	Shawn Dul	ffy	Filtered:	Field	NA	NA	Field	Field	NA	NΑ	NA	NA	NA	* Where provided w/multiple bottles for Cradis. metals please analyze 1 + hold I		
		Hold	ling Time:	28	28	180	180	180	14	14	14	14	14	please analyze 1 + noto or		
Project Number	423575.MP	.02.RM					T. Ne	<u> </u>	Sp					1		
Task Order				Cr6	Fjeld	3	Metals Field	Metals	Specific Conductance	₽r	7>					
Project 2013-RMi	IP-189				200	Metals	(SW601 Filtered	(6020AFF) Chromi	ić O	Anions	<u>ka</u>	P			Num	
Turnaround Time	•	3		218 Fi	) Cr6	; (601	V60 ered	020/ Ch	ond		inity	(S)	TSS (		nbe	
Shipping Date: 1	1/9/2013			(E218.6 – Filtered	l m	)108)	10B As	rom (FF)	lu cta	300	(S)	РН (ЅМ4500НВ	(SM2540)		r o	
COC Number: 2				river)	218		/SW ,Mn	Fie jum	ance	.0)	/123;	99 H	540		8	
				);r) F	.6-1	Total F	0B/SW6020Adis) As,Mn,Fe,Se,Mo	:F) Field Filtered omium	Ē	(E300.0) Nitrate	Alkalinity (SM2320B)	В)	٤			
				Field	iver)	Fe	0Ad Se,I	iltere	(E120.1	ate					aine	
	DATE	TIME	Matrix				ð (s)	ď	1						ß	COMMENTS
SW1-189	1/9/2013	15:20	Water	X				Х	Х			Х			5	(DH=2
SW2-189	1/9/2013	15:42	Water	X				х	х			Х			5	1600
				•			,	4	1	-				TOTAL NUMBER OF CONTAINERS	112	5

Approved by

Sampled by

Resignation Received by

Relinquished by Received by

1-9-13 22:3 Lab Name: Truesdail Laboratories, Inc. 1/9/13 22:30 Lab Phone: (714) 730-6239

**Shipping Details** 

courier

Method of Shipment: On Ice: yes / no

ATTN:

Jan 8-10, 2013

Special Instructions:

Sample Custody

Report Copy to Shawn Duffy (530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
01/03/13	805561-1	7	2 ml	9.5	10:15 Am	HAV
4,	↓ -2	4	1	T	10:20 AM	HAV
	805562-1	7	2 ml	9.5	10:25 AM	HAV
	-2	1.			10:30 AM	1
4	, -3	1	J	J.	10:35 AM	
01/04/13	805581-5	9	NIA	NIA	NIA	HAV
01/09/13	805650	7	2 ml	9.5	9:30 AM	HAV
01/09/13	803651-1	9.5	ALA	NIA	NIA	HAV
	-2			<u> </u>		
<u> </u>	-3		·			
<u> </u>	-4					
	-5					
	-6					
	- %					
	.   -9					
	10					
	-11			<del>-   .  </del>		
	-12					
	-13					
_	-14				<del></del>	-
<u> </u>	1, -15	4	~		1,	10
01/10/13	805671-1	9.5	NIA	NIA	N/A	RB
	-2			1		
	-3 -4			1		
	-5					_
	-6					
	-7					
	8-					
	-9	<b>1</b>		i i		+
<u> </u>		<u> </u>	<u> </u>			

M 1-21-13

# 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
0/10/13	805671-10	95	N/A	N/A .	NA	RB
į.	-11					
	-12					
	-13					·
	-14					
	-5					
	, -16	<b>1</b>		<b>V</b>	1	1
01/18/13	805813	7	2 ml	9.5	9:30 AM	HAV
01/17/13	305831-1	9.3	414	1414	NIA	RB
	<u> </u>		·		-	
	-3		·			)
	-4					
	-5			-		
·	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	_13					
1	-14		N,	<b>↓</b>		
01/17/13	805832-1	9.5	N/A	NIA	NIA	RB
Andreas and the second	-2	Maria de la Companio de Companio de Companio de Companio de Companio de Companio de Companio de Companio de Co	arriver and a significant and a second of the second of th	t general and the second second second	A Committee of the Comm	the exemples of the S
	-3					
	-4					
	-5					
	-6					
	7 8					
	-}					
<b>V</b>	-9	¥ :	₩	ė		,

M 1-21-13





Turbidity/pH Check

•			Turbi	dity/pH C	heck			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
805747	41	L2	1/15/13	ES	yes			
805748(1-4)	1	7	L	L	yez L			
805670(1,2)	4	72	1/15/13	DC.	NO	12:3000	12/18 1/8/13 15:30	pHer
805753(1,2,4)	4	72	4	be	NO	12:30		pHc2
8098030113	) <1	>2	1/16/13	BE	NO	11:30	T T	1
805806(1-3)	<\	1	1.1				V	<u> </u>
805671(1-2,5-12,1	4+6) L1	42	1/16/13	ES	y-es			Total/DISSOL
905013	41	72	<b>↓</b>	L	yes	11:00		
805782	Z1	22	1/16/13	ES	igis			
805794		ĺ			j			
805795								
805798								
805 799								
805800								
405801								
405824	$\downarrow$		_ a	1				
805827(0,11/2)	41	>2	1/15/13	DC/	70	16:10	1118113 15:30	pHcZ
205841		LZ	1/18/13	ES_	yus			
642			11	Í	0			
843								
४५५								
SAZ								
846					_			
347					-			
848	<i>V</i>	$\underline{\psi}$	<i>V V V V V V V V V V</i>		1			
805831 (1-12,14)	41	22	1/18/13	ES	yes			
805862(1-7)	1	\	<b>₩</b>	レ				
805885	41	42	1/21/13	DC	yes			
805832(1-11)	۷)	42	1/21/13	Do	425			Total Disc
805864 (1,3-7)	. 41	L2	l V	L	<u>ν</u>			
805890 (42,4)	41	72	1/22/13	Do	Gia	0:25		
805888	41	<u> </u>		000	Yes			
805905				<u>.</u> .				
805906								
805907						·		
805908								
805909	J/	- 4	1	<b>J</b>	<i>\\</i>			
805881(1-7)					Yes			
805863 (1-8)								
805883(1-3)	J.	<u>\</u>	<u> </u>	$\bot \downarrow$	V			
305914	2	72	1/23/13	<b>DC</b> /	No	14:30	1124113 15:20	PH22
805916 (1-3)	4	J	<b>¥</b>	<b>V</b>	₩		J	V
805937	4	L1	4	V	Yes			
805938-1	41	72	₽	1	No	14:50		

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



## Sample Integrity & Analysis Discrepancy Form

Clie	nt: <u>E2</u>	Lab #선	1056 F
Date	e Delivered:0/ /09/13 Time2 <u>2.′8</u> ⊅ By: □Mail ⊠I	Field Service	□ Client
1.	Was a Chain of Custody received and signed?	dixes □N	o □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No	AN/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No	D DANA
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No	AN/A
<b>5</b> .	Were all requested analyses understood and acceptable?	∄Yes □No	⊃ <i>N/A</i>
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>ろっろ。C</u>	Д¥es □No	DN/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	≪Yes □No	DN/A
8.	Were sample custody seals intact?	□Yes □No	AN/A
9.	Does the number of samples received agree with COC?	∂⊉Yes □No	⊃ <i>N/A</i>
10.	Did sample labels correspond with the client D's	✓Yes □No	□N/A
11.	Did sample labels indicate proper preservation?  Preserved (if yes) by: Truesdail	7 ∕aYes .□No	
12.	Were samples pH checked? pH = $\frac{Sel(C, O, C, C)}{C}$	✓ ✓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): □ <b>RUSH</b>	ØYes □No	□ <i>N/A</i>
15.	Sample Matrix: □Liquid □Drinking Water □Ground □Sludge □Soil □Wipe □Paint □Solid	Water □Was 10ther War	ite Water
16.	Comments:	7	
17	Sample Check-In completed by <b>Truesdail</b> Log-In/Receiving:	d. 84,064	· W'ua

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 redigested 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

Established 1931



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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			



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## 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		Transition of the Control of the Con	
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		10 Not	
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** 

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Laboratory No.: 806635

Date Received: March 4, 2013

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

Attention: Shawn Duffy

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

## **Analytical Results Summary**

			Analysis	Extraction		Sample				
	Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
	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	pΗ	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-l-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	Hq	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
Ś	806635-002	C-l-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Molybdenum	4.1	ug/L	2.0
	806635-002	C-l-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Selenium	ND	ug/L	5.0
									-	

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	E' LUD	Analysis	Extraction	On only Date	Sample	Parameter	D 14	1124-	D.
Lab Sample ID	Field ID	Method	Method	Sample Date	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	рH	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	pН	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 CaCO3)	121	mg/L	5.00
806635-005	C-MAR-S-190	SM2320B	NONE	3/4/2013	13:27	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	124	mg/L	5.00
806635-008	C-R22A-D-190	SM2320B	NONE	3/4/2013	11:47	Alkalinity, Carbonate (As CaCO3)	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	рH	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
			•	·			_	3	



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 ND	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 3/4/2013	12:05	Nitrate as N	ND 106	mg/L	0.500
806635-009	C-R22A-S-190	SM2320B	NONE		12:05	Alkalinity	126	mg/L	5.00
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	125	mg/L	5.00
806635-010	C-R27-D-190	SM2320B	NONE	3/4/2013	14:01	Alkalinity, Carbonate (As CaCO3)	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	рН	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 II	) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
Lab Sample II	7 Fleiu iD		Wethou		111116		Result	Units	KL
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	Ηq	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	рН	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	рН	4.00
806635-013	C-TAZ-S-190	SW6010B	FLDFLT	3/4/2013	10:03	lron	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	pН	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.

## 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:

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

Laboratory No. 806635

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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		



Client: E2 Consulting Eng		Project Name: PG&E Topock Project Project Number: 423575.MP.02.RM			Page 2 of 25 Printed 3/19/2013		
806635-013 Nitrate as Nitroge		mg/L		2013 14:33 1.0		0.500 ND	
806635-014 Nitrate as Nitroge	ก	mg/L	03/05/2	2013 14:44 1.0	0.00830	0.500 ND	
Method Blank							
Parameter	Unit	DF	Result				
Nitrate as Nitrogen	mg/L	1.00	ND				
Duplicate						Lab ID = 806635-00	)1
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Rang	је
Nitrate as Nitrogen	mg/L	1.00	ND	0.414	0	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Rang	је
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110	
Matrix Spike						Lab ID = 806635-00	)1
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Rang	је
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 Rang	је
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Rang	је
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Rang	је
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100	90 - 110	



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Alkalinity by SM 2320B Batch 03ALK13A DF MDL Unit Analyzed RL Result Parameter 03/05/2013 1.00 0.555 5.00 125 806635-001 Alkalinity as CaCO3 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 ND Carbonate (Calculated) mg/L 0.555 806635-002 Alkalinity as CaCO3 mg/L 03/05/2013 1.00 5.00 119 Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 119 0.555 ND Carbonate (Calculated) mq/L 03/05/2013 1.00 5.00 03/05/2013 1.00 0.555 5.00 125 806635-003 Alkalinity as CaCO3 mg/L 125 Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 1.00 0.555 ND Carbonate (Calculated) mg/L 03/05/2013 5.00 03/05/2013 1,00 0.555 5.00 130 806635-004 Alkalinity as CaCO3 mg/L Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 130 03/05/2013 1.00 0.555 5.00 ND Carbonate (Calculated) mg/L 806635-005 Alkalinity as CaCO3 03/05/2013 1.00 0.555 5.00 121 mg/L 121 03/05/2013 1.00 0.555 5.00 Bicarbonate (Calculated) mg/L ND Carbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 124 806635-008 Alkalinity as CaCO3 mg/L 03/05/2013 1.00 0.555 5.00 Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 124 03/05/2013 1.00 0.555 5.00 ND Carbonate (Calculated) mg/L 806635-009 Alkalinity as CaCO3 03/05/2013 1.00 0.555 5.00 126 mg/L 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 CaCO3 mg/L 03/05/2013 1.00 0.555 5.00 125 125 Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 Carbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 ND 03/05/2013 1.00 0.555 120 806635-011 Alkalinity as CaCO3 mq/L 5.00 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 121 806635-012 Alkalinity as CaCO3 mg/L 03/05/2013 1.00 0.555 5.00 1.00 0.555 121 Bicarbonate (Calculated) mg/L 03/05/2013 5.00 mg/L 03/05/2013 1.00 0.555 5.00 ND Carbonate (Calculated) 806635-013 Alkalinity as CaCO3 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) 1.00 5.00 ND mg/L 03/05/2013 0.555 1.00 806635-014 Alkalinity as CaCO3 mg/L 03/05/2013 0.555 5.00 119



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806635-014 Bicarbonate (Ca	•	mg/L mg/L			1.00	0.555	5.00	119
Carbonate (Calc	Carbonate (Calculated)		03/05	5/2013	1.00	0.555	5.00	ND
Method Blank								
Parameter	Unit	DF	Result					
Alkalinity as CaCO3	mg/L	1.00	ND					
Duplicate							Lab ID =	806627-016
Parameter	Unit	DF	Result	Expected	R	PD	Accepta	ince Range
Alkalinity as CaCO3	mg/L	1.00	80.0	76.0		5.13	0 - 20	-
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	ince Range
Alkalinity as CaCO3	mg/L	1.00	98.0	100		98.0	90 - 110	)
Lab Control Sample D	uplicate							
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	ince Range
Alkalinity as CaCO3	mg/L	1.00	94.0	100		94.0	90 - 110	)
Matrix Spike							Lab ID =	806635-014
Parameter	Unit	DF	Result	Expected/Adde	ed R	ecovery	Accepta	ince Range
Alkalinity as CaCO3	mg/L	1.00	215	219(100)		96.0	75 - 125	5



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Specific Conductivity -	EPA 120.1		Bato	h 03EC13B				
Parameter		Unit	An	alyzed	DF	MDL	RL	Result
806635-001 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	874
806635-002 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	874
806635-003 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	876
806635-004 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	853
806635-005 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	876
806635-008 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	871
806635-009 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	875
806635-010 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	874
806635-011 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	870
806635-012 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	875
806635-013 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	875
806635-014 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	874
Method Blank								
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result ND					
Duplicate							Lab ID =	806635-012
Parameter Specific Conductivity Lab Control Sample	Unit umhos	DF 1.00	Result 875	Expected 875	F	RPD 0	Accepta 0 - 10	ance Range
Parameter Specific Conductivity Lab Control Sample	Unit umhos Duplicate	DF 1.00	Result 683	Expected 706	F	Recovery 96.7	Accepta 90 - 110	ance Range )
Parameter Specific Conductivity MRCCS - Secondary	Unit umhos	DF 1.00	Result 690	Expected 706	F	Recovery 97.7	Accepta 90 - 110	ance Range )
Parameter Specific Conductivity MRCVS - Primary	Unit umhos	DF 1.00	Result 689	Expected 706	F	Recovery 97.6	Accepta 90 - 110	ance Range )
Parameter Specific Conductivity MRCVS - Primary	Unit umhos	DF 1.00	Result 950	Expected 998	F	Recovery 95.2	Accepta 90 - 110	ance Range )
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 970	Expected 998	F	Recovery 97.2	Accepta 90 - 110	ance Range )



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Metals by EPA 6010B, Total Batch 030813A-Th2 DF Unit MDL Parameter Analyzed 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 03/08/2013 13:33 1.00 9.50 ug/L 20.0 474 806635-008 Iron 03/08/2013 13:39 1.00 9.50 20.0 36.6 ug/L 806635-009 Iron ua/L 03/08/2013 13:45 1.00 9.50 20.0 27.7 806635-010 Iron 9.50 23.6 ug/L 03/08/2013 13:52 1.00 20.0 806635-011 Iron 03/08/2013 13:58 1.00 9.50 20.0 21.0 ug/L 9.50 806635-012 Iron ug/L 03/08/2013 14:04 1.00 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 03/08/2013 14:47 1.00 9.50 20.0 33.0 ug/L Method Blank DF Unit Result Parameter ND Iron ug/L 1.00 **Duplicate** Lab ID = 806635-001 Parameter Unit DF **RPD** Result Expected Acceptance Range ug/L 24.6 24.0 1.00 2.47 0 - 20Iron Lab Control Sample Parameter Unit DF Result Expected Recovery Acceptance Range Iron ug/L 1.00 52.6 50.0 105 85 - 115 Lab ID = 806635-001 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range ug/L 1.00 70.3 74.0(50.0) 92.6 Iron 75 - 125Matrix Spike Duplicate Lab ID = 806635-001 Unit DF Expected/Added Parameter Result Recovery Acceptance Range 76.0 Iron ug/L 1.00 74.0(50.0) 104 75 - 125 MRCCS - Secondary Parameter Unit DF Result Expected Recovery Acceptance Range Iron ug/L 5120 5000 102 90 - 110 1.00 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 5300 5000 ug/L 1.00 106 90 - 110 Iron



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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806635-001 Chromium, Hex	avalent	ug/L	03/06	5/2013 13:01	1.00	0.00920	0.20	ND
806635-003 Chromium, Hex	avalent	ug/L	03/06	3/2013 13:22	1.00	0.00920	0.20	ND
806635-004 Chromium, Hex	avalent	ug/L	03/06	3/2013 13:32	1.00	0.00920	0.20	ND
806635-005 Chromium, Hex	avalent	ug/L	03/06	3/2013 13:43	1.00	0.00920	0.20	ND
806635-006 Chromium, Hex	avalent	ug/L	03/06	/2013 14:55	1.00	0.00920	0.20	ND
806635-007 Chromium, Hex	avalent	ug/L	03/06	/2013 15:06	1.00	0.00920	0.20	ND
806635-008 Chromium, Hex	avalent	ug/L	03/06	/2013 15:16	1.00	0.00920	0.20	ND
806635-009 Chromium, Hex	avalent	ug/L	03/06	/2013 15:27	1.00	0.00920	0.20	ND
806635-010 Chromium, Hex	avalent	ug/L	03/06	/2013 17:31	1.00	0.00920	0.20	ND
806635-011 Chromium, Hex	avalent	ug/L	03/06	/2013 15:47	1.00	0.00920	0.20	ND
806635-012 Chromium, Hex	avalent	ug/L	03/06	/2013 16:29	1.00	0.00920	0.20	ND
806635-013 Chromium, Hex	avalent	ug/L	03/06	/2013 16:39	1.00	0.00920	0.20	ND
806635-014 Chromium, Hex	avalent	ug/L	03/06	/2013 16:50	1.00	0.00920	0.20	ND
806635-015 Chromium, Hex	avalent	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	F	RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	2.56	2.58		0.653	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.210	0.200		105	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance 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/A	dded F	Recovery	Accepta	ance 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/A	dded F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	7.49	7.58(5.00)		98.2	90 - 110	١



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Matrix Spike						Lab ID = 806330-015
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 31.9	Expected/Added 32.9(25.0)	Recovery 95.8	Acceptance Range 90 - 110 Lab ID = 806635-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.03(1.00)	Recovery 97.7	Acceptance Range 90 - 110 Lab ID = 806635-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.04(1.00)	Recovery 96.2	Acceptance Range 90 - 110 Lab ID = 806635-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.993	Expected/Added 1.02(1.00)	Recovery 96.7	Acceptance Range 90 - 110 Lab ID = 806635-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.03(1.00)	Recovery 98.1	Acceptance Range 90 - 110 Lab ID = 806635-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.976	Expected/Added 1.00(1.00)	Recovery 97.6	Acceptance Range 90 - 110 Lab ID = 806635-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.980	Expected/Added 1.00(1.00)	Recovery 98.0	Acceptance Range 90 - 110 Lab ID = 806635-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.03(1.00)	Recovery 99.0	Acceptance Range 90 - 110 Lab ID = 806635-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.04(1.00)	Recovery 97.6	Acceptance Range 90 - 110 Lab ID = 806635-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.03(1.00)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806635-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.03(1.00)	Recovery 99.9	Acceptance Range 90 - 110 Lab ID = 806635-012
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.04(1.00)	Recovery 97.9	Acceptance Range 90 - 110



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Matrix Spike						Lab ID = 806635-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.03(1.00)	Recovery 98.0	Acceptance Range 90 - 110 Lab ID = 806635-014
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.04(1.00)	Recovery 97.7	Acceptance Range 90 - 110 Lab ID = 806635-015
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 0.974	Expected/Added 1.02(1.00)	Recovery 95.8	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.88	Expected 5.00	Recovery 97.5	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.98	Expected 10.0	Recovery 99.8	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.98	Expected 10.0	Recovery 99.8	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.97	Expected 10.0	Recovery 99.7	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.96	Expected 10.0	Recovery 99.6	Acceptance Range 95 - 105



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Bat	ch 03CrH13G	

Chrome VI by EPA 218.6 Parameter		Unit		03CrH13G lyzed Dl	= MDL	RL	Result
806635-002 Chromium, Hexavalent		ug/L	·	2/2013 15:37 1.0		0.20	ND
Method Blank	· Valent	ug/L	00,12		0.00020	0.20	
Parameter Chromium, Hexavalent Duplicate	Unit ug/L	DF 1.00	Result ND			I ah ID =	8067 <b>0</b> 1-005
Parameter Chromium, Hexavalent Low Level Calibration	Unit ug/L Verification	DF 1.00	Result 17.8	Expected 17.9	RPD 0.462	Lab ID = 806791-005 Acceptance Range 0 - 20	
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.201	Expected 0.200	Recovery 100	Acceptance Range 70 - 130	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.88	Expected 5.00	Recovery 97.7	Acceptance Range 90 - 110 Lab ID = 806635-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.956	Expected/Added 1.02(1.00)	Recovery 93.7	Acceptance Range 90 - 110 Lab ID = 806790-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 6.01	Expected/Added 6.02(5.00)	Recovery 99.8	Acceptance Range 90 - 110 Lab ID = 806790-002	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 9.01	Expected/Added 9.19(5.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 806790-003	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 7.60	Expected/Added 7.90(5.00)	Recovery 94.0	Acceptance Range 90 - 110 Lab ID = 806790-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 6.70	Expected/Added 6.93(5.00)	Recovery 95.4	Acceptance Range 90 - 110 Lab ID = 806790-005	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.00(1.00)	Recovery 106	Acceptance Range 90 - 110	



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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
Manganes	e ug/L	03/06/2013 10:13	1.00	0.0860	0.50	0.68
Molybdeni	ım 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
Manganes	e ug/L	03/06/2013 13:05	1.00	0.0860	0.50	0.91
Molybden	ım 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
Manganes	e ug/L	03/06/2013 11:52	1.00	0.0860	0.50	3.0
Molybdeni	ım 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
Manganes	e ug/L	03/06/2013 11:59	1.00	0.0860	0.50	14.3
Molybdeni	ım 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
Manganes	e ug/L	03/06/2013 12:05	1.00	0.0860	0.50	8.6
Molybdenu	ım 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
Manganes	e ug/L	03/06/2013 12:11	1.00	0.0860	0.50	0.55
Molybdenu	ım 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
306635-009 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
Manganes		03/06/2013 12:17	1.00	0.0860	0.50	0.72
Molybden		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 V	erification					
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



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Parameter		Unit	Ana	lyzed [	F	MDL	RL	Result
306635-003 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 Calibratio	n Verification	ŀ						
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.204	0.200		102	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	52.6	50.0		105	85 - 11	5
Matrix Spike							Lab ID =	806635-003
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	50.0	50.0(50.0)		100	75 - 12	5
Matrix Spike Duplica	ite						Lab ID =	806635-003
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	51.0	50.0(50.0)		102	75 - 125	5
MRCCS - Secondary	/							
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	20.1	20.0		101	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.5	20.0		97.5	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.4	20.0		97.1	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.6	20.0		97.9	90 - 110	)
Interference Check S	Standard A							
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	ND	0		-	•	J



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Parameter		Unit	Ana	lyzed	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	7/2013 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	F	RPD	Accepta	nce Range
Iron	ug/L	1.00	ND	0		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	54.7	50.0		109	85 - 115	5
Matrix Spike							Lab ID =	806635-001
Parameter	Unit	DF	Result	Expected/Ad	ded F	Recovery	Accepta	ince 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/Ad	ded F	Recovery		nce Range
Iron	ug/L	1.00	51.2	50.0(50.0)		102	75 - 125	j
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	•	nce Range
Iron	ug/L	1.00	5280	5000		106	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery		nce Range
Iron	ug/L	1.00	5190	5000		104	90 - 110	)

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



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pH by SM 4500-H B			Batch	03PH13C				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
806635-001 pH		рН	03/05	5/2013 09:46	1.00	0.0784	4.00	8.16
806635-002 pH		рН	03/05	5/2013 09:50	1.00	0.0784	4.00	8.22
806635-003 pH		рН	03/05	5/2013 09:55	09:55 1.00 0.0784		4.00	8.22
806635-004 pH		рН	03/05	5/2013 09:58	1.00	0.0784	4.00	8.11
806635-005 pH		рΗ	03/05	5/2013 10:00	1.00	0.0784	4.00	8.18
806635-008 pH		pН	03/05	5/2013 10:03	1.00	0.0784	4.00	8.21
806635-009 pH		рН	03/05	5/2013 10:05	1.00	0.0784	4.00	8.21
806635-010 pH		рΗ	03/05	5/2013 10:07	1.00	0.0784	4.00	8.19
806635-011 pH		рН	03/05	5/2013 10:10	1.00	0.0784	4.00	8.18
806635-012 pH		рН	03/05	5/2013 09:43	1.00 0.0784		4.00	8.21
806635-013 pH		рН	03/05	5/2013 10:17	1.00 0.0784		4.00	8.23
806635-014 pH		рН	03/05	5/2013 10:19	1.00	0.0784	4.00	8.25
Duplicate				1000			Lab ID =	806635-011
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
рН	рН	1.00	8.19	8.18		0.122	0 - 20	· ·
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	pН	1.00	7.00	7.00		100	90 - 110	כ
Lab Control Sample D	uplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	pН	1.00	7.03	7.00		100	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	рН	1.00	7.02	7.00		100	90 - 110	)



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Total Suspended Solids	by SM 25	40 D	Batch	03TSS13B				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
806635-001 Total Suspended	d Solids	mg/L	03/06	3/2013	1.00	0.349	10.0	ND
806635-002 Total Suspended	d Solids	mg/L	03/06	6/2013	1.00	0.349	10.0	ND
806635-003 Total Suspended	d Solids	mg/L	03/06	6/2013	1.00	0.349	10.0	ND
806635-004 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	28.4
806635-005 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	11.6
806635-008 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-009 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-010 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-011 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-012 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-013 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-014 Total Suspended	d Solids	mg/L	03/06	5/2013	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	F	RPD	Accepta	ınce Range
Total Suspended Solids	mg/L	1.00	ND	0		0	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	101	100		101	90 - 110	)
Lab Control Sample D	uplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	97.0	100		97.0	90 - 110	)

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

fo - Mona Nassimi

Manager, Analytical Services



### 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	1.4068	1 4068	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:

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.	Measurd 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

**Duplicate Determinations Difference Summary** 

Dublica	c Detellini	anona Dine	telice outili	nai y			
Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?		-
806635-14	0	Ó	_#DIVIO!'0	≤5%	#DIV/0!"	yes	8184
806587	0.0203	0.0205	0.5%	5%	Yes	1	

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

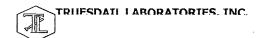
A = Weght of the first sample in (g).

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

C = Average weight in (g).

Reviewer Printed Name

GAUTAM Analyst Printed Name



## Alkalinity by SM 2320B

	Analytica	al Batch:	0	3ALK13A	
		Matrix:		WATER	$\neg$
	Date of A	Analysis:		3/5/13	
_	r	η			

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO <sub>3</sub> (ppm)	CO3 Alkalinity as CaCO, (ppm)	OH Alkalinity as CaCO <sub>3</sub> (ppm)	Low Alkalinity as CaCO <sub>3</sub>
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	1000	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	1
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	1000	0.0	6.05		121.0	5	121.0	121.0	ND ND	, ND	
					8									
					iii and a second	-								
					<u> </u>									
					1									

Calculations as follows:

Tor P=

Where:

 $A \times N \times 50000$ 

mL sample

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

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

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

mL sample

B = mL titrant to first recorded pH Where:

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

**<**5

Laboratory	caporatory control cample (200,2002) cammary												
QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?								
LCS	98	100	98.0%	90-110	Yes								
LCSD	94	100	94.0%	90-110	Yes								

QC Within

Control?

Yes

**Duplicate Determination Difference Summary** 

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
806627-16	76	80	5.1%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Cample Mau	y ohive (i	י נשטוויטוי	oummai y									
Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
806635-14	119	1	100	100	215	219.00	96%	75-125	Yes			
000000-14		1	100	100				10-120				

Melissa S. Analyst Printed Name

**Blank Summary** 

Measured

Value, ppm

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

806635 3/4/2013 3:52:47 PM

OF 2

ı	Project Name PG	-	k	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			
	Location Topoci Project Manager	Jay Piper		servatives:	(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	For Sample Conditions		
	Sample Manager	Shawn Du	-	Filtered:		NA	NA	Field	Field	NA	NA	NA	NΑ	NA	Error Attached	1	
	Dunio et Novembra			ding Time:	28	28	180	180	180	14	14	14	14	14			, who
	Project Number A Task Order Project 2013-RMI Turnaround Time Shipping Date: 3 COC Number: 1	P-190 10 Day	s	<i>M</i> atrix	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)	РН (SM4500НВ)	TSS (SM2540)	ALERT !! Level III QC	Number of Containers	COMMENTS
۱	C-BNS-D-190	3/4/2013	12:35	Water	х		х	Х	х	Х	Х	Х	Х	Х		9	)
2	C-I-3-D-190	3/4/2013	10:42	Water	х		X	Х	Х	Х	Х	х	Х	Х		9	
3	C-I-3-S-190	3/4/2013	11:00	Water	х		Х	Х	Х	х	Х	х	Х	Х		9	TDH=2
γĪ	C-MAR-D-190	3/4/2013	13:12	Water	х		Х	X	х	х	х	Х	Х	х		9	6020.4
5	C-MAR-S-190	3/4/2013	13:27	Water	Х		Х	X	×	Х	Х	Х	Х	Х		9	601013
6	C-MW-80-190	3/4/2013	11:37	Water		х										*****	/
2	C-MW-81-190	3/4/2013	12:22	Water		х										1	
9	C-R22A-D-190	3/4/2013	11:47	Water	х		X	×	Х	Х	Х	х	х	х		9	7
	C-R22A-S-190	3/4/2013	12:05	Water	х		х	х	х	Х	×	х	х	Х		9	/
ď	C-R27-D-190	3/4/2013	14:01	Water	х		×	Х	х	Х	х	х	X	х		9	\.
H	C-R27-S-190	3/4/2013	14:16	Water	х	<del> </del>	X	X	X	X	х	×	Х	X		9	m/=2/
7	C-TAZ-D-190	3/4/2013	9:45	Water	X		х	Х	X	X	Х	х	Х	Х	The Market and the Control of the Co	9	6500
3	C-TAZ-S-190	3/4/2013	10:03	Water	Х		Х	Х	x	х	Х	Х	Х	Х		9	60103
_	R63-190	3/4/2013	11:20	Water	×		X	X	×	×	×	X	х	х		9	<del>                                     </del>

Approved by

Sampled by Retinquished by

Received by

Relinquished by Received by

\$ignatures

Date/Time

1630

-13 J2: 30Lab Name: Truesdail Laboratories, Inc.

Method of Shipment:

On Ice: yes / no

22/30 Lab Phone: (714) 730-6239

**Shipping Details** 

Special Instructions: ATTN:

March 4-5, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

#### CH2MHILL

**CHAIN OF CUSTODY RECORD** 



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			1
Location Topock Project Manager Jay Piper	Preservatives	(NH4)2S	(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			
Sample Manager Shawn Duffy	Filtered	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			ĺ
	Holding Time	28	28	180	180	180	14	14	14	14	14			
	TIME Matrix	Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe		Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	РН (SM4500НВ)	TSS (SM2540)	ALERT !! Level III QC	Number of Containers	сомі
RMP-AB1-190 3/4/2013 1	14:30 Water		Х										4	
	•				,							TOTAL NUMBER OF CONTAINERS	111	

Approved by Sampled by

Received by

Signatures

Date/Time 3-4~13 1630

**Shipping Details** 

ATTN:

March 4-5, 2013

Special Instructions:

On Ice: yes / no

Method of Shipment:

Sample Custody

Report Copy to

Received by 3/4//3 /6:30 Airbill No: 3-4-13 11:3 Eab Name: Truesdail Laboratories, Inc. Relinquished by

Lab Phone: (714) 730-6239

Shawn Duffy (530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

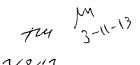
Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3,5/13	806633-3	9.5	NIA	NIA	NA	RY3
				į į		- j
	4					
	_6				·	
	-7					
	~3					
	_9					
	10					
	11					
V	-12	V				d.
3/5/13	8066341	9.5	NIA	MA	NA	Rn
	-2	1	i i			
	-3					
	-4					
	-5					
	-6					
	-7			!		
	3	!				
	-9					
	-10					
	~11					
	12					
	_13			<u> </u>	4	4
3,5/13	806635-1	9.5	N/A	N/4	1010	RB
	-2	1				
	-3				.	
	5					
	6					
	-7					
	- 8	<u> </u>	<u> </u>	<u> </u>	<u>j</u>	V

my 3-11-13

3/8/13

# 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
315/1	3 806635-9	9.5	NIA	1 Nu 1A	212	PB
	-10				-	1
	-11			<u> </u>		
	12				-	
	-13					· <b>/</b>
	-14					
	-15	l le	1	1-1-		h
3/6/11	803668-1	9,5	NA	NA	NIA	TH
	~2			<del>                                     </del>		
	-,1					
	· · ·					
	-5					
	-6		***************************************			
	-7		·			
	-8					
	-9 -10					
	-11		•			
	-12					
	-13					
	-/4					
	-15					
V	-16	.1		J	1	3.
3/6/13	806669-1	7,0	2mc/100ml	9.5	10:20	Tres
L	-2	<u> </u>	J		d	
3/6/13	806 670 -1	7.0	2 ml /100 pg (	9.5	10:20	Pu
¥	-2	1	l	1		<b>V</b>
3/6/13	806673	9.5	NA	NA	W/A	tra
3/6/13	806696-1	7.0	2mc/100mc	9.5	15:45	TM
	1 -2	J	2mc/100ml	<u> </u>	1	Tay





**Turbidity/pH Check** 

			iuibii	alty/pH C	IIICUN			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41	12	2/25/13	DC	Yes			
806520	. 71	42		1	1			
806493 (1-5)	71	12						
806494 (1-5)	71	62	l l		L L			
306552	<b>&lt;</b> 1	72	2-27-13	马と	×es	11:00		
806553L1-4)		<2						
806554 (1-4)				1				
806542 (1-3)	r)			<u> </u>				
806542(1-3)		72	,		~0	12:00	2/28/13 2 15:35	
80 8545							J	
806537	۷ ا	٤2	¥	or	yes			
806565	۷۱	72	<u> </u>	<u> </u>	. ges	14:∞	2/28/13 20 15:30	
806562(1-19)	41	72	2 28/13	ES	no	9:30	3/11/3 00 60	pHZ2
806567(10-12)	<u> </u>		9 ~		<u></u>	1	<u> </u>	· \(\nu\)
806570 (1-2)	71	ZZ			yes			
806 572 (1-2)	. 1	12			ijis ijes			
806586 (1,2)	<u>۲۱</u>	72		DC	ges	15:30		
306617	71 5 INIU	.42	3/4/13	<b>9</b> C	yer			
\$06632 (1-12)	<1		3-5-19	BL				
8066344113-6								
806135 (1-598-14)				+-				
806620(1-2,4)	21	72	312/13	ŁŚ	NO	12:00		
806620(12,47)		1	915117	1	1	12.00		
80625		<b>Z</b> 2			ijes			
806626		J						
406 68861-27512	<1	<2	3-6-13	BE	xes			
896669 (1-2)	1	72	1		1			Lab file A cicliful
80667061-27	1							J
80867911-5)		<2	1					
806643	71	42		DC	yes			
806651	41	J.		١	. 1			
806688	71	>2	4	·l	Ų.	12:30		
906667	<1	72		BI-	V	14100		
80666361-3	<u> </u>		*		k	1500 B		
806694610-12				1		15:00		
806688(4-6)						4		
80 6650	41	12	3/4/13	n	yes			
806649					1			
806648								
806647								
8010646								
806652			·					
8106671	<i>.</i>	<u> </u>	4	4	J			

#### Notes:

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

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# Sample Integrity & Analysis Discrepancy Form

CI	ient: <u>E2</u>	Lab#
Da	te Delivered: <u>0岁 0</u> 灯 13 Time: <u>೩೩.′೪</u> ೦ By: □Mail 🍳	Field Service
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No □N/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No ÇÎN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No œN/A
<b>5</b> .	Were all requested analyses understood and acceptable?	AYes □No □N/A
<i>6</i> .	Were samples received in a chilled condition? Temperature (if yes)? $\frac{3.5 \text{ °C}}{}$	ÆYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆYes □No □N/A
<b>8</b> .	Were sample custody seals intact?	□Yes □No ÞÍN/A
9.	Does the number of samples received agree with COC?	Je Yes □No □N/A
10.	Did sample labels correspond with the client ID's?	∯Yes □No □N/A
<b>1</b> 1.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐ Truesdail □ Client	✓ Yes □No □N/A
12.	Were samples pH checked? pH = <u>\$elec.o.c</u>	☐Yes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT):   RUSH & Std	□Yes □No □N/A
15.	Sample Matrix: □Liquid □Drinking Water □Ground W □Sludge □Soil □Wipe □Paint □Solid ☑	11. 1
16.	Comments:	
17.	Sample Check-In completed by Truesdail Log-In/Receiving:	L. Steabury







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

Established 1931



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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			

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# Event 2012-RMP-190 Cr (VI) by EPA 218.6, Surfacewater Samples Samples field filtered unless otherwise noted

Sample ID	Initial pH adjustmer pH 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		Annual Control of the	
C-NR4-D-190	9.50	No			
C-NR4-S-190	9.50	No		1 <b>V</b> 11 No. 1	
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** 

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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

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

Attention: Shawn Duffy

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

### **Analytical Results Summary**

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL.
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 CaCO3)	130	mg/L	5.00
806668-001	C-CON-D-190	SM2320B	NONE	3/5/2013	9:49	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	124	mg/L	5.00
806668-002	C-CON-S-190	SM2320B	NONE	3/5/2013	10:06	Alkalinity, Carbonate (As CaCO3)	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	рH	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

06

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 II	) 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	рH	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	рН	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



		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	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	pΗ	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	pН	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



		Analysis	Extraction	_	Sample	_			
Lab Sample ID	Field ID	Method	Method	Sample Date	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	5 Alkalinity		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	рH	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	pН	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	pН	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	pН	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



TRUESDAIL LABORATORIES, IN	IC.
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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 CaCO3)	128	mg/L	5.00
806668-014	RRB-190	SM2320B	NONE	3/5/2013	9:13	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-014	RRB-190	SM2540D	NONE	3/5/2013	9:13	Suspended Solids (Residue, Non-Filterable)	ND	-	10.0
806668-014	RRB-190	SM4500HB	NONE	3/5/2013	9:13 9:13	PH	8.23 J	mg/L	4.00
806668-014	RRB-190	SW6010B	FLDFLT	3/5/2013	9:13 9:13	Iron	0.23 J ND	pH	20.0
806668-014	RRB-190	SW6010B	NONE	3/5/2013	9:13 9:13	Iron		ug/L	
	RRB-190						76.8	ug/L	20.0
806668-014		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	рΗ	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	рΗ	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.

## TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



Established 1931

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

Printed 3/20/2013

Laboratory No. 806668

### REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

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

Release Number:

Samples Received on 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.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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806668-014 Nitrate as Nitrogen		mg/L	03/06	3/2013 16:31 1.0	0.00830	0.500 ND
Method Blank						
Parameter Fluoride Sulfate	Unit mg/L mg/L	DF 1.00 1.00	Result ND ND			
Nitrate as Nitrogen  Duplicate	mg/L	1.00	ND			Lab ID = 806670-001
Parameter Sulfate Duplicate	Unit mg/L	DF 100	Result 546	Expected 550	RPD 0.689	Acceptance Range 0 - 20 Lab ID = 806670-002
Parameter Fluoride Nitrate as Nitrogen Lab Control Sample	Unit mg/L mg/L	DF 5.00 5.00	Result 2.74 3.16	Expected 2.51 3.34	RPD 8.65 5.44	Acceptance Range 0 - 20 0 - 20
Parameter Fluoride Sulfate Nitrate as Nitrogen Matrix Spike	Unit mg/L mg/L mg/L	DF 1.00 1.00 1.00	Result 4.16 20.6 4.07	Expected 4.00 20.0 4.00	Recovery 104 103 102	Acceptance Range 90 - 110 90 - 110 90 - 110 Lab ID = 806670-001
Parameter Sulfate Matrix Spike	Unit mg/L	DF 100	Result 1060	Expected/Added 1050(500)	Recovery 102	Acceptance Range 85 - 115 Lab ID = 806670-002
Parameter Fluoride Nitrate as Nitrogen MRCCS - Secondary	Unit mg/L mg/L	DF 5.00 5.00	Result 23.6 22.8	Expected/Added 22.5(20.0) 23.3(20.0)	Recovery 106 97.2	Acceptance Range 85 - 115 85 - 115
Parameter Fluoride Sulfate Nitrate as Nitrogen MRCVS - Primary	Unit mg/L mg/L mg/L	DF 1.00 1.00 1.00	Result 4.15 20.6 4.06	Expected 4.00 20.0 4.00	Recovery 104 103 102	Acceptance Range 90 - 110 90 - 110 90 - 110
Parameter Fluoride MRCVS - Primary	Unit mg/L	DF 1.00	Result 3.20	Expected 3.00	Recovery 107	Acceptance Range 90 - 110
Parameter Fluoride	Unit mg/L	DF 1.00	Result 3.19	Expected 3.00	Recovery 106	Acceptance Range 90 - 110

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Alkalinity by SM 2320B

Batch 03ALK13B

Alkalinity by SM 2320B		Batch U3ALK13B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Alkalinity as CaCO3	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 CaCO3	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
306668-005 Alkalinity as CaCO3	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 CaCO3	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 CaCO3	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
306668-008 Alkalinity as CaCO3	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
306668-009 Alkalinity as CaCO3	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 CaCO3	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 CaCO3	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 CaCO3	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
306668-014 Alkalinity as CaCO3	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



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Method Blank						
Parameter Alkalinity as CaCO3 Duplicate	Unit mg/L	DF 1.00	Result ND			Lab ID = 806668-007
Parameter Alkalinity as CaCO3 Lab Control Sample	Unit mg/L	DF 1.00	Result 126	Expected 126	RPD 0	Acceptance Range 0 - 20
Parameter Alkalinity as CaCO3 Lab Control Sample I	Unit mg/L Duplicate	DF 1.00	Result 99.0	Expected 100	Recovery 99.0	Acceptance Range 90 - 110
Parameter Alkalinity as CaCO3 Matrix Spike	Unit mg/L	DF 1.00	Result 100	Expected 100	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806670-002
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result 246	Expected/Added 243(100)	Recovery 103	Acceptance Range 75 - 125



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Specific Conductivity -	EPA 120.1		Bato	ch 03EC13C				
Parameter	il eta Waliapel e gazari ili	Unit	An	Analyzed		MDL	RL	Result
806668-001 Specific Condu	uctivity	umhos/	cm 03/0	03/06/2013		0.116	2.00	866
806668-002 Specific Condu	uctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	865
806668-005 Specific Condu	uctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	867
806668-006 Specific Condu	uctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	872
806668-007 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	875
806668-008 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	875
806668-009 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	876
806668-010 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	871
806668-011 Specific Condu	ıctivity	umhos/	cm 03/0	6/2013	1.00	0.116	2.00	873
806668-012 Specific Condu	ıctivity	umhos/	cm 03/0	6/2013	1.00	0.116	2.00	874
806668-014 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	876
806668-015 Specific Conductivity		umhos/	cm 03/0	03/06/2013		0.116	2.00	920
806668-016 Specific Conductivity		umhos/	cm 03/0	6/2013	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	F	RPD	Accepta	ance Range
Specific Conductivity	umhos	1.00	874	874		0	0 - 10	
Duplicate							Lab ID =	806670-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
Specific Conductivity	umhos	1.00	7440	7440		0	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Specific Conductivity	umhos	1.00	710	706		100	90 - 110	)
Lab Control Sample	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Specific Conductivity  MRCCS - Secondary	umhos y	1.00	703	706		99.6	90 - 110	)
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ance Range
Specific Conductivity	umhos	1.00	707	706		100	90 - 110	)



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Metals by EPA 6010B, To	tal		Batch	031313A-Th2				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
806668-001 Iron		ug/L	03/13	3/2013 15:29	1.00	9.50	20.0	24.5
806668-002 Iron		ug/L	03/13	3/2013 15:54	1.00	9.50	20.0	ND
806668-005 Iron		ug/L	03/13	3/2013 16:00	1.00	9.50	20.0	ND
806668-006 Iron		ug/L	03/13	3/2013 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	3/2013 16:37	1.00	9.50	20.0	ND
806668-009 Iron		ug/L	03/13	3/2013 16:44	1.00	9.50	20.0	22.4
806668-010 Iron		ug/L	03/13	3/2013 16:50	1.00	9.50	20.0	ND
806668-011 Iron		ug/L	03/13	3/2013 16:56	1.00	9.50	20.0	ND
806668-012 Iron		ug/L	03/13	3/2013 17:02	1.00	9.50	20.0	ND
806668-014 Iron		ug/L	03/13	3/2013 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	Accepta	ince Range
Iron	ug/L	1.00	27.0	24.5		9.71	0 - 20	_
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Iron	ug/L	1.00	53.5	50.0		107	85 - 115	;
Matrix Spike							Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Add	ded	Recovery	Accepta	nce Range
Iron	ug/L	1.00	74.9	74.5(50.0)		101	75 - 125	j
Matrix Spike Duplicate							Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Add	ded	Recovery	Accepta	nce Range
Iron	ug/L	1.00	75.5	74.5(50.0)		102	75 - 125	j
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Iron	ug/L	1.00	5080	5000		102	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Iron	ug/L	1.00	4970	5000		99.4	90 - 110	)



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Chrome VI by EPA 218.6			Batch	03CrH13K				
Parameter		Unit	Anal	yzed	DF	MDL	RL	Result
806668-001 Chromium, Hexa	avalent	ug/L	03/14	/2013 08:15	1.00	0.00920	0.20	ND
806668-002 Chromium, Hexa	avalent	ug/L	03/14	03/14/2013 08:26		0.00920	0.20	ND
806668-003 Chromium, Hexa	avalent	ug/L	03/14	/2013 08:36	1.00	0.00920	0.20	ND
806668-004 Chromium, Hexa	avalent	ug/L	03/14	/2013 08:47	1.00	0.00920	0.20	ND
806668-005 Chromium, Hexa	avalent	ug/L	03/14	/2013 08:57	1.00	0.00920	0.20	ND
806668-006 Chromium, Hexa	avalent	ug/L	03/14	/2013 09:07	1.00	0.00920	0.20	ND
806668-007 Chromium, Hexa	avalent	ug/L	03/14	/2013 09:18	1.00	0.00920	0.20	ND
806668-008 Chromium, Hexa	avalent	ug/L	03/14	/2013 09:59	1.00	0.00920	0.20	ND
806668-009 Chromium, Hexa	avalent	ug/L	03/14	/2013 10:10	1.00	0.00920	0.20	ND
806668-010 Chromium, Hexa	avalent	ug/L	03/14	/2013 10:20	1.00	0.00920	0.20	ND
806668-011 Chromium, Hexa	avalent	ug/L	03/14	/2013 10:31	1.00	0.00920	0.20	ND
806668-012 Chromium, Hexa	avalent	ug/L	03/14	/2013 10:41	1.00	0.00920	0.20	ND
806668-013 Chromium, Hexa	avalent	ug/L	03/14/	/2013 10:51	1.00	0.00920	0.20	ND
806668-014 Chromium, Hexa	avalent	ug/L	03/14/	/2013 11:02	1.00	0.00920	0.20	ND
306668-015 Chromium, Hexavalent		ug/L	03/14/	/2013 11:12	1.00	0.00920	0.20	ND
Method Blank								
Parameter	Unit	ÐF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	806668-002
Parameter	Unit	ÐF	Result	Expected		RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.0336	0.0390		14.9	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected	1	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	0.203	0.200		102	70 - 130	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	nce 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/A	Added I	Recovery	Accepta	nce 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 I	Recovery	Accepta	nce 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 Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.961	Expected/Added 1.00(1.00)	Recovery 96.1	Acceptance Range 90 - 110 Lab ID = 806668-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.964	Expected/Added 1.00(1.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 806668-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.986	Expected/Added 1.03(1.00)	Recovery 95.5	Acceptance Range 90 - 110 Lab ID = 806668-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 97.2	Acceptance Range 90 - 110 Lab ID = 806668-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.973	Expected/Added 1.03(1.00)	Recovery 94.0	Acceptance Range 90 - 110 Lab ID = 806668-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 96.7	Acceptance Range 90 - 110 Łab ID = 806668-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.978	Expected/Added 1.03(1.00)	Recovery 94.5	Acceptance Range 90 - 110 Lab ID = 806668-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.07	Expected/Added 1.03(1.00)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806668-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.990	Expected/Added 1.03(1.00)	Recovery 95.7	Acceptance Range 90 - 110 Łab ID = 806668-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.11	Expected/Added 1.03(1.00)	Recovery 108	Acceptance Range 90 - 110 Lab ID = 806668-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.959	Expected/Added 1.00(1.00)	Recovery 95.9	Acceptance Range 90 - 110 Lab ID = 806668-014
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.988	Expected/Added 1.03(1.00)	Recovery 95.9	Acceptance Range 90 - 110

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Matrix Spike						Lab ID = 806668-015		
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.961	Expected/Added 1.01(1.00)	Recovery 94.7	Acceptance Range 90 - 110 Lab ID = 806826-001		
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.08(1.00)	Recovery 96.1	Acceptance Range 90 - 110 Lab ID = 806826-001		
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 5.00	Result 4.80	Expected/Added 5.11(5.00)	Recovery 93.8	Acceptance Range 90 - 110		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.97	Expected 5.00	Recovery 99.5	Acceptance Range 90 - 110		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.94	Expected 10.0	Recovery 99.4	Acceptance Range 95 - 105		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.93	Expected 10.0	Recovery 99.3	Acceptance Range 95 - 105		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.81	Expected 10.0	Recovery 98.1	Acceptance Range 95 - 105		



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Chrome VI by EPA 218.6		Batch 03CrH13L						
Parameter		Unit	Analyzed		DF	MDL	RL	Result
806668-016 Chromium, Hexa	avalent	ug/L	03/18	3/2013 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		nce Range
Chromium, Hexavalent	ug/L	1.00	0.222	0.200		111	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	-	ince Range
Chromium, Hexavalent	ug/L	1.00	5.02	5.00		100	90 - 110	
Matrix Spike								806668-016
Parameter	Unit	DF	Result	Expected/Adde	ed	Recovery	•	ince Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.02(1.00)		99.2	90 - 110	
Matrix Spike						_		806909-001
Parameter Chromium Hovevelont	Unit	DF 10.0	Result 280	Expected/Adde 282(150)	ed	Recovery 99.0	Accepta 90 - 110	ince Range
Chromium, Hexavalent  Matrix Spike	ug/L	10.0	200	262(150)		99.0		, 806909-002
· ·	11.34	D.E.	D"	From a aka al/A alala		<b>D</b>		
Parameter Chromium, Hexavalent	Unit ug/L	DF 10.0	Result 286	Expected/Adde 285(150)	ea	Recovery 100	90 - 110	ince Range
Matrix Spike	ug/L	10.0	200	200(100)		100		, 806909-003
Parameter	Unit	DF	Result	Expected/Adde	٠.d	Recovery		
Chromium, Hexavalent	ug/L	250	6360	6370(3750)	u	99.6	90 - 110	ince Range
Matrix Spike	~ <del>.</del> 5/ _		0000	00,0(0,00)		00.0		806909-005
Parameter	Unit	DF	Result	Expected/Adde	ad.	Recovery		nce Range
Chromium, Hexavalent	ug/L	100	3710	3740(2000)	,u	98.3	90 - 110	_
Matrix Spike	- <b>J</b> . –	_	<del>_</del>	· · · · · · · · · · · · · · · · · · ·				806909-006
Parameter	Unit	DF	Result	Expected/Adde	ed	Recovery		nce Range
Chromium, Hexavalent	ug/L	100	3720	3680(2000)	. <b></b>	102	90 - 110	
•	_			• •				



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Parameter	Unit	Unit Analyzed		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
306668-006 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
306668-007 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
306668-008 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
306668-009 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
306668-010 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

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 Eng	ineers, Ind	<b>)</b> .	Project Name: Project Number	PG&E Topo : 423575.MP.	-	ect	F Printed 3	age 17 of 29 /20/2013
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	I	RPD	Accepta	nce 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 \	erification/							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce 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	F	Recovery	Accepta	nce Range
Arsenic	ug/L	2.00	45.5	50.0		91.0	85 - 115	;
Chromium	ug/ <b>L</b>	2.00	49.4	50.0		98.9	85 - 115	;
Manganese	ug/L	2.00		50.0		95.5	85 - 115	•
Molybdenum	ug/L	2.00	50.7	50.0		101	85 - 115	;



Client: E2 Consulting Engineers, Inc.			oject Name: oject Numbe	oject 1	Page 18 of 29 Printed 3/20/2013	
Matrix Spike						Lab ID = 806668-001
Parameter Arsenic	Unit ug/L	DF 2.00	Result 43.0	Expected/Added 52.2(50.0)	Recovery 81.5	Acceptance Range 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 Arsenic	Unit ug/L	DF 1.00	Result 18.8	Expected 20.0	Recovery 93.8	Acceptance Range 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  MRCVS - Primary	ug/L	1.00	19.3	20.0	96.6	90 - 110
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 Manganese	Unit ug/L	DF 1.00	Result 18.6	Expected 20.0	Recovery 92.8	Acceptance Range 90 - 110



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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806668-001 Selenium		ug/L	03/12	2/2013 14:57	2.00	0.160	5.0	ND
806668-002 Selenium		ug/L	03/12	2/2013 16:01	2.00	0.160	5.0	ND
806668-005 Selenium		ug/L	03/12	2/2013 16:09	2.00	0.160	5.0	ND
806668-006 Selenium		ug/L	03/12	2/2013 16:16	2.00	0.160	5.0	ND
806668-007 Selenium		ug/L	03/12	2/2013 16:23	2.00	0.160	5.0	ND
806668-008 Selenium		ug/L	03/12	2/2013 16:30	2.00	0.160	5.0	ND
806668-009 Selenium		ug/L	03/12	2/2013 16:37	2.00	0.160	5.0	ND
806668-010 Selenium		ug/L	03/12	2/2013 16:44	2.00	0.160	5.0	ND
806668-011 Selenium		ug/L	03/12	2/2013 16:52	2.00	0.160	5.0	ND
806668-012 Selenium		ug/L	03/12	2/2013 16:59	2.00	0.160	5.0	ND
806668-014 Selenium		ug/L	03/12	2/2013 17:06	2.00	0.160	5.0	ND
Method Blank								
Parameter Selenium	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	806668-001
Parameter Selenium	Unit ug/L	DF 2.00	Result ND	Expected 0	F	RPD 0	Accepta 0 - 20	ance Range
Low Level Calibration	Verification							
Parameter Selenium Lab Control Sample	Unit ug/L	DF 1.00	Result 0.208	Expected 0.200	F	Recovery 104	Accepta 70 - 130	ance Range )
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Selenium	ug/L	2.00	44.2	50.0		88.5	85 - 118	5
Matrix Spike							Lab ID =	806668-001
Parameter Selenium	Unit ug/L	DF 2.00	Result 40.9	Expected/Ac 50.0(50.0)	dded f	Recovery 81.9	75 - 125	
Matrix Spike Duplicate							Lab ID =	806668-001
Parameter Selenium	Unit ug/L	DF 2.00	Result 41.8	Expected/Ac 50.0(50.0)	dded F	Recovery 83.6	Accepta 75 - 125	ance Range
MRCCS - Secondary						_		_
Parameter Selenium	Unit ug/L	DF 1.00	Result 20.4	Expected 20.0	F	Recovery 102	Accepta 90 - 110	ance Range )



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Metals by EPA 6020A, I	Dissolved		Batch	031513A-ICPMS-1				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806668-010 Manganese		ug/L	03/15	5/2013 13:57 2	.00 0.1	72	0.50	0.52
Molybdenum		ug/L	03/15	5/2013 13:57 2	.00 0.4	14	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		Accepta	ince Range
Manganese	ug/L	2.00	0.653	0.648	0.73	8	0 - 20	J
Molybdenum	ug/L	2.00	4.78	5.44	12.8		0 - 20	
Low Level Calibration	n Verification	1						
Parameter	Unit	DF	Result	Expected	Recov	ery	Accepta	nce 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	Recov	ery	Accepta	nce 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/Adde	d Recov	ery	Accepta	nce 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 Duplica	ite :						Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Adde	d Recov	ery	Accepta	nce 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	Recov	ery	Accepta	nce 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	Recov	ery	Accepta	nce Range
Manganese	ug/L	1.00	18.9	20.0	94.4	•	90 - 110	-



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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806668-001 Iron		ug/L	-1	/2013 16:10	1.00	9.50	20.0	ND
806668-002 Iron		ug/L		/2013 16:52	1.00		20.0	ND
806668-005 Iron		ug/L		/2013 16:58	1.00		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	Accepta	nce Range
Iron	ug/L	1.00	ND	0		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Iron	ug/L	1.00	52.3	50.0		105	85 - 115	
Matrix Spike							Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/A	dded	Recovery	-	nce 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/Ad	dded	Recovery		ince Range
Iron	ug/L	1.00	50.0	50.0(50.0)		100	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	•	ince Range
Iron	ug/L	1.00	4930	5000		98.6	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF 1.00	Result	Expected		Recovery	•	ince Range
Iron	ug/L		4780	5000		95.5	90 - 110	



Unit

рΗ

DF

1.00

Result

7.02

Report Continued

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Parameter

рΗ

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Acceptance Range

90 - 110

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result	
806668-001 pH		pН	03/06	5/2013 10:30	1.00	0.0784	4.00	8.28	- J
806668-002 pH		рН	03/06	6/2013 10:32	1.00	0.0784	4.00	8.29	J
806668-005 pH		рН	03/06	5/2013 10:35	1.00	0.0784	4.00	8.25	
806668-006 pH		рН	03/06	3/2013 10:38	1.00	0.0784	4.00	8.26	
806668-007 pH		pН	03/06	5/2013 10:40	1.00	0.0784	4.00	8.24	
806668-008 pH		рН	03/06	6/2013 10:42	1.00	0.0784	4.00	8.24	
806668-009 pH		рН	03/06	5/2013 10:45	1.00	0.0784	4.00	8.24	_
Duplicate							Lab ID =	806668-009	
Parameter pH	Unit pH	DF 1.00	Result 8.24	Expected 8.24	F	RPD 0	Accepta 0 - 20	ance Range	
Lab Control Sample									
Parameter pH	Unit pH	DF 1.00	Result 7.01	Expected 7.00	F	Recovery 100	Accepta 90 - 110	ance Range )	
Lab Control Sample D	uplicate								
Parameter pH	Unit pH	DF 1.00	Result 7.03	Expected 7.00	Recovery 100		Acceptance Rang 90 - 110		
•	•								

Expected

7.00

Recovery

100



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pH by SM 4500-H B			Batch	03PH13E					
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result	
806668-010 pH		рН	03/06	8/2013 10:55	1.00	0.0784	4.00	8.20	_
806668-011 pH		рН	03/06	6/2013 10:57	1.00	0.0784	4.00	8.30	J
806668-012 pH		рН	03/06	8/2013 11:00	1.00	0.0784	4.00	8.33	J
806668-014 pH		рН	03/06	8/2013 11:03	1.00	0.0784	4.00	8.23	J
806668-015 pH		рН	03/06	8/2013 11:05	1.00	0.0784	4.00	7.50	J
806668-016 pH		рН	03/06	6/2013 11:07	1.00	0.0784	4.00	7.57	_ J
Duplicate							Lab ID =	806669-002	2
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range	е
pН	рН	1.00	7.25	7.25		0	0 - 20		
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range	Э
рН	рН	1.00	7.02	7.00		100	90 - 110	כ	
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range	Э
pН	pН	1.00	7.02	7.00		100	90 - 110	)	



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Total Suspended Solids	s by SM 25	40 D	Batch	03TSS13D				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806668-001 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-002 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-005 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-006 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-007 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-008 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-009 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-010 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-011 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-012 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-014 Total Suspende	d Solids	mg/L_	03/08	3/2013	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	F	RPD	Accepta	ance Range
Total Suspended Solids	mg/L	1.00	ND	0		0	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Total Suspended Solids	mg/L	1.00	98.0	100		98.0	90 - 110	)
Lab Control Sample (	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Total Suspended Solids	mg/L	1.00	97.0	100		97.0	90 - 110	)

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

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	8-86608	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
J <b>7</b> 7	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
J6†	LCS-2	100	1 3889	1,3986	1.3986	0.0000	No	0.0097	97.0	25.0	97.0

Calculation as follows:

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

Where:

A = weight of dish + residue in grams.

B = weight of dish in grams.

C = mL of sample filtered.

RL= reporting limit.

ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	98	100	98.0%	90-110%	Yes
LCSD	97	100	97.0%	90-110%	Yes

**Duplicate Determinations Difference Summary** 

Lab Number	Sample Weight,	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

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

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

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

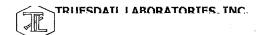
B = Weght of the second sample in (g).

C = Average weight in (g).

Maksim G. Reviewer Printed Name



Gautam S. Analyst Printed Name



## Alkalinity by SM 2320B

03ALK13B Analytical Batch: Matrix: WATER Date of Analysis: 3/6/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCØ3 Conc. as CaCO <sub>3</sub> (ppm)	CO3 Alkalinity as CaCO <sub>3</sub> (ppm)	OH Alkalinity as CaCO <sub>3</sub> (ppm)	Low Alkalinity as CaCO <sub>3</sub>
BLANK	6.90	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	132000mi
806668-1	8.19	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
806668-2	8.23	50	0.02		0.0	6,20		124.0	5	124.0	124.0	ND	ND	
806668-5	8.22	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
806668-6	8.22	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
806668-7	8.20	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
806668-8	8.19	50	0,02		0.0	6.15		123.0	5	123.0	123.0	ND	ND	
806668-9	8.19	50	0.02		0.0	6,15		123.0	5	123.0	123.0	ND	ND	
806668-10	8.19	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
806668-11	8.28	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	ND	
806668-12	8.28	50	0.02		0.0	6.10		122.0	5	122.0	122.0	ND	ND	
806668-14	8.20	50	0.02		0.0	6,40		128.0	5	128.0	128.0	ND	ND	
806670-2	7.64	50	0.02		0.0	7.15		143.0	5	143.0	143.0	ND	ND	
806682-1	7.85	50	0,02		0.0	4.25		85.0	5	85.0	85.0	ND	ND	
806668-7 DUP	8.20	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
806670-2 MS	9.02	50	0.02	1.7	34.0	12.30		246.0	5	246.0	178.0	68	ND	
LCS	10.28	50	0.02	2.3	45.0	4,95		99.0	5	99.0	9.0	90	ND	
LCSD	10,32	50	0.02	2.2	44.0	5.00		100.0	5	100.0	12.0	88	ND	
							-				-			<del> </del>
						BANKA PARKA							1	1

Calculations as follows:

Tor P=

Where:

A~x~N~x~50000

mL sample T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used N = normality of standard acid

as mg/L CaCO3

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

mL sample

Where: B = mL titrant to first recorded pH

Low Alkalinity: =

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

<del>-</del>5

QC Std I,D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	100	100	100.0%	90-110	Yes

QC Within

Control?

Yes

**Duplicate Determination Difference Summary** 

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC WithIn Control?	
806668-7	126	126	0.0%	20%	Yes	

Sample Matrix Spike (MS/MSD) Summary

Cample man	v obive (	י נטטוווטוי	Juliliary										
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			
000070-2		1	100	100				75-125					l

Melissa S. Analyst Printed Name

**Blank Summary** 

Measured

Value, ppm

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name

056

806668

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

3/5/2013 2:14:57 PM

OF 2

										-					Ŭ. <u>-</u>	- Alex
Project Name PG	&E Topoc	k	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			
Location Topoci		Desa		(NH4)2S	(NH4)2S	HNO3,	HNO3,	HNO3,	4°C	4°C	4°C	4°C	4°C			-
Project Manager	-		ervatives:	04/NH40 H, 4°C	Ò4/NH4O H, 4°C	4°C	4°C	4°C								
Sample Manager	Shawn Dul	ffy	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
			ling Time:	28	28	180	180	180	14	14	14	14	14			
Project Number Task Order Project 2013-RM Turnaround Time Shipping Date: 3 COC Number: 2	P-190 10 Days	5	Matrix	Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)	ALERT !! Level III QC	Number of Containers	COMMENTS
C-CON-D-190	3/5/2013	9:49	Water	X		Х	Х	Х	Х	Х	Х	Х	Х		9	7
C-CON-S-190	3/5/2013	10:06	Water	X		х	Х	×	х	Х	X	Х	Х		9	JPH=2
C-MW-82-190	3/5/2013	8:30	Water		х										1	60204
C-MW-83-190	3/5/2013	9:17	Water		Х										1	<del>- 5.2/3/</del>
C-NR1-D-190	3/5/2013	10:47	Water	Х		Х	х	Х	х	х	Х	Х	х		9	h
C-NR1-S-190	3/5/2013	11:01	Water	Х		х	x	Х	х	Х	Х	X	Х	_	9	1
C-NR3-D-190	3/5/2013	11:35	Water	x	<del>                                     </del>	X	×	х	Х	Х	Х	X	х	For Sample Conditions	9	l/
C-NR3-S-190	3/5/2013	11:48	Water	×	<del> </del>	x	X	х	х	Х	X	×	Х	200	9	PH=2
C-NR4-D-190	3/5/2013	12:15	Water	×		х	х	х	х	Х	Х	х	Х	566 FORM Attached	9	(6070A)
C-NR4-S-190	3/5/2013	12:32	Water	х	<u> </u>	х	Х	х	х	Х	Х	×	х		9	6010/
R-19-190	3/5/2013	8:54	Water	Х		X	х	х	×	X	Х	×	X		9	
R-28-190	3/5/2013	8:41	Water	×		х	X	Х	Х	X	Х	Х	×		9	<del>U</del>
RMP-A82-190	3/5/2013	12:40	Water	<u> </u>	X										No.	
/ RRB-190	3/5/2013	9:13	Water	Х		X	X	х	×	Х	x	×	Х		9	pu=2
	<u> </u>		ļ				1									60204

Approved by

Sampled by

Religiquished by

Received by

Signatures

Date/Time 3-5-/3 /625

22:30Lab Name: Truesdail Laboratories, Inc.

Method of Shipment:

On Ice: yes / no

**Shipping Details** 

23/3-CLab Phone: (714) 730-6239

Special Instructions:

ATTN: March 4-5, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303 60100



CH2MHILL

**CHAIN OF CUSTODY RECORD** 

3/5/2013 2:14:58 PM

Page 2 OF 2

Project Name Po		k C	ontainer:	ml Poly		Poly	+	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Project Manager		Prese	rvatives:	(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			
Sample Manager	Shawn Dut	ffy	Filtered:	Field	NA	NA	Field	Field	NA	NΑ	NA	NA	NA			
		Holdi	ing Time:	28	28	180	180	180	14	14	14	14	14			
Project Number Task Order Project 2013-RN Turnaround Time Shipping Date: 3	IP-190 • 10 Days 3/5/2013	S	Matrix	Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	РН (SM4500HB)	TSS (SM2540)		Number of Containers	СОММЕ
SW1-190	3/5/2013	7:15	Water	X				X	Х			х			5	1 has
SW2-190	3/5/2013	7:31	Water	Х				Х	Х			Х			5	194
		<del></del>					-							TOTAL NUMBER OF CONTAINERS	112	ac



Approved by	
Approved by	

Sampled by

Received by

Relinquished by

Received by

Signatures

Date/Time 3~5~/3

22:35 Lab Name: Truesdail Laboratories, Inc.

3/5/-13 22/3 Lab Phone: (714) 730-6239

**Shipping Details** 

Method of Shipment:

courier

On Ice: yes / no

ATTN:

Special Instructions: March 4-5, 2013

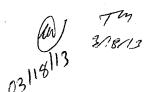
Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial	рН	Buffer A	dded (mL)	Fina	al pH	Time B	uffered	Init	ials
3/5/17	3 806635-9	9.	5	14	A	10	14	21	Δ	R.	n
								· .			
	-11										
	12								•		
	-13										
	-14			· .							
	-15	· E		<i>J</i>		<u></u>				Jr.	
3/6/13	803668-1	9,5	-	NIE	1	NI	4	NIA		Thy	,
	-2									$\perp$	
	-,3										
	~4									_	
	-1										
	-6									-	
	-7										
	-9							· ·		_	
	-9		$\dashv$								
	-10					_				-	
	-11										
	-12									$\perp$	-
	<i>-</i> -[3]		_			-+				+	
	-15					-				$\dashv$	$\dashv$
	-16		+								$\dashv$
9/6/13	806669-1	7.0		2 m/	100 m L	G, C		10:20		Tres	-
<i>l</i>	-2		$\top$	1	0025			10-20		1	$\dashv$
3/6/13	806670-1	7.0	-	2 ml/1	00.,1	9.5		16-20		PM	$\dashv$
4	-2	J		J	VIZ. L	1		10:20		1/	$\dashv$
3/6/13	806673	9.5		NA		NIA		N/A		tu	$\dashv$
- / - /	806696-1	7.0	$\top$	•	100mc	9.5		15:4	_		$\dashv$
I	1-2	J		Zml/	: T	V		J	_	TM	$\exists$
											$\exists$





Turbidity/nH Check

			Turbic	dity/pH C	heck		,	
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41	12	2/25/13	DC	Yes			
806520	- 71	42		1	j			
806493 (1-5)	71	. 12						
806494 (1-5)	>1	62						
306552	<1	72	2-27-13	35	Xes	11:00		
806553L1-4)		<2						
81655441-4)				1				
80655 C194-1	r)							
806542(1-3)		72			~°	12:00	2/28/13 2 15:35	
80 8545	1						J	
806537	41	42	1	or	ijes			, <u></u>
806565	41	72	ı	4	ges	14:00	2/28/13 & 15:30	
306562(1-14)	41	72	2/28/13	ES	no	9:30	3/1/13 00 10:00	DHZ 2
806567(10-12)	1			1	J	1	1	$\nu$
806570 (1-2)	71	ZZ			ye			
806 572 (1-2)	71	42		7	yeg iyis			
806586 (1,2)	41	72	l	0c	ges	15:30		
306617	7/25/1/10	.42	3/4/13	or	yes			
506632 (1-12)	<b>&lt;</b> 1		3-5-19	BL	9			
806833(1-12)								
8066344193-6							•	
806135 (1-508-14)								
806620(1-2,4)	21	72	3/2/13	ŁŚ	NÒ	12:00		
806627 (16,23)		<u> </u>		.	1			
806625		<b>Z</b> 2			ijes			
806626	1			1				
GUE 68861-50215	<1	<2	3-6-13	BE	xes			
806669 (1-2)		72						A CICH FUL
80667061-27								1
806679(1-5)		<u> くて</u>	\					
806643	71	42		DC	ijes			
806651	41	l			·			
806688	71	>2	<u> </u>	J I	<u> </u>	12:30		
906667	<1 1	ን፣		BI-	V	14:00		
80666361-3	+-+					Brank.		
806694610-12						15:00		
806682(4-6)						4		
80 66 50	41	22	3/4/13	n	yes	4		
806649								
806648				_				
8016647								
806646								
806652								
806171	./	٠.٠	4	4	J.			

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

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### Sample Integrity & Analysis Discrepancy Form

Cli	ent: <u>E 2</u>	_ Lab # <u>\$0666</u> 0
Dat	te Delivered: <u>03</u> / <u>05</u> / 13 Time: <u>₫೩′ 30</u> By: □Mail     €	¶Field Service □Client
1.	Was a Chain of Custody received and signed?	ØYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No □N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No Øn/A
<b>5</b> .	Were all requested analyses understood and acceptable?	ØaYes □No □N/A
<b>6</b> .	Were samples received in a chilled condition? Temperature (if yes)? <u>३ a २ <b>°C</b></u>	ÆYes □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 đN/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?	ØYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: △Truesdail □Client	ædYes □No □N/A
2.	Were samples pH checked? pH = $\underline{Sel\ C}$ . $\mathcal{O}$ . $\mathcal{C}$ .	ZYes □No □N/A
3.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	Yes INO IN/A
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b>	⊠Yes □No □N/A
5.	Sample Matrix: □Liquid □Drinking Water □Ground □Sludge □Soil □Wipe □Paint □Solid □	
<b>5</b> .	Comments:	
7	Sample Check-In completed by Truesdail Log-In/Receiving:	Lindia





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.

Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

Established 1931



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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		<u> </u>	
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			

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

Laboratory No.: 805651

Date Received: January 8, 2013

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

Attention: Shawn Duffy

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

#### **Analytical Results Summary**

		Analysis	Extraction		Sample				
Lab Sample II	Field ID	Method	Method	Sample Date	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 CaCO3)	123	mg/L	5.00
805651-001	C-BNS-D-189	SM2320B	NONE	1/8/2013	13:28	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	120	mg/L	5.00
805651-002	C-I-3-D-189	SM2320B	NONE	1/8/2013	11:29	Alkalinity, Carbonate (As CaCO3)	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	рH	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.

		Analysis	Extraction		Sample	_			
Lab Sample ID	Field ID	Method	Method	Sample Date	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 CaCO3)	121	mg/L	5.00
805651-003	C-I-3-S-189	SM2320B	NONE	1/8/2013	11:49	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	129	mg/L	5.00
805651-004	C-MAR-D-189	SM2320B	NONE	1/8/2013	9:16	Alkalinity, Carbonate (As CaCO3)	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	pН	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.
		E120.1	NONE	1/8/2013	9:31	EC	916	umhos/cm	2.00
805651-005	C-MAR-S-189		FLDFLT	1/8/2013	9:31 9:31		ND		0.20
805651-005	C-MAR-S-189 C-MAR-S-189	E218.6 E300	NONE	1/8/2013	9.31 9:31	Chromium, Hexavalent Nitrate as N	ND ND	ug/L	0.500
805651-005							120	mg/L	5.00
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity		mg/L	
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity, Bicarbonate (As CaCO3)	120	mg/L	5.00
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	124	mg/L	5.00
805651-008	C-R22A-D-189	SM2320B	NONE	1/8/2013	12:44	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805651-008	C-R22A-D-189	SM2540D	NONE	1/8/2013	12:44	Suspended Solids (Residue, Non-Filterable)	NĐ	mg/L	10.0
805651-008	C-R22A-D-189	SM4500HB	NONE	1/8/2013	12:44	PH	8.30	pН	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

	e: 1.15	Analysis	Extraction	0	Sample	Parameter	Daniel	11!4-	DI
Lab Sample ID	Field ID	Method	Method	Sample Date	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	pН	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	pН	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



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Lab Sample ID	rieia iD	Method	Method	Sample Date	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 CaCO3)	129	mg/L	5.00
805651-011	C-R27-S-189	SM2320B	NONE	1/8/2013	14:16	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	124	mg/L	5.00
805651-012	C-TAZ-D-189	SM2320B	NONE	1/8/2013	10:25	Alkalinity, Carbonate (As CaCO3)	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	pН	4.00
805651-012	C-TAZ-D-189	SW6010B <sup>-</sup>	FLDFLT	1/8/2013	10:25 <sup>.</sup>	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

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	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	рH	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	pН	4.00
805651-014	R63-189	SW6010B	FLDFLT		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.

**EXCELLENCE IN INDEPENDENT TESTING** 



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Printed 1/24/2013

Laboratory No. 805651

#### REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

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

Release Number:

Samples Received on 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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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 1.00 805651-014 Nitrate as Nitrogen mg/L 01/09/2013 21:16 0.00830 0.500 ND Method Blank Unit DF Parameter Result Nitrate as Nitrogen mg/L 1.00 ND **Duplicate** Lab ID = 805651-001 DF Parameter Unit Result Expected **RPD** Acceptance Range 1.00 ND 0.287 Nitrate as Nitrogen mg/L 0 - 200 Lab Control Sample Unit DF Expected Parameter Result Recovery Acceptance Range Nitrate as Nitrogen mg/L 1.00 4.00 4.00 99.9 90 - 110 Lab ID = 805651-001 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range 2.41 Nitrate as Nitrogen mg/L 1.00 2.29(2.00)106 85 - 115 MRCCS - Secondary DF Recovery Parameter Unit Result Expected Acceptance Range mg/L 1.00 3.99 4.00 Nitrate as Nitrogen 99.8 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 3.00 mg/L 1.00 3.00 99.8 Nitrate as Nitrogen 90 - 110 MRCVS - Primary DF Parameter Unit Result Expected Recovery Acceptance Range 90 - 110 Nitrate as Nitrogen mg/L 1.00 2.98 3.00 99.5 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range mg/L 1.00 2.98 3.00 99.4 90 - 110 Nitrate as Nitrogen MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 1.00 3.00 3.00 99.9 90 - 110 Nitrate as Nitrogen mg/L



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Alkalinity by SM 2320B		Batch 01ALK13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
305651-001 Alkalinity as CaCO3	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
305651-002 Alkalinity as CaCO3	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
305651-003 Alkalinity as CaCO3	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
05651-004 Alkalinity as CaCO3	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
05651-005 Alkalinity as CaCO3	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
05651-008 Alkalinity as CaCO3	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
05651-009 Alkalinity as CaCO3	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
05651-010 Alkalinity as CaCO3	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
05651-011 Alkalinity as CaCO3	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
05651-012 Alkalinity as CaCO3	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
05651-013 Alkalinity as CaCO3	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
05651-014 Alkalinity as CaCO3	mg/L	01/11/2013	1.00	0.555	5.00	120

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Client: E2 Consulting E	Engineers, Ind		oject Name: oject Numbe	PG&E Topock r: 423575.MP.02.	•	t	Printed 1	age 4 of 23 /24/2013
805651-014 Bicarbonate (0	•	mg/L	, ,		1.00	0.555	5.00	120
Carbonate (Ca	alculated)	mg/L	01/11	/2013 . 1	1.00	0.555	5.00	ND
Method Blank								
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result ND					
Duplicate							Lab ID =	805651-001
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result 124	Expected 123		PD 0.810	Accepta 0 - 20	ince Range
Lab Control Sample	)							
Parameter Alkalinity as CaCO3 Lab Control Sample	Unit mg/L Duplicate	DF 1.00	Result 96.0	Expected 100		ecovery 96.0	Accepta 90 - 110	ince Range
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result 96.0	Expected 100		ecovery 96.0	Accepta 90 - 110	ince Range
Matrix Spike							Lab ID =	805651-014
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result 220	Expected/Adde 220(100)		ecovery 100	Accepta 75 - 125	nce Range



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<b>Specific Conductivity</b> -	EPA 120.1		В	atch 01EC13G				
Parameter		Unit		Analyzed	DF	MDL	RL	Result
805651-001 Specific Condu	uctivity	umhos/	cm 0°	1/14/2013	1.00	0.0380	2.00	855
805651-002 Specific Condu	uctivity	umhos/	cm 0°	1/14/2013	1.00	0.0380	2.00	860
805651-003 Specific Condu	uctivity	umhos/	cm 0°	1/14/2013	1.00	0.0380	2.00	853
805651-004 Specific Condu	uctivity	umhos/	cm 0 <sup>-</sup>	1/14/2013	1.00	0.0380	2.00	943
805651-005 Specific Condu	uctivity	umhos/	umhos/cm 01/14/2013		1.00	0.0380	2.00	916
805651-008 Specific Condu	ıctivity	umhos/	cm 0°	1/14/2013	1.00	0.0380	2.00	863
805651-009 Specific Condu	ıctivity	umhos/	cm 0°	1/14/2013	1.00	0.0380	2.00	847
805651-010 Specific Condu	651-010 Specific Conductivity		cm 0°	1/14/2013	1.00	0.0380	2.00	856
805651-011 Specific Condu	5651-011 Specific Conductivity		cm 0	1/14/2013	1.00	0.0380	2.00	848
805651-012 Specific Condu	ıctivity	ity umhos/cm 01/14/2013		1/14/2013	1.00	0.0380	2.00	856
805651-013 Specific Condu	ıctivity	umhos/	cm 0	1/14/2013	1.00 0.0380		2.00	859
805651-014 Specific Condu	ıctivity	umhos/	cm 01	1/14/2013	1.00	0.0380	2.00	864
Method Blank								
Parameter	Unit	DF	Resul	t				
Specific Conductivity	umhos	1.00	ND					
Duplicate							Lab ID =	805651-012
Parameter	Unit	DF	Resul	t Expected	F	RPD	Accepta	nce Range
Specific Conductivity	umhos	1.00	847	856		1.06	0 - 10	
Duplicate							Lab ID =	805651-01
Parameter	Unit	DF	Resul	t Expected	, F	RPD	Accepta	ince Range
Specific Conductivity	umhos	1.00	862	864	•	0.232	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Resul	t Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	663	706		93.9	90 - 110	)
Lab Control Sample	Duplicate	e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co	er som star med med i som in	Baking palaman ing palaman panganan mananahari		Od postanje se programa postateljanska		ili og til og til fill forske parkeretelle engan etternelse te
Parameter	Unit	DF	Result	t Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	660	706		93.5	90 - 110	)
MRCCS - Secondar	1							
Parameter	Unit	DF	Result	t Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	661	706		93.6	90 - 110	)
opeome community								
MRCVS - Primary								
	Unit	DF	Result	t Expected	ALEMAN F	Recovery	Accepta	nce Range

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Metals by EPA 6010B, T	otal		Batch	012113B-Th2			
Parameter		Unit	Ana	lyzed D	F MDL	RL	Result
805651-001 Iron		ug/L	01/21	/2013 17:34 1.0	9.50	20.0	26.3
805651-002 Iron		ug/L	01/21	/2013 17:40 1.0	00 9.50	20.0	22.2
805651-003 Iron		ug/L	01/21	/2013 18:13 1.0	00 9.50	20.0	21.1
805651-004 Iron		ug/L	01/21	/2013 18:19 1.0	9.50	20.0	940
805651-005 Iron		ug/L	01/21	/2013 18:25 1.0	9.50	20.0	490
805651-008 Iron		ug/L	01/21	/2013 18:32 1.0	9.50	20.0	22.4
805651-009 Iron		ug/L	01/21	/2013 18:38 1.0	9.50	20.0	ND
805651-010 Iron		ug/L	01/21	/2013 18:44 1.0	9.50	20.0	ND
805651-011 Iron		ug/L	01/21	/2013 18:50 1.0	9.50	20.0	ND
805651-012 Iron		ug/L	01/21	/2013 18:56 1.0	9.50	20.0	23.3
805651-013 Iron		ug/L	01/21	/2013 19:03 1.0	9.50	20.0	24.2
805651-014 Iron		ug/L	01/21	/2013 19:09 1.0	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	Accepta	ance Range
Iron	ug/L	1.00	21.9	22.2	1.36	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Iron	ug/L	1.00	2140	2000	107	85 - 118	5
Matrix Spike						Lab ID =	805651-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	ance Range
Iron	ug/L	1.00	2050	2020(2000)	101	75 - 128	5
MRCCS - Secondary						til for store en en en en en en en en en en en en en	
Parameter	Unit	DF	Result	Expected	Recovery	•	ance Range
Iron	ug/L	1.00	5010	5000	100	90 - 110	)
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery		ance Range
Iron	ug/L	1.00	5150	5000	103	90 - 110	)
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	•	ance Range
Iron	ug/L	1.00	5130	5000	103	90 - 110	1

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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Chrome VI by EPA 218.6	6		Batch 01CrH13C							
Parameter		Unit	Anal	lyzed	DF	MDL	RL	Result		
805651-001 Chromium, Hex	avalent	ug/L	01/09	/2013 19:31	1.00	0.00920	0.20	ND		
805651-002 Chromium, Hex	avalent	ug/L	01/09	/2013 19:42	1.00	0.00920	0.20	ND		
805651-003 Chromium, Hex	avalent	ug/L	01/09	/2013 19:52	1.00	0.00920	0.20	ND		
805651-004 Chromium, Hex	avalent	ug/L	01/09	/2013 20:02	1.00	0.00920	0.20	ND		
805651-005 Chromium, Hex	avalent	ug/L	01/09	/2013 20:44	1.00	0.00920	0.20	ND		
805651-006 Chromium, Hex	avalent	ug/L	01/09/2013 20:54		1.00	0.00920	0.20	ND		
805651-007 Chromium, Hex	avalent	ug/L	01/09	01/09/2013 21:05 1.		0.00920	0.20	ND		
805651-008 Chromium, Hex	avalent	ug/L	01/09	01/09/2013 21:15		0.00920	0.20	ND		
805651-009 Chromium, Hexa	avalent	ug/L	01/09	01/09/2013 21:26 1.00		0.00920	0.20	ND		
805651-010 Chromium, Hexa	avalent	ug/L	01/09	/2013 21:36	1.00	0.00920	0.20	ND		
8.05651-011 Chromium, Hexa	avalent	ug/L	01/09	01/09/2013 21:47 1.00		0.00920	0.20	ND		
805651-012 Chromium, Hex	avalent	ug/L	01/09	01/09/2013 21:57 1.00		0.00920	0.20	ND		
05651-013 Chromium, Hexavalent		ug/L	01/09/2013 22:07		1.00	0.00920	0.20	ND		
305651-014 Chromium, Hexavalent		ug/L	01/09/2013 22:18		1.00	0.00920	0.20	ND		
805651-015 Chromium, Hexa	avalent	ug/L	01/09/2013 22:49		1.00	0.00920	0.20	ND		
Method Blank							1. 本籍的數	i da karangan		
Parameter	Unit	DF	Result							
Chromium, Hexavalent	ug/L	1.00	ND							
Duplicate							Lab ID =	805581-00		
Parameter	Unit	DF	Result	Expected		RPD	Accepta	ince 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	Accepta	ince Range		
Chromium, Hexavalent	ug/L	1.00	0.200	0.200		100	70 - 130	)		
Lab Control Sample			and and the state of the state	en de tra començar de transferio de productivo de la comença de la comença de la comença de la comença de la c						
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce 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/A	dded	Recovery	Accepta	nce 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/A	dded	Recovery	Accepta	nce Range		
Chromium, Hexavalent	ug/L	1.00	1.01	1.06(1.00)		95.0	90 - 110	_		

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Client: E2 Consulting En	gineers, Inc		roject Name: roject Numbel	PG&E Topock Pror: 423575.MP.02.RM	=	Page 10 of 23 Printed 1/24/2013
Matrix Spike						Lab ID = 805650-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.81	Expected/Added 5.06(5.00)	Recovery 94.9	Acceptance Range 90 - 110 Lab ID = 805651-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.992	Expected/Added 1.02(1.00)	Recovery 96.6	Acceptance Range 90 - 110 Lab ID = 805651-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.942	Expected/Added 1.03(1.00)	Recovery 91.4	Acceptance Range 90 - 110 Lab ID = 805651-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.03(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 805651-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.958	Expected/Added 1.02(1.00)	Recovery 93.8	Acceptance Range 90 - 110 Lab ID = 805651-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.09	Expected/Added 1.02(1.00)	Recovery 107	Acceptance Range 90 - 110 Lab ID = 805651-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.04(1.00)	Recovery 96.9	Acceptance Range 90 - 110 Lab ID = 805651-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.04(1.00)	Recovery 96.3	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 97.8	Lab ID = 805651-008  Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.983	Expected/Added 1.02(1.00)	Recovery 96.4	Lab ID = 805651-009 Acceptance Range 90 - 110
Matrix Spike Parameter	Unit	DF 1.00	Result	Expected/Added	Recovery 96.8	Lab ID = 805651-010  Acceptance Range 90 - 110
Chromium, Hexavalent  Matrix Spike	ug/L	1.00	0.989	1.02(1.00)	<b>90.0</b>	Lab ID = 805651-011
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 97.8	Acceptance Range 90 - 110

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Matrix Spike						Lab ID = 805651-012
Parameter	Unit	DF	Result	Expected/Added 1.03(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11		108	90 - 110
Matrix Spike						Lab ID = 805651-013
Parameter	Unit	DF	Result	Expected/Added 1.02(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998		97.4	90 - 110
Matrix Spike						Lab ID = 805651-014
Parameter	Unit	DF	Result	Expected/Added 1.03(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00		97.1	90 - 110
Matrix Spike						Lab ID = 805651-015
Parameter	Unit	DF	Result	Expected/Added 1.04(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04		99.5	90 - 110
MRCCS - Secondary						
Parameter Chromium, Hexavalent	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	4.69	5.00	93.9	90 - 110
MRCVS - Primary						
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	9.92	10.0	99.2	95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	9.97	10.0	99.7	95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105
MRCVS - Primary			_	_		e Comment (1996) (1996) (1996) (1996) (1996) (1996) (1996) (1996) (1996) (1996) (1996) (1996) (1996) (1996) (1996)
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, Dissolve	ed .	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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•		ug/L	•		0.0920	1.0	ND
		ug/L			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	Accepta	nce 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	los (filoso)					
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce 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	Accepta	nce 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	Accepta	nce 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	i
Manganese	ug/L	1.00	50.8	50.7(50.0)	100	75 - 125	i
Matrix Spike Duplicat	e					Lab ID =	805651-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce 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	ı
Manganese	ug/L	1.00	45.5	50.7(50.0)	89.6	75 - 125	



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Metals by EPA 6020A, D	Dissolved		Batcl	n 011813B				
Parameter		Unit	Analyzed		DF	MDL	RL	Result
805651-001 Molybdenum		ug/L	01/18	01/18/2013 14:16		0.414	2.0	4.4
Selenium		ug/L	01/18	8/2013 14:16	2.00	0.160	5.0	ND
805651-002 Molybdenum		ug/L	01/18	8/2013 14:46	2.00	0.414	2.0	4.6
Selenium		ug/L	01/18	8/2013 14:46	2.00	0.160	5.0	ND
805651-003 Molybdenum		ug/L	01/18	8/2013 14:52	2.00	0.414	2.0	4.6
Selenium		ug/L	01/18	8/2013 14:52	2.00	0.160	5.0	ND
805651-004 Molybdenum		ug/L	01/18	8/2013 14:58	2.00	0.414	2.0	4.9
Selenium		ug/L	01/18	8/2013 14:58	2.00	0.160	5.0	ND
805651-005 Molybdenum		ug/L	01/18	8/2013 15:03	2.00	0.414	2.0	4.4
Selenium		ug/L	01/18	8/2013 15:03	2.00	0.160	5.0	ND
805651-008 Molybdenum		ug/L	01/18	8/2013 15:09	2.00	0.414	2.0	4.2
Selenium		ug/L	01/18	8/2013 15:09	2.00	0.160	5.0	ND
805651-009 Molybdenum		ug/L	01/18	3/2013 15:15	2.00	0.414	2.0	4.1
Selenium		ug/L	01/18	3/2013 15:15	2.00	0.160	5.0	ND
805651-010 Molybdenum		ug/L	01/18	3/2013 15:21	2.00	0.414	2.0	4.2
Selenium		ug/L	01/18	3/2013 15:21	2.00	0.160	5.0	ND
805651-011 Molybdenum		ug/L	01/18	3/2013 15:27	2.00	0.414	2.0	4.1
Selenium		ug/L	01/18	3/2013 15:27	2.00	0.160	5.0	ND
805651-012 Molybdenum		ug/L	01/18	3/2013 15:33	2.00	0.414	2.0	4.0
Selenium		ug/L	01/18	3/2013 15:33	2.00	0.160	5.0	ND
805651-013 Molybdenum		ug/L	01/18	3/2013 15:39	2.00	0.414	2.0	4.2
Selenium		ug/L	01/18	3/2013 15:39	2.00	0.160	5.0	ND
805651-014 Molybdenum		ug/L	01/18	3/2013 15:57	2.00	0.414	2.0	4.4
Selenium		ug/L	01/18	3/2013 15:57	2.00	0.160	5.0	ND
Method Blank	and the second s	ta salah dari dari dari dari dari dari dari dari		14 (15 mm) (15				
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	R	Recovery	Accepta	nce Range
Selenium	ug/L	1.00	0.824	1.00		82.4	70 - 130	



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Low Level Calibra	tion Verification	<b>V</b> erding (VIS)				
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.469	0.500	93.8	70 - 130
Lab Control Samp	ole					
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 Dupli	ica <b>te</b>					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 - Second	ary					
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	
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



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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		.00	9.50	20.0	ND		
805651-002 Iron		ug/L	01/21/2013 14:34		.00	9.50	20.0	ND		
805651-003 Iron		ug/L	01/21/2013 14:41		.00	9.50	20.0	ND		
805651-004 Iron		ug/L	01/21	/2013 15:15 1	.00	9.50	20.0	ND		
305651-005 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		.00	9.50	20.0	ND		
305651-010 Iron		ug/L	01/21/2013 15:40		.00	9.50	20.0	ND		
305651-011 Iron		ug/L	01/21/2013 15:46		.00	9.50	20.0	ND		
305651-012 Iron		ug/L	01/21/2013 15:52		.00	9.50	20.0	ND		
305651-013 Iron		ug/L	01/21/2013 15:58		.00	9.50	20.0	ND		
305651-014 Iron		ug/L	01/21/2013 16:04		.00	9.50	20.0	ND		
Method Blank										
Parameter	Unit	DF	Result							
Iron	ug/L	1.00	ND							
Duplicate							Lab ID =	805651-00		
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ınce Range		
Iron	ug/L	1.00	ND	0		0	0 - 20			
Lab Control Samp	le									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range		
Iron	ug/L	1.00	2150	2000		107	85 - 115	5		
Matrix Spike							Lab ID =	805651-00		
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Accepta	ınce Range		
Iron	ug/L	1.00	2070	2000(2000)		104	75 - 125	5		
MRCCS - Seconda	any									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range		
	ug/L	1.00	5110	5000		102	90 - 110	)		
Iron	49/2									
Iron MRCVS - Primary	49, <u>2</u>									
	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range		
MRCVS - Primary		DF 1.00	Result 5260	Expected 5000	F	Recovery 105	Accepta 90 - 110	_		
MRCVS - Primary Parameter	Unit ug/L			•	F	•	•	_		
MRCVS - Primary Parameter Iron	Unit ug/L			•		•	90 - 110	ince Range ) nce Range		



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•		Pi	roject Numbe		Printed 1/24/2013					
Interference Check	Standard A									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accept	ance Range		
Iron	ug/L	1.00	2270	2000		114	80 - 120			
Interference Check	Standard A									
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ance Range		
Iron	ug/L 1.00 2160 2000 108						80 - 12	0		
Interference Check	erference Check Standard AB									
Parameter	Unit DF Result Expected Recovery						Accepta	ance Range		
Iron	ug/L 1.00 2280 2000 114					114	80 - 12	0		
Interference Check	Standard AB									
Parameter	Unit	DF	Result	Expected	· F	Recovery	•	ance Range		
Iron	ug/L	1.00	2170	2000		109	80 - 12	0		
pH by SM 4500-H B			Batch	01PH13G						
Parameter		Unit	Ana	lyzed	DF	MDL	RL_	Result		
805651-001 pH		pН	01/09	/2013 10:40	1.00	0.0784	4.00	8.28		
805651-002 pH		рН	01/09	/2013 10:43	1.00	0.0784	4.00	8.31		
805651-003 pH		рН	01/09	/2013 10:45	1.00	0.0784	4.00	8.30		
805651-004 pH		рН	01/09	/2013 10:48	1.00	0.0784	4.00	8.14		
805651-005 pH		рН	01/09	/2013 10:50	1.00	0.0784	4.00	8.16		
805651-008 pH		рН	01/09	/2013 10:52	1.00	0.0784	4.00	8.30		
805651-009 pH		рН	01/09	/2013 10:55	1.00	0.0784	4.00	8.33		
Duplicate							Lab ID =	805651-009		
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range		
pH	pН	1.00	8.34	8.33	•	0.120	0 - 20	J		
Lab Control Sample										
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range		
. pH	рН	1.00	7.01	7.00	100		90 - 110	_		
Lab Control Sample	Duplicate									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range		
pΗ	рН	1.00	7.01	7.00		100	90 - 110	)		
MRCVS - Primary										
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range		
pН	pН	1.00	7.02	7.00		100	90 - 110			



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pH by SM 4500-H B			Batch	01PH13H				
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result
805651-010 pH		pН	01/09	9/2013 11:07	1.00	0.0784	4.00	8.27
805651-011 pH		pН	01/09	9/2013 11:10	1.00	0.0784	4.00	8.27
805651-012 pH	12 pH		01/09	9/2013 11:12	1.00	0.0784	4.00	8.34
05651-013 pH		рΗ	01/09	9/2013 11:15	1.00	0.0784	4.00	8.32
805651-014 pH		рН	01/09	)/2013 11:17	1.00	0.0784	4.00	8.33
Duplicate							Lab ID =	805651-014
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ince Range
рН	рН	1.00	8.33	8.33	0		0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	Recovery		Accepta	nce Range
рН	рН	1.00	7.00	7.00		100	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	. F	Recovery	Accepta	nce Range
pН	pН	1.00	7.03	7.00		100	90 - 110	)



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<b>Total Suspended Solids</b>	by SM 25	40 D	Batch	01TSS13E				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
805651-001 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-002 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-003 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-004 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	40.8
805651-005 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	14.8
805651-008 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-009 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-010 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-011 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-012 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-013 Total Suspende	d Solids	mg/L	01/11	/2013	1.00	0.349	10.0	ND
805651-014 Total Suspende	d 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	F	RPD	Accepta	nce 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	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	98.0	100		98.0	90 - 110	)
Lab Control Sample D	Duplicate							
Parameter	Unit	DF	Result Expected		l Recovery		Accepta	ince Range
Total Suspended Solids	mg/L	1.00	101	100		101	90 - 110	)

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

+₀ - Mona Nassimi

Manager, Analytical Services





### Total Suspended Solids by SM 2540 D

### Calculations

Batch: 01TSS13E Date Analyzed: 01/11/13

Dish Number	Laboratory Number	Sample volume, ml	lnitial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference , g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL,	Reported Value, ppm
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 1.4698	0.0000	No	0.0090	9.0	2.5 2.5	9.0
E32	805613-2	1000	1 4420	1 4698		0.0000	No	0.0278	27.8		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	0.000.0	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:

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

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

RL= reporting limit.

B = weight of dish in grams.

ND = not detected (below the reporting limit)

C = mL of sample filtered.

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	98	100	98.0%	90-110%	Yes
LCSD	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

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

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

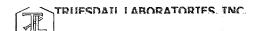
A = Weght of the first sample in (g).

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

C = Average weight in (g).

Maksim G. Reviewer Printed Name





# Alkalinity by SM 2320B



Analytical Batch: 01ALK13C Matrix: WATER Date of Analysis: 1/11/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO <sub>3</sub> (ppm)	CO3 Alkalinity as CaCO <sub>3</sub> (ppm)	OH Alkalinity as CaCO <sub>3</sub> (ppm)	Low Alkalinity as CaCO <sub>3</sub> (<20ppm)
BLANK	6.46	50	0.02	i .	0.0	0.00		0.0	5	ND	ND	ND	ND	
805651-1	8.34	50	0.02	0.0	0.0	6.15		123.0	5	123.0	123.0	0	ND	
805651-1 DUP	8.29	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
805651-2	8.30	50	0.02	0.00	0.0	6.00		120.0	5	120.0	120.0	ND	ND	
805651-3	8.29	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	ND	
805651-4	8.08	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
805651-5	8.12	50	0.02		0.0	6.00		120.0	5	120.0	120.0	ND	ND	
805651-8	8.30	50	0.02	0.0	0.0	6.20		124.0	5	124.0	124.0	ND	ND	
805651-9	8.30	50	0.02	0.0	0.0	5.95		119.0	5	119.0	119.0	ND	ND	
805651-10	8.26	50	0.02		0.0	6,00	İ	120.0	5	120.0	120.0	ND	ND	İ
805651-11	8.26	50	0.02		0.0	6.45	Ī	129.0	5	129.0	129.0	ND	ND	
805651-12	8.33	50	0.02	0.0	0.0	6.20		124.0	5	124.0	124.0	0	ND	
805651-13	8.32	50	0.02	0.0	0.0	5.65		113.0	5	113.0	113.0	0	ND	
805651-14	8.31	50	0.02	0.0	0.0	6.00		120.0	5	120.0	120.0	0	ND	
805651-14 MS	9.48	50	0.02	2.2	44.0	11.00		220.0	5	220.0	132.0	88	ND	
LCS	10.38	50	0.02	2.2	43.0	4.80		96.0	5	96.0	10.0	86	ND	
LCSD	10.47	50	0.02	2.2	44.0	4.80		96.0	5	96.0	8.0	88	ND	
							ļ							
				ļ										
	<u> </u>	1												
		<del> </del>		ļ										

Calculations as follows:

Tor P=

Where:

mL sample

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

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

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

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

<5

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	96	100	96.0%	90-110	Yes
LCSD	96	100	96.0%	90-110	Yes

QC Within

Control?

Yes

**Duplicate Determination Difference Summary** 

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
805651-1	123	124	0.8%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

-ampio maci	X Obiito (i	10,11102,	Jannina, y									
Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
805651-14	120	1	100	100	220	220.00	100%	75-125	Yes			
000001114		1	100	100				75-125			1 1	

Melissa S. Analyst Printed Name

**Blank Summary** 

Measured

Value, ppm

0

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name



805651

**CH2MHILL** 

**CHAIN OF CUSTODY RECORD** 

1/8/2013 3:45:15 PM

Page 1 OF 2

Project Nam	ne 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			
Location T	-		Drace	oniativos:	(NH4)2S O4/NH4O	(NH4)2S O4/NH4O	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C			
Project Mana	_			ci valives.	H, 4°C	H, 4°C	40	40	40								_
Sample Man	nager Shav	wn Duff	fy	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA	* Where provided w/multiple		
				ing Time:	28	28	180	180	180	14	14	14	14	14	Gottler Co Col + des mistels		
Project Num Task Order Project 201 Turnaround Shipping Da COC Numbe	13-RMP-18   Time	39 Days			Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total F	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)	РН (SM4500НВ)	TSS (SM2540)	* Where provided w/multiple wolfles for Cr6+ diss. multiple please analyze 1+ hold 2	Number of Containers	-
	D	ATE	TIME	Matrix	ď.	г)	φ	dis) ,Mo	red	0.1)					Form Attached	ers	COMMENTS
C-BNS-D-189	1/8	3/2013	13:28	Water	×		Х	Х	Х	Х	Х	Х	Х	Х		9	)
C-I-3-O-189	1/8	8/2013	11:29	Water	х		Х	Х	X	Х	X	x	Х	Х		9	
C-I-3-S-189	1/8	8/2013	11:49	Water	X		X	х	х	х	x	X	Х	х		9	70H=2
C-MAR-D-189	1/8	3/2013	9:16	Water	Х		×	x	х	Х	Х	Х	Х	Х		9	Metal
C-MAR-S-189	1/6	3/2013	9:31	Water	Х		X	Х	X	Х	Х	Х	Х	Х	MIERTII	9	
C-MW-80-189	1/8	8/2013	12:05	Water		х									A Law Law Law Law Law Law Law Law Law Law	1	
C-MW-81-189	1/8	8/2013	13:10	Water		Х									Level III QU	1	
C-R22A-D-189	1/8	8/2013	12:44	Water	X		×	х	x	Х	X	х	Х	Х	Construction of the Constr	9	<u> </u>
C-R22A-S-189	1/8	8/2013	13:01	Water	x		х	х	X	Х	X	х	X	Х		9	
C-R27-D-189	1/8	8/2013	14:00	Water	Х		х	Х	Х	х	X	X	Х	X		9	174=2
C-R27-S-189	1/8	8/2013	14:16	Water	Х		X	X	X	x	X	Х	Х	×		9	metals
C-TAZ-D-189	1/0	8/2013	10:25	Water	X		X	Х	Х	х	X	х	X	Х		9	
C-TAZ-S-189	1/8	8/2013	10:40	Water	Х		X	Х	Х	x	Х	Х	Х	Х		9	
R63-189	1/8	8/2013	12:15	Water	Х		X	X	×	×	X	Х	х	x		9	

Approved by

Sampled by

Refequished by

Received by

Signatures

Date/Time /-8-/3

On Ice: yes / no

Lab Name: Truesdail Laboratories, Inc.

**Shipping Details** 

Method of Shipment:

courier

Sample Custody

ATTN:

Report Copy to Shawn Duffy

Special Instructions:

Jan 8-10, 2013

(530) 229-3303

CH2MHILL

805651 CHAIN OF CUSTODY RECORD

1/8/2013 3:45:16 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			
Location Topock		(NH4)2S	(NH4)2S	HNO3,	HNO3,	HNO3,	4°C	4°C	4°C	4°C	4°C			
Project Manager Jay Piper	eservatives:	H, 4°C	H, 4°C	4°C	4°C	4°C								
Sample Manager Shawn Duffy	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			•
Но	olding Time:	28	28	180	180	180	14	14	14	14	14			
Project Number 423575.MP.02.R	.W				m≩	- Te	Sp							
Task Order		Cr6	Field	₹	Metals Field	Metals	Specific	≥	<b>~</b>					
Project 2013-RMP-189				Metals	Filt.			Anions	llka	무	_		Numb	
Turnaround Time 10 Days		218 F:	) Cr6	\$ (60	(SW60: Filtered	)20/ CF	ònc	ıs (E	linity	IS) i	TSS (	ALEKIII	nbe	
Shipping Date: 1/8/2013		(E218.6 – Filtered	6 (E	(6010B)	> 20 €	(6020AFF) Field Filtered Chromium	Conductance	(E300.0)	Alkalinity (SM2320B)	РН (SM4500НВ)	(SM2540)		yr of	
COC Number: 1		river) ed	(E218.6		/SW	rie Fie	ance		123	9 1	2540	I Level III QQ	$\circ$	
		er) F	1 1 1	Total Fe	,Fe,	Id F	Ē	Nitrate	20B	В)	9	Control of the Contro	ontai	
		Field	river)	l Fe	3/SW6020Adis) s,Mn,Fe,Se,Mo	ilter	(E120.1)	ate					ne	
DATE TIME	Matrix				( No	ье	1)						S	COMMENTS
RMP-AB1-189 1/8/2013 14:25	5 Water		Х										1	
			<del>,                                     </del>									TOTAL NUMBER OF CONTAINERS	411	-

Approved by Sampled by

Received by

Religiuished by

Relinquished by

Signatures

/-8-13 /6:30 Airbill No: /-8-13 22:30 Lab Name: Truesdail Laboratories, Inc.

1/8/13 32 130 Lab Phone: (714) 730-6239

**Shipping Details** 

Method of Shipment:

On Ice: yes / no

Sample Custody

ATTN:

Report Copy to Shawn Duffy (530) 229-3303

Special Instructions:

Jan 8-10, 2013

# 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
1,	↓ -2	1	1	T	10:20 AM	HAV
	805562-1	7	2 ml	9.5	10:25 AM	HAV
	-2	].			10:30 AM	1
1	-3	1		Į,	10:35 AM	
01/04/13	805581-5	9	NIA	NIA	NIA	HAV
01/09/13	805650	7	2 ml	9-5	9:30 AM	HAV
01/09/13	805651-1	9.5	NIA	NIA	NIA	HAY
1	-2			· .		
	-3					
	-4					
	-5					
	-6					
	-7				·	
	- %					·
	-9					
	10					
	11					
	-12					
	-13				<u> </u>	
	-14					4
<u> </u>	1, -15	<u> </u>	<u></u>		<u></u>	1
0/10/13	805671-1	9.5	NIA	NA	MIA	RB
	-2					
	-3			1		
	-5					
	-6					
	-7	<u> </u>				
	-8					<del> </del>
<u> </u>		<u> </u>		. * 1	111	

M-16-13





**Turbidity/pH Check** 

			I UI DIC	aity/pH C	HECK				
Sample Number	Turbidity	pН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments	
845543	7\$1BE	<2	1-2-13	136	x 2.5		110/13	pH < 2	
89596	71				1			P-13	
8 05594									
8-3547									
8: 4598									
806599(1-4)						,			
80560001-4									
2:5612									
305614(16923)		7.2.			<u> </u>	8400	1/10/13 PM	122	
<b>乗り5380</b>	41	72	1-8-17	ES	yes	10:30			
805 305 (1-14,21-12)	1 41	22	1-8-13	ES	No No			-5,10 tubidily	7
905619-6	Zi	72			No	1:30	1/10/12 11		
805622 (1-4)	V		1	d ,	4	<b>→</b>			
805838	ζ١	72	1-9-13	BE	No	11 100AM		12	
805649(1-3)			)		٦	L.	1/10/17 P	H L2	
805632	41	42	4	PC	Yes				
805630	41	62							
805628	4	22							
805031	1							-	
805627									
805629	<b>/</b>	,	l l		J				•
805633	SOL	10	レ	DC	TTIC				
805662	77	72	1110/13	ES.	ys	9:10 an	1/18/13 15:30	PHCZ	
805 504	LR	L2	1/10/13	以	"yes				
205375(1-7,8-12)	L	12	1						
15-187	9~	~							
805506(1-3)	<b>1</b>	42							
805528(1-5)	1	V							
805 561 (1-2)		72				10:00		Filtered then c	widifu
805 9e2 (1-3		22							٠ ٦
\$05 <b>650</b>	J	72	<b>₩</b>		V	10:00			
805560	SLU	DGE	1/14/13	ES	TTLC				
805651(1-5,8-14	) 41	12	)	1	yes			TOTAL/DISSO	WED
805652 (1-5)	21	L2	<b>V</b>	<b>√</b>	1/				
805663(10-12)	<١	.72	1/19/13	BI	NC	10 % AM	1/19/13 15:30	PHCZ	
305669	41	Z2	1/15/13	ES	Yes				
805675		1			(				
805 677		19							
805 679									
805 680									
805681									
805686									
805732	1								
805733			1	1	J		***		

#### Notes:

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



# Sample Integrity & Analysis Discrepancy Form

Clie	nt: <u>E</u> 2	Lab # <u>805651</u>
Date	e Delivered: <u>0 /</u> / <u>08</u> / 13 Time: <u>22 '30</u> By: □Mail Ø	Field Service
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ØN/A
<b>4</b> .	If a letter was sent with the COC, does it match the COC?	□Yes □No ਐN/A
<i>5</i> .	Were all requested analyses understood and acceptable?	≈dYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>3- 3 <b>°C</b></u>	ŹaYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ÆN/A
9.	Does the number of samples received agree with COC?	JÎYes □No □N/A
10.	Did sample labels correspond with the client ID's?	Ž¥es □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by ☑ <b>Truesdail</b> □ Client	ÆYes □No □N/A
12.	Were samples pH checked? pH = Selfc. Q. e	⊿Yes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	QYes □No □N/A
14.	Have Project due dates been checked and accepted?  Turn Around Time (TAT): □ RUSH	PYes □No □N/A
15.	Sample Matrix:	
	□Sludge □Soil □Wipe □Paint □Solid 🎗	Other Waker
16.	Comments:	
17.	Sample Check-In completed by Truesdail Log-In/Receiving:	2. Stralereis

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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.

Mona Nassimi

Manager, Analytical Services

Michael A

Michael Ngo

Quality Assurance/Quality Control Officer

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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	ľ		
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			

**EXCELLENCE IN INDEPENDENT TESTING** 

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Laboratory No.: 805671

Date Received: January 9, 2013

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

Attention: Shawn Duffy

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

## **Analytical Results Summary**

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
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 CaCO3)	126	mg/L	5.00
805671-001	C-CON-D-189	SM2320B	NONE	1/9/2013	10:47	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	126	mg/L	5.00
805671-002	C-CON-S-189	SM2320B	NONE	1/9/2013	11:02	Alkalinity, Carbonate (As CaCO3)	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	рH	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		0.20
805671-003	C-MW-83-189	E218.6	FLDFLT	1/9/2013	13:02	Chromium, Hexavalent	ND	ug/L	0.20
805671-004	C-NR1-D-189	E120.1	NONE	1/9/2013	11:29	EC	861	ug/L umhos/cm	2.00
805671-005	C-NR1-D-189	E218.6	FLDFLT	1/9/2013	11:29	Chromium, Hexavalent	ND	umnos/cm ug/L	0.20
805671-005	C-NR1-D-189	E300	NONE	1/9/2013	11:29	Nitrate as N	ND	~	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 SM2320B	NONE	1/9/2013	11:29	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L 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	рН	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	рH	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 CaCO3)	127	mg/L	5.00
805671-007	C-NR3-D-189	SM2320B	NONE	1/9/2013	12:18	Alkalinity, Carbonate (As CaCO3)	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 CaCO3)	128	mg/L	5.00
805671-008	C-NR3-S-189	SM2320B	NONE	1/9/2013	12:35	Alkalinity, Carbonate (As CaCO3)	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	pН	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	FLDFL <b>T</b>	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 Camarla ID	Etald ID	Analysis	Extraction	Camarla Data	Sample	Devenueten	Desuit	Units	DI
Lab Sample ID	Field ID	Method	Method	Sample Date	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	pН	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	pН	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
	<u> </u>								
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 CaCO3)	125	mg/L	5.00
805671-011	R-19-189	SM2320B	NONE	1/9/2013	9:34	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	130	mg/L	5.00
805671-012	R-28-189	SM2320B	NONE	1/9/2013	9:13	Alkalinity, Carbonate (As CaCO3)	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	pН	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

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	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 CaCO3)	131	mg/L	5.00
805671-014	RRB-189	SM2320B	NONE	1/9/2013	10:02	Alkalinity, Carbonate (As CaCO3)	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	pН	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	pН	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.

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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:

Samples Received on 1/9/2013 10:30:00 PM

Laboratory No. 805671

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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
305671-011 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 printing authorization from Truesdail Laboratories.



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05671-014 Nitrate as Nitrogen		mg/L	01/10	/2013 17:30 1.0	0.00830	0.500 ND
Method Blank						
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result ND			
Duplicate						Lab ID = 805671-00
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result ND	Expected 0.292	RPD 0	Acceptance Range 0 - 20
Lab Control Sample						
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result 3.97	Expected 4.00	Recovery 99.3	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-00
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result 2.41	Expected/Added 2.29(2.00)	Recovery 106	Acceptance Range 85 - 115
MRCCS - Secondar	у					
Parameter Nitrate as Nitrogen	Unit mg/L	DF 1.00	Result 3.97	Expected 4.00	Recovery 99.3	Acceptance Range 90 - 110
MRCVS - Primary						
Parameter Nitrate as Nitrogen MRCVS - Primary	Unit mg/L	DF 1.00	Result 2.99	Expected 3.00	Recovery 99.7	Acceptance Range 90 - 110
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.5	90 - 110



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Alkalinity by SM 2320B		Batch 01ALK13D					
Parameter	Unit	Analyzed	DF	MDL	RL	Result	
805671-001 Alkalinity as CaCO3	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 CaCO3	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	
305671-005 Alkalinity as CaCO3	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	
305671-006 Alkalinity as CaCO3	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	
305671-007 Alkalinity as CaCO3	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	
305671-008 Alkalinity as CaCO3	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	
305671-009 Alkalinity as CaCO3	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	
305671-010 Alkalinity as CaCO3	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	
305671-011 Alkalinity as CaCO3	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	
305671-012 Alkalinity as CaCO3	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	
305671-014 Alkalinity as CaCO3	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	



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Method Blank						
Parameter	Unit	DF	Result			
Alkalinity as CaCO3	mg/L	1.00	ND			Lab ID = 805671-012
Duplicate						Lab ID = 9030/ I-012
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	129	130	0.772	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	99.0	100	99.0	90 - 110
Lab Control Sample D	Ouplicate					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	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 CaCO3	mg/L	1.00	227	231(100)	96.0	75 - 125



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Specific Conductivity -	EPA 120.1		Bato	Batch 01EC13H						
Parameter		Unit	An	alyzed	DF	MDL	RL	Result		
805671-001 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	858		
805671-002 Specific Conduc	ctivity	umhos/	cm 01/1	01/14/2013		0.116	2.00	858		
805671-005 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	861		
305671-006 Specific Conductivity		umhos/	cm 01/1	4/2013	1.00	0.116	2.00	842		
805671-007 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	852		
805671-008 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	849		
805671-009 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	860		
805671-010 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	848		
805671-011 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	862		
805671-012 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	869		
805671-014 Specific Conduc	ctivity	umhos/	cm 01/1	4/2013	1.00	0.116	2.00	906		
805671-015 Specific Conductivity		umhos/	cm 01/1	01/14/2013		0.116	2.00	1060		
305671-016 Specific Conductivity		umhos/	cm 01/1	4/2013	1.00	0.116	2.00	941		
Parameter Specific Conductivity  Duplicate	umhos	1.00	ND				Lab ID =	805671-00		
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 834	Expected 861	F	RPD 3.18	Accepta 0 - 10	ince Range		
Duplicate							Lab ID =	805671-016		
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 943	Expected 941	· F	RPD 0.212	Accepta 0 - 10	ince Range		
Lab Control Sample										
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 682	Expected 706	R	Recovery 96.6	Accepta 90 - 110	ince Range )		
Lab Control Sample I	Duplicate									
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 691	Expected 706	R	Recovery 97.9	Accepta 90 - 110	ince Range )		
MRCCS - Secondary										
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 714	Expected 706	R	Recovery 101	Accepta 90 - 110	ince Range		



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Metals by EPA 6010B, To	otal		Batch 011713A						
Parameter		Unit	Ana	ilyzed l	DF	MDL	RL	Result	
805671-001 Iron		ug/L	01/17	7/2013 14:10 1	.00	9.50	20.0	21.4	
805671-002 Iron		ug/L	01/17	7/2013 14:53 1	.00	9.50	20.0	22.3	
805671-005 Iron		ug/L	01/17	7/2013 14:59 1	.00	9.50	20.0	22.5	
805671-006 Iron		ug/L	01/17	7/2013 15:05 1	.00	9.50	20.0	22.2	
805671-007 Iron		ug/L	01/17	7/2013 15:11 1	.00	9.50	20.0	21.8	
805671-008 Iron		ug/L	01/17	7/2013 15:16 1	.00	9.50	20.0	20.8	
805671-009 Iron		ug/L	01/17	7/2013 15:22 1	.00	9.50	20.0	20.1	
805671-010 Iron		ug/L	01/17	7/2013 15:28 1	.00	9.50	20.0	ND	
805671-011 Iron		ug/L	01/17	7/2013 15:34 1	.00	9.50	20.0	ND	
805671-012 Iron		ug/L	01/17	7/2013 15:40 1	.00	9.50	20.0	ND	
805671-014 Iron		ug/L	01/17	7/2013 16:11 1	.00	9.50	20.0	112	
Method Blank					,X.,		というなどは		
Parameter	Unit	DF	Result						
Iron	ug/L	1.00	ND						
Duplicate							Lab ID =	805671-00 <sup>-</sup>	
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range	
Iron	ug/L	1.00	22.7	21.4		5.90	0 - 20		
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range	
Iron	ug/L	1.00	52.1	50.0		104	85 - 115	•	
Matrix Spike							Lab ID =	8056 <b>7</b> 1-00	
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Accepta	nce Range	
Iron	ug/L	1.00	71.1	71.4(50.0)		99.4	75 - 125		
MRCCS - Secondary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range	
Iron	ug/L	1.00	5080	5000		102	90 - 110	ı	
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range	
Iron	ug/L	1.00	4620	5000		92.3	90 - 110		
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range	
Iron	ug/L	1.00	4530	5000		90.6	90 - 110		



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Chrome VI by EPA 218.	6		Batch	01CrH13E				
Parameter		Unit	Anal	yzed	DF	MDL	RL	Result
805671-001 Chromium, Hex	avalent	ug/L	01/15	/2013 14:45	1.00	0.00920	0.20	ND
805671-002 Chromium, Hex	avalent	ug/L	01/15/2013 14:55		1.00	0.00920	0.20	ND
805671-003 Chromium, Hex	avalent	ug/L	01/15	01/15/2013 15:06		0.00920	0.20	ND
805671-004 Chromium, Hex	avalent	ug/L	01/15	/2013 15:16	1.00	0.00920	0.20	ND
805671-005 Chromium, Hex	avalent	ug/L	01/15	/2013 15:27	1.00	0.00920	0.20	ND
805671-006 Chromium, Hex	avalent	ug/L	01/15	/2013 15:37	1.00	0.00920	0.20	ND
805671-007 Chromium, Hex	avalent	ug/L	01/15	/2013 15:47	1.00	0.00920	0.20	ND
805671-008 Chromium, Hex	avalent	ug/L	01/15	/2013 16:29	1.00	0.00920	0.20	ND
805671-009 Chromium, Hex	avalent	ug/L	01/15	/2013 17:11	1.00	0.00920	0.20	ND
805671-010 Chromium, Hex	avalent	ug/L	01/15	/2013 16:50	1.00	0.00920	0.20	ND
805671-011 Chromium, Hex	avalent	ug/L	01/15	/2013 17:00	1.00	0.00920	0.20	ND
805671-012 Chromium, Hex	avalent	ug/L	01/15/2013 17:21		1.00	0.00920	0.20	ND
805671-013 Chromium, Hex	avalent	ug/L	01/15/2013 17:31		1.00	0.00920	0.20	ND
805671-014 Chromium, Hex	avalent	ug/L	01/15	/2013 17:42	1.00	0.00920	0.20	ND
805671-015 Chromium, Hex	05671-015 Chromium, Hexavalent		01/15	/2013 17:52	1.00	0.00920	0.20	ND
805671-016 Chromium, Hex	avalent	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	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.0138	0.0153		10.3	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	0.188	0.200		94.0	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	nce 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/Ac	ided	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	0.946	1.01(1.00)		93.3	90 - 110	)



Client: E2 Consulting Engineers, Inc.		•		PG&E Topock Pro 423575.MP.02.RM	-	Page 10 of 23 Printed 1/25/2013
Matrix Spike						Lab ID = 805671-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.936	Expected/Added 1.02(1.00)	Recovery 91.6	Acceptance Range 90 - 110 Lab ID = 805671-003
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.910	Expected/Added 1.00(1.00)	Recovery 91.0	Acceptance Range 90 - 1101
Matrix Spike						Lab ID = 805671-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.925	Expected/Added 1.00(1.00)	Recovery 92.5	Acceptance Range 90 - 110 Lab ID = 805671-005
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.960	Expected/Added 1.02(1.00)	Recovery 94.1	Acceptance Range 90 - 110 Lab ID = 805671-006
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.966	Expected/Added 1.02(1.00)	Recovery 95.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.967	Expected/Added 1.01(1.00)	Recovery 95.3	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-008
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.962	Expected/Added 1.02(1.00)	Recovery 94.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-009
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.953	Expected/Added 1.02(1.00)	Recovery 93.5	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-010
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.969	Expected/Added 1.02(1.00)	Recovery 95.4	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-011
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.967	Expected/Added 1.02(1.00)	Recovery 94.9	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-012
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.981	Expected/Added 1.02(1.00)	Recovery 96.2	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-013
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.936	Expected/Added 1.00(1.00)	Recovery 93.6	Acceptance Range 90 - 110

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ug/L

1.00

Chromium, Hexavalent

Report Continued

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Matrix Spike						Lab ID = 805671-014
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.954	Expected/Added 1.02(1.00)	Recovery 93.5	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 805671-015
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.964	Expected/Added 1.00(1.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 805671-016
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 0.953	Expected/Added 1.00(1.00)	Recovery 95.3	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.68	Expected 5.00	Recovery 93.7	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.80	Expected 10.0	Recovery 98.0	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.93	Expected 10.0	Recovery 99.3	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range

10.2

10.0

102

95 - 105



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Metals by EPA 6020A	A, 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
Molybdenun	n 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	n 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	n 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	n 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	n 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		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				and the tile of the tree <b>size</b> to state	
Duplicate								805671-001
Parameter	Unit	DF	Result	Expected	F	RPD	•	nce 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 2.00	ND 0.840	0 0.888		0 5.56	0 - 20 0 - 20	
Manganese Malyhdanum	ug/L	2.00	4.35	4.22		2.99	0 - 20	
Molybdenum	ug/L	∠.00	4.00	7.44		2.00	0 - 20	

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Low Level Calibration V	erification					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.226	0.200	113	70 - 130
Chromium	ug/L	1.00	0.206	0.200	103	70 - 130
Low Level Calibration V	erification					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.590	0.500	118	70 - 130
Low Level Calibration V	erification					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.216	0.200	108	70 - 130
Low Level Calibration V	erification					
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, D	issolved		Batch	012113A				
Parameter 805671-007 Molybdenum		Unit Analyzed		ılyzed	DF	MDL	RL	Result
		ug/L	01/21/2013 14:13		.00	0.414	2.0	4.3
Method Blank								
Parameter	Unit	DF	Result					
Molybdenum	ug/L	1.00	ND					
Low Level Calibration	Verification	1						
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Molybdenum	ug/L	1.00	0.539	0.500		108	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Molybdenum	ug/L	2.00	48.2	50.0		96.3	85 - 11	5
Matrix Spike							Lab ID =	805671-001
Parameter	Unit	DF	Result	Expected/Adde	d I	Recovery	•	ance Range
Molybdenum	ug/L	2.00	58.6	54.3(50.0)		108	75 - 125	5
Matrix Spike Duplicat	е						Lab ID =	805671-001
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery		ance Range
Molybdenum	ug/L	2.00	54.3	54.3(50.0)		99.9	75 - 12	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ince Range
Molybdenum	ug/L	1.00	22.0	20.0		110	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ince Range
Molybdenum	ug/L	1.00	21.1	20.0		105	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ince Range
Molybdenum	ug/L	1.00	20.3	20.0		101	90 - 110	)
Interference Check S	tandard A							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Molybdenum	ug/L	1.00	ND	0				
Interference Check S	tandard A							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Molybdenum	ug/L	1.00	ND	0				



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Metals by EPA 6010B, Di	ssolved		Batch	012213A			
Parameter		Unit	Ana	llyzed D	F MD	L RL	Result
805671-001 Iron		ug/L	01/22	2/2013 15:21 1.	00 9.50	20.0	ND
805671-002 Iron		ug/L	01/22	2/2013 16:04 1.	00 9.50	20.0	ND
805671-005 Iron		ug/L	01/22	2/2013 16:09 1.6	00 9.50	20.0	ND
805671-006 Iron		ug/L	01/22	2/2013 16:15 1.	00 9.50	20.0	ND
805671-007 Iron		ug/L	01/22	2/2013 16:21 1.0	9.50	20.0	ND
805671-008 Iron		ug/L	01/22	2/2013 16:27 1.6	00 9.50	20.0	ND
805671-009 Iron		ug/L	01/22	2/2013 16:33 1.6	00 9.50	20.0	ND
805671-010 Iron		ug/L	01/22	2/2013 16:38 1.0	9.50	20.0	ND
805671-011 iron		ug/L	01/22	2/2013 16:44 1.0	9.50	20.0	ND
805671-012 Iron		ug/L	01/22	2/2013 16:50 1.6	9.50	20.0	ND
805671-014 Iron		ug/L	01/22	2/2013 16:56 1.0	9.50	20.0	34.5
Method Blank							
Parameter	Unit	DF	Result				
Iron	ug/L	1.00	ND				
Duplicate						Lab ID =	805671-0 <b>0</b> 1
Parameter	Unit	DF	Result	Expected	RPD	Accepta	ince Range
Iron	ug/L	1.00	ND	0	0	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce Range
Iron	ug/L	1.00	56.6	50.0	113	85 - 115	5
Matrix Spike						Lab ID =	805671-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce Range
Iron	ug/L	1.00	57.4	50.0(50.0)	115	75 - 125	j
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5380	5000	108	90 - 110	1
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5310	5000	106	90 - 110	•
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	•	nce Range
Iron	ug/L	1.00	5220	5000	104	90 - 110	ı



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pH by SM 4500-H B			Batch	1 01PH13I				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
805671-001 pH		рН	01/10	)/2013 10:25	1.00	0.0784	4.00	8.43
805671-002 pH		рН	01/10	0/2013 10:27	1.00	0.0784	4.00	8.37
805671-005 pH		рН	01/10	0/2013 10:30	1.00	0.0784	4.00	8.37
805671-006 pH		рН	01/10	01/10/2013 10:33		0.0784	4.00	8.34
805671-007 pH		рН	01/10	)/2013 10:35	1.00	0.0784	4.00	8.35
805671-008 pH		рН	01/10	)/2013 10:37	1.00	0.0784	4.00	8.33
805671-009 pH		рΗ	01/10	)/2013 10:40	1.00	0.0784	4.00	8.32
805671-010 pH		рН	01/10	)/2013 10:42	1.00	0.0784	4.00	8.29
805671-011 pH		рН	01/10	)/2013 10:44	1.00	0.0784	4.00	8.42
805671-012 pH		рΗ	01/10	)/2013 10:50	1.00	0.0784	4.00	8.40
805671-014 pH		рН	01/10	)/2013 10:52	1.00	0.0784	4.00	8.16
805671-015 pH		рН	01/10	)/2013 10:55	1.00	0.0784	4.00	7.72
805671-016 pH		рН	01/10	/2013 10:57	1.00	0.0784	4.00	7.52
Duplicate							Lab ID =	805671-011
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
pН	pН	1.00	8.42	8.42		0	0 - 20	
Duplicate							Lab ID =	805671-016
Parameter	Unit	DF	Result	Expected	F	RPD	Acceptance Range	
pН	рН	1.00	7.53	7.52		0.133	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	pН	1.00	7.03	7.00	100		90 - 110	)
Lab Control Sample	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pH	рH	1.00	7.02	7.00		100	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	nce Range
рН	рН	1.00	7.02	7.00		100	90 - 110	)



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Total Suspended Solids	by SM 25	40 D	Batch	01TSS13F				
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result
805671-001 Total Suspende	d Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-002 Total Suspende	ed Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-005 Total Suspende	ed Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-006 Total Suspende	ed Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-007 Total Suspende	d Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-008 Total Suspende	d Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-009 Total Suspende	d Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-010 Total Suspende	d Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-011 Total Suspende	d Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-012 Total Suspende	d Solids	mg/L	01/14	1/2013	1.00	0.349	10.0	ND
805671-014 Total Suspende	d Solids	mg/L	01/14	1/2013	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	F	RPD	Acceptance Range	
Total Suspended Solids	mg/L	1.00	ND	0		0	0 - 10	-
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	95.0	100		95.0	90 - 110	)
Lab Control Sample [	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince 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



## Total Suspended Solids by SM 2540 D

### Calculations

Batch: 01TSS13F Date Analyzed: 01/14/13

Dish Number	Laboratory Number	Sample volume, ml	lnitial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference , g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL, 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	1.000	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	8.0	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	0.000	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	LC5-1	1:00	1.4470	1.4565	1.4565	0.0000	No	0.0095	95.0	25.0	95.0
E49	LOS-2	100	1.4496	1,4592	1:4592	0.0000	No	0.0096	96.0	25.0	96.0

Calculation as follows:

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

Where:

A = weight of dish + residue in grams.

B = weight of dish in grams.

C = mL of sample filtered.

RL= reporting limit.

ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd 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

**Duplicate Determinations Difference Summary** 

Lab Number	Sample Weight,	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

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

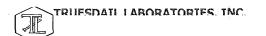
A = Weght of the first sample in (g).

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

C = Average weight in (g).

Maksim G. Reviewer Printed Name

Gautam S. Analyst Printed Name



## Alkalinity by SM 2320B

Analytical Batch: 01ALK13D WATER Matrix: Date of Analysis: 1/11/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO <sub>3</sub> (ppm)	CO3 Alkalinity as CaCO <sub>3</sub> (ppm)	OH Alkalinity as CaCO <sub>3</sub> (ppm)	Low Alkalinity as CaCO <sub>3</sub>
BLANK	6.73	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
805671-1	8.30	50	0.02	0.0	0.0	6.30		126.0	5	126.0	126.0	ND	ND	
805671-2	8.31	50	0.02	0.0	0.0	6.30		126.0	5	126.0	126.0	0	ND	
805671-5	8.28	50	0.02	İ	0.0	6.30		126.0	5	126.0	126.0	ND	ND	
805671-6	8.28	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
805671-7	8.26	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
805671-8	8.26	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
805671-9	8.23	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
805671-10	8.23	50	0.02		0.0	5.80		116.0	5	116.0	116.0	ND	ND	
805671-11	8.32	50	0.02	0,0	0.0	6.25	1	125.0	5	125.0	125.0	0	ND	
805671-12	8.32	50	0.02	0.0	0.0	6.50		130.0	5	130.0	130.0	0	ND.	
805671-12 DUP	8.33	50	0.02	0.0	0.0	6.45		129.0	5	129.0	129.0	0	ND	
805671-14	8.17	50	0.02		0.0	6.55		131.0	5	131.0	131.0	ND	ND ND	
805671-14 MS	9.45	50	0.02	2.3	45.0	11.35		227.0	5	227.0	137.0	90	ND	
LCS	10.50	50	0.02	2.2	44.0	4.95		99.0	5	99.0	11.0	88	ND	
LCSD	10.48	50	0.02	2.2	43.0	4.90	ļ	98.0	5	98.0	12.0	86	ND	
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			‡==	+		1								
(1.00 (1.00			1	(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(			-							
		ļ					<u> </u>							
					H								<u> </u>	<u> </u>

Calculations as follows:

Tor P=

Where:

mL sample

P = Phenolphthalein Alkalinity, mg CaCO3/L

T = Total Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

Low Alkalinity: = as mg/L CaCO3

(2 x B - C) x N x 50000 mL sample

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

<5

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	98	100	98.0%	90-110	Yes

QC WithIn

Control?

Yes

**Duplicate Determination Difference Summary** 

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
805671-12	130	129	0.8%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Jampio mair	× 0   0 (		Janning y									
Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
805671-14	131	1	100	100	227	231.00	96%	75-125	Yes			
000071112		1	100	100				70-120			,	

Melissa S. Analyst Printed Name

**Blank Summary** 

Measured

Value, ppm

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name



CH2MHILL

**CHAIN OF CUSTODY RECORD** 

1/9/2013 4:17:41 PM

Page 1 OF 2

1	Project Name PG	*	k	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			
	Location Topoci	Jay Piper		ervatives:	(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	* where provided w/multiple bottles for Cru + diss. metals please analyze 1 + hold 2		
	Sample Manager S	Shawn Du	•	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA	Mottles for Cru + diss. metals		l
	Project Number 4 Task Order Project 2013-RMF Turnaround Time Shipping Date: 1 COC Number: 2	P-189 10 Days	P.02.RN	ding Time:	Cr6 (E218.6 - river) Field 8 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)	14 Anions (E300.0) Nitrate	Alkalinity (SM2320B)	14 PH (SM4500HB)	TSS (SM2540)	please analyze 1 + hold 2  ALERT!!  Level III QC	Number of Containers	
		DATE	TIME	Matrix	eld	/er)	Fe	)Adis) Se,Mo	tered	20.1)	ıte				POACLITI GO	iners	COMMENTS
	C-CON-D-189	1/9/2013	10:47	Water	х		Х	Х	X	Х	X	х	X	Х		9	) DH=2
2	C-CON-S-189	1/9/2013	11:02	Water	Х		Х	Х	Х	Х	X	Х	Х	X	For Sample Conditions See Form Attached	9	Inch
-1	C-MW-82-189	1/9/2013	10:15	Water		х									Of Dallibic odilar	*	
4[	C-MW-83-189	1/9/2013	13:02	Water		×						,			Cao Form Attacheu	4	
5	C-NR1-D-189	1/9/2013	11:29	Water	X		Х	Х	х	Х	х	х	Х	х		9	
6	C-NR1-S-189	1/9/2013	11:46	Water	Х		х	Х	Х	X	X	Х	Х	×		9	
7	C-NR3-D-189	1/9/2013	12:18	Water	х		х	X	Х	Х	х	Х	x	Х		9	
S)	C-NR3-S-189	1/9/2013	12:35	Water	х		x	х	X	х	Х	X	х	X		9	
9	C-NR4-D-189	1/9/2013	13:14	Water	Х		х	X.	x	Х	х	Х	х	X		9	7
0	C-NR4-S-189	1/9/2013	13:29	Water	Х		х	Х	х	Х	Х	X	X	Х		9	DW=2
7	R-19-189	1/9/2013	9:34	Water	х		х	х	X	X	X	х	х	×		9	metal
ZÌ	R-28-189	1/9/2013	9:13	Water	Х		Х	Х	Х	х	Х	Х	Х	Х		9	ノ
٠,	RMP-AB2-189	1/9/2013	13:35	Water		х										1	
1	'RRB-189	1/9/2013	10:02	Water	Х		х	х	х	x	х	Х	х	х	9-77-10-00-00-00-00-00-00-00-00-00-00-00-00-	9	nu = 2
11.		1,	<del> </del>	<del></del>	ļ			-	ļ							<u></u>	Metals

Approved by

Sampled by

Received by

Remarkable Remarks Rem Received by

Relinquished by

Signatures

**Shipping Details** 

Method of Shipment:

On Ice: yes / no

Special Instructions:

Jan 8-10, 2013

Sample Custody

ATTN:

Report Copy to

Shawn Duffy (530) 229-3303

19/13 22/30 Lab Phone: (714) 730-6239

805671

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

1/9/2013 4:17:42 PM

Page 2 OF 2

Project Name PG	3&E Topoc	k C	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			
Location Topoci		Droce	anustivoe:	(NH4)2S O4/NH4O		HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	* Where provided w/multiple		
Project Manager .	Jay Piper	11630	ci vauves.	H, 4°C	H, 4°C	40	40	40						bottles for creatist metals		
Sample Manager	Shawn Dul	ffy	Filtered:	Field	NA	NA	Field	Field	NA	NΑ	NA	NA	NA	* Where provided w/multiple bottles for Cradis. metals please analyze 1 + hold I		
		Hold	ling Time:	28	28	180	180	180	14	14	14	14	14	please analyze 1 + noto or		
Project Number	423575.MP	.02.RM					T. Ne	<u> </u>	Sp					1		
Task Order				Cr6	Fjeld	3	Metals Field	Metals	Specific Conductance	₽r	<b>&gt;</b>					
Project 2013-RMi	IP-189				200	Metals	(SW601 Filtered	(6020AFF) Chromi	ić O	Anions	<u>ka</u>	P			Num	
Turnaround Time	•	3		218 Fi	) Cr6	; (601	V60	020/ Ch	ond		inity	(S)	TSS (		nbe	
Shipping Date: 1	1/9/2013			(E218.6 – Filtered	l m	)108)	10B As	rom (FF)	lu cta	300	(S)	РН (ЅМ4500НВ	(SM2540)		r o	
COC Number: 2				river)	218		/SW ,Mn	Fie jum	ance	.0)	/123;	99 H	540		8	
				);r) F	.6-1	Total F	0B/SW6020Adis) As,Mn,Fe,Se,Mo	:F) Field Filtered omium	Ē	(E300.0) Nitrate	Alkalinity (SM2320B)	В)	٤			
				Field	iver)	Fe	0Ad Se,I	iltere	(E120.1	ate					aine	
	DATE	TIME	Matrix				ð (s)	ď	1						ß	COMMENTS
SW1-189	1/9/2013	15:20	Water	X				Х	Х			Х			5	(DH=2
SW2-189	1/9/2013	15:42	Water	X				х	х			Х			5	1600
				•			,	4	1	-				TOTAL NUMBER OF CONTAINERS	112	5

Approved by

Sampled by

Resignation Received by

Relinquished by Received by

1-9-13 22:3 Lab Name: Truesdail Laboratories, Inc. 1/9/13 22:30 Lab Phone: (714) 730-6239

**Shipping Details** 

courier

Method of Shipment: On Ice: yes / no

ATTN:

Jan 8-10, 2013

Special Instructions:

Sample Custody

Report Copy to Shawn Duffy (530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
01/03/13	805561-1	7	2 ml	9.5	10:15 Am	HAV
4,	↓ -2	4	1	T	10:20 AM	HAV
	805562-1	7	2 ml	9.5	10:25 AM	HAV
	-2	1.			10:30 AM	1
4	, -3	1	J	J.	10:35 AM	
01/04/13	805581-5	9	NIA	NIA	NIA	HAV
01/09/13	805650	7	2 ml	9.5	9:30 AM	HAV
01/09/13	803651-1	9.5	ALA	NIA	NIA	HAV
	-2			<u>.</u>		
<u> </u>	-3		·			
<u> </u>	-4					
	-5					
	-6					
	77					
	-8					
	.   -9					
	10					
	-11			<del>-   .  </del>		
	-12					
	-13					
_	-14				<del></del>	-
<u> </u>	1, -15	4	~		1,	10
01/10/13	805671-1	9.5	NIA	NIA	N/A	RB
	-2			1		
	-3 -4			1		
	-5					_
	-6					
	-7					
	8-					
	-9	1		i i		+
<u> </u>		<u> </u>	<u> </u>			

M 1-21-13

# 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
0/10/13	805671-10	95	N/A	N/A	NA	RB
j.	-11					
	-12					
	-13					·
	-14					
	-5					
	, -16	<b>1</b>		<b>V</b>	1	1
01/18/13	805813	7	2 ml	9.5	9:30 AM	HAV
01/17/13	305831-1	9.5	414	1414	NIA	RB
	<u> </u>		·		-	
	-3		·			)
	-4					
	-5			-		
·	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	_13					
1	-14		N,	<b>↓</b>		
01/17/13	805832-1	9.5	N/A	NIA	NIA	RB
Andreas and the second	-2	Marian San San San San San San San San San S	arriver and a significant and a second of the second of th	t general and the second second second	A Committee of the Comm	the exemples of the S
	-3					
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	-6					
	7 8					
	-}					
<b>V</b>	-9	¥ :	₩	ė		,

M 1-21-13





Turbidity/pH Check

•			Turbi	dity/pH C	heck			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
805747	41	L2	1/15/13	ES	yes			
805748(1-4)	1	7	L	L	yez L			
805670(1,2)	4	72	1/15/13	DC	NO	12:3000	12/18 1/8/13 15:30	pHer
805753(1,2,4)	4	72	4	be	NO	12:30		pHcz
8098030113	) <1	>2	1/16/13	BE	NO	11:30	T T	1
805806(1-3)	<\	1	1.1				V	<u> </u>
805671(1-2,5-12,1	4+6) L1	42	1/16/13	ES	y-es			Total/DISSOL
905013	41	72	<b>↓</b>	L	yes	11:00		
805782	Z1	22	1/16/13	ES	igis			
805794		ĺ			j			
805795								
805798								
805 799								
805800								
405801								
405824	$\downarrow$		_ a	1				
805827(0,11/2)	41	>2	1/15/13	DC/	70	16:10	1118113 15:30	pHcZ
205841		LZ	1/18/13	ES_	yus			
642			11		0			
843								
४५५								
SAZ								
846					_			
347					-			
848	V_	$\underline{\psi}$	<i>V V V V V V V V V V</i>		1			
805831 (1-12,14)	41	22	1/18/13	ES	yes			
805862(1-7)	1	\	<b>₩</b>	レ				
805885	41	42	1/21/13	DC	yes			
805832(1-11)	۷)	42	1/21/13	Do	425			Total Disc
805864 (1,3-7)	. 41	L2	l V	L	<u>ν</u>			
805890 (42,4)	41	72	1/22/13	Do	Gia	0:25		
805888	41	<u> </u>		000	Yes			
805905				<u>.</u> .				
805906								
805907						·		
805908								
805909	J/	- 4	1	<i>J</i>	<i>\\</i>			
805881(1-7)					Yes			
805863 (1-8)								
805883(1-3)	J.	<u>\</u>	<u> </u>	$\bot \downarrow$	V			
305914	2	72	1/23/13	<b>DC</b> /	No	14:30	1124113 15:20	PH22
805916 (1-3)	4	J	<b>¥</b>	<b>V</b>	₩		J	V
805937	4	L1	4	V	Yes			
805938-1	41	72	₽	1	No	14:50		

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



# Sample Integrity & Analysis Discrepancy Form

Clie	nt: <u>E2</u>	Lab #선	1056 F
Date	e Delivered:0/ /09/13 Time2 <u>2.′8</u> ⊅ By: □Mail ⊠I	Field Service	□ Client
1.	Was a Chain of Custody received and signed?	dixes □N	o □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No	AN/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No	D DANA
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No	AN/A
<b>5</b> .	Were all requested analyses understood and acceptable?	∄Yes □No	⊃ <i>N/A</i>
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>ろっろ。C</u>	Д¥es □No	DN/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	≪Yes □No	DN/A
8.	Were sample custody seals intact?	□Yes □No	AN/A
9.	Does the number of samples received agree with COC?	∂⊉Yes □No	⊃ <i>N/A</i>
10.	Did sample labels correspond with the client D's	✓Yes □No	□N/A
11.	Did sample labels indicate proper preservation?  Preserved (if yes) by: Truesdail	7 ∕aYes .□No	
12.	Were samples pH checked? pH = $\frac{Sel(C, O, C, C)}{C}$	✓ ✓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): □ <b>RUSH</b>	ØYes □No	□ <i>N/A</i>
15.	Sample Matrix: □Liquid □Drinking Water □Ground □Sludge □Soil □Wipe □Paint □Solid	Water □Was 10ther War	ite Water
16.	Comments:	7	
17	Sample Check-In completed by <b>Truesdail</b> Log-In/Receiving:	d. 84,064	· W'ua

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 redigested 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

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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			

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# 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		the best cases of the course between the constitution of the const	
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** 

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Laboratory No.: 806635

Date Received: March 4, 2013

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

Oakland, CA 94612 **Attention:** Shawn Duffy

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

### **Analytical Results Summary**

			Analysis	Extraction		Sample				
	Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
	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	pН	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-l-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	Hq	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
Ś	806635-002	C-l-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Molybdenum	4.1	ug/L	2.0
	806635-002	C-l-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Selenium	ND	ug/L	5.0
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Lab Camala ID	Et. M.D	Analysis	Extraction	Carrella Data	Sample	Description	Desult	l luit-	D.
Lab Sample ID	Field ID	Method	Method	Sample Date	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	pН	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	pН	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 CaCO3)	121	mg/L	5.00
806635-005	C-MAR-S-190	SM2320B	NONE	3/4/2013	13:27	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	124	mg/L	5.00
806635-008	C-R22A-D-190	SM2320B	NONE	3/4/2013	11:47	Alkalinity, Carbonate (As CaCO3)	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	рH	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
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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 ND	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 3/4/2013	12:05	Nitrate as N	ND 106	mg/L	0.500
806635-009	C-R22A-S-190	SM2320B	NONE		12:05	Alkalinity	126	mg/L	5.00
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	125	mg/L	5.00
806635-010	C-R27-D-190	SM2320B	NONE	3/4/2013	14:01	Alkalinity, Carbonate (As CaCO3)	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	рН	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	FLDF <u>L</u> T	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 II	) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
Lab Sample II	7 Fleiu iD		Wethou		111116		Result	Units	KL
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	Нq	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	рН	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	рΗ	4.00
806635-013	C-TAZ-S-190	SW6010B	FLDFLT	3/4/2013	10:03	lron	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	pН	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.

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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:

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

Laboratory No. 806635

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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	



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806635-013 Nitrate as Nitroge		mg/L		2013 14:33 1.0		0.500 ND	
806635-014 Nitrate as Nitroge	ก	mg/L	03/05/2	2013 14:44 1.0	0.00830	0.500 ND	
Method Blank							
Parameter	Unit	DF	Result				
Nitrate as Nitrogen	mg/L	1.00	ND				
Duplicate						Lab ID = 806635-00	)1
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Rang	је
Nitrate as Nitrogen	mg/L	1.00	ND	0.414	0	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Rang	је
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110	
Matrix Spike						Lab ID = 806635-00	)1
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Rang	је
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 Rang	је
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Rang	је
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Rang	је
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100	90 - 110	



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Project Name: PG&E Topock Project

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Alkalinity by SM 2320B Batch 03ALK13A DF MDL Unit Analyzed RL Result Parameter 03/05/2013 1.00 0.555 5.00 125 806635-001 Alkalinity as CaCO3 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 ND Carbonate (Calculated) mg/L 0.555 806635-002 Alkalinity as CaCO3 mg/L 03/05/2013 1.00 5.00 119 Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 119 0.555 ND Carbonate (Calculated) mq/L 03/05/2013 1.00 5.00 03/05/2013 1.00 0.555 5.00 125 806635-003 Alkalinity as CaCO3 mg/L 125 Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 1.00 0.555 ND Carbonate (Calculated) mg/L 03/05/2013 5.00 03/05/2013 1,00 0.555 5.00 130 806635-004 Alkalinity as CaCO3 mg/L Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 130 03/05/2013 1.00 0.555 5.00 ND Carbonate (Calculated) mg/L 806635-005 Alkalinity as CaCO3 03/05/2013 1.00 0.555 5.00 121 mg/L 121 03/05/2013 1.00 0.555 5.00 Bicarbonate (Calculated) mg/L ND Carbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 124 806635-008 Alkalinity as CaCO3 mg/L 03/05/2013 1.00 0.555 5.00 Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 124 03/05/2013 1.00 0.555 5.00 ND Carbonate (Calculated) mg/L 806635-009 Alkalinity as CaCO3 03/05/2013 1.00 0.555 5.00 126 mg/L 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 CaCO3 mg/L 03/05/2013 1.00 0.555 5.00 125 125 Bicarbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 Carbonate (Calculated) mg/L 03/05/2013 1.00 0.555 5.00 ND 03/05/2013 1.00 0.555 120 806635-011 Alkalinity as CaCO3 mq/L 5.00 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 121 806635-012 Alkalinity as CaCO3 mg/L 03/05/2013 1.00 0.555 5.00 1.00 0.555 121 Bicarbonate (Calculated) mg/L 03/05/2013 5.00 mg/L 03/05/2013 1.00 0.555 5.00 ND Carbonate (Calculated) 806635-013 Alkalinity as CaCO3 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) 1.00 5.00 ND mg/L 03/05/2013 0.555 1.00 806635-014 Alkalinity as CaCO3 mg/L 03/05/2013 0.555 5.00 119



Client: E2 Consulting En	gineers, Ind		oject Name: oject Numbe	PG&E Topock r: 423575.MP.02.	-	et	Printed 3	age 4 of 25 /19/2013
806635-014 Bicarbonate (Ca	•	mg/L			1.00	0.555	5.00	119
Carbonate (Calc	ulated)	mg/L	03/05	5/2013	1.00	0.555	5.00	ND
Method Blank								
Parameter	Unit	DF	Result					
Alkalinity as CaCO3	mg/L	1.00	ND					
Duplicate							Lab ID =	806627-016
Parameter	Unit	DF	Result	Expected	R	PD	Accepta	ince Range
Alkalinity as CaCO3	mg/L	1.00	80.0	76.0		5.13	0 - 20	_
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	ince Range
Alkalinity as CaCO3	mg/L	1.00	98.0	100		98.0	90 - 110	)
Lab Control Sample D	uplicate							
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	ince Range
Alkalinity as CaCO3	mg/L	1.00	94.0	100		94.0	90 - 110	)
Matrix Spike							Lab ID =	806635-014
Parameter	Unit	DF	Result	Expected/Adde	ed R	ecovery	Accepta	ince Range
Alkalinity as CaCO3	mg/L	1.00	215	219(100)		96.0	75 - 125	5



Client: E2 Consulting Engineers, Inc.

PG&E Topock Project Project Name:

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Specific Conductivity -	EPA 120.1		Bato	h 03EC13B				
Parameter		Unit	An	alyzed	DF	MDL	RL	Result
806635-001 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	874
806635-002 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	874
806635-003 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	876
806635-004 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	853
806635-005 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	876
806635-008 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	871
806635-009 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	875
806635-010 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	874
806635-011 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	870
806635-012 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	875
806635-013 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	875
806635-014 Specific Condu	ctivity	umhos/	cm 03/0	5/2013	1.00	0.116	2.00	874
Method Blank								
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result ND					
Duplicate							Lab ID =	806635-012
Parameter Specific Conductivity Lab Control Sample	Unit umhos	DF 1.00	Result 875	Expected 875	F	RPD 0	Accepta 0 - 10	ance Range
Parameter Specific Conductivity Lab Control Sample	Unit umhos Duplicate	DF 1.00	Result 683	Expected 706	F	Recovery 96.7	Accepta 90 - 110	ance Range )
Parameter Specific Conductivity MRCCS - Secondary	Unit umhos	DF 1.00	Result 690	Expected 706	F	Recovery 97.7	Accepta 90 - 110	ance Range )
Parameter Specific Conductivity MRCVS - Primary	Unit umhos	DF 1.00	Result 689	Expected 706	F	Recovery 97.6	Accepta 90 - 110	ance Range )
Parameter Specific Conductivity MRCVS - Primary	Unit umhos	DF 1.00	Result 950	Expected 998	F	Recovery 95.2	Accepta 90 - 110	ance Range )
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 970	Expected 998	F	Recovery 97.2	Accepta 90 - 110	ance Range )



Client: E2 Consulting Engineers, Inc.

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Metals by EPA 6010B, Total Batch 030813A-Th2 DF Unit MDL Parameter Analyzed 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 03/08/2013 13:33 1.00 9.50 ug/L 20.0 474 806635-008 Iron 03/08/2013 13:39 1.00 9.50 20.0 36.6 ug/L 806635-009 Iron ua/L 03/08/2013 13:45 1.00 9.50 20.0 27.7 806635-010 Iron 9.50 23.6 ug/L 03/08/2013 13:52 1.00 20.0 806635-011 Iron 03/08/2013 13:58 1.00 9.50 20.0 21.0 ug/L 9.50 806635-012 Iron ug/L 03/08/2013 14:04 1.00 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 03/08/2013 14:47 1.00 9.50 20.0 33.0 ug/L Method Blank DF Unit Result Parameter ND Iron ug/L 1.00 **Duplicate** Lab ID = 806635-001 Parameter Unit DF **RPD** Result Expected Acceptance Range ug/L 24.6 24.0 1.00 2.47 0 - 20Iron Lab Control Sample Parameter Unit DF Result Expected Recovery Acceptance Range Iron ug/L 1.00 52.6 50.0 105 85 - 115 Lab ID = 806635-001 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range ug/L 1.00 70.3 74.0(50.0) 92.6 Iron 75 - 125 Matrix Spike Duplicate Lab ID = 806635-001 Unit DF Expected/Added Parameter Result Recovery Acceptance Range 76.0 Iron ug/L 1.00 74.0(50.0) 104 75 - 125 MRCCS - Secondary Parameter Unit DF Result Expected Recovery Acceptance Range Iron ug/L 5120 5000 102 90 - 110 1.00 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 5300 5000 ug/L 1.00 106 90 - 110 Iron



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806635-001 Chromium, Hex	avalent	ug/L	03/06	5/2013 13:01	1.00	0.00920	0.20	ND
806635-003 Chromium, Hex	avalent	ug/L	03/06	3/2013 13:22	1.00	0.00920	0.20	ND
806635-004 Chromium, Hex	avalent	ug/L	03/06	3/2013 13:32	1.00	0.00920	0.20	ND
806635-005 Chromium, Hex	avalent	ug/L	03/06	3/2013 13:43	1.00	0.00920	0.20	ND
806635-006 Chromium, Hex	avalent	ug/L	03/06	/2013 14:55	1.00	0.00920	0.20	ND
806635-007 Chromium, Hex	avalent	ug/L	03/06	/2013 15:06	1.00	0.00920	0.20	ND
806635-008 Chromium, Hex	avalent	ug/L	03/06	/2013 15:16	1.00	0.00920	0.20	ND
806635-009 Chromium, Hex	avalent	ug/L	03/06	/2013 15:27	1.00	0.00920	0.20	ND
806635-010 Chromium, Hex	avalent	ug/L	03/06	/2013 17:31	1.00	0.00920	0.20	ND
806635-011 Chromium, Hex	avalent	ug/L	03/06	/2013 15:47	1.00	0.00920	0.20	ND
806635-012 Chromium, Hex	avalent	ug/L	03/06	/2013 16:29	1.00	0.00920	0.20	ND
806635-013 Chromium, Hex	avalent	ug/L	03/06	/2013 16:39	1.00	0.00920	0.20	ND
806635-014 Chromium, Hex	avalent	ug/L	03/06	/2013 16:50	1.00	0.00920	0.20	ND
806635-015 Chromium, Hex	avalent	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	F	RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	2.56	2.58		0.653	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.210	0.200		105	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance 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/A	dded F	Recovery	Accepta	ance 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/A	dded F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	7.49	7.58(5.00)		98.2	90 - 110	١



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Matrix Spike						Lab ID = 806330-015
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 31.9	Expected/Added 32.9(25.0)	Recovery 95.8	Acceptance Range 90 - 110 Lab ID = 806635-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.03(1.00)	Recovery 97.7	Acceptance Range 90 - 110 Lab ID = 806635-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.04(1.00)	Recovery 96.2	Acceptance Range 90 - 110 Lab ID = 806635-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.993	Expected/Added 1.02(1.00)	Recovery 96.7	Acceptance Range 90 - 110 Lab ID = 806635-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.03(1.00)	Recovery 98.1	Acceptance Range 90 - 110 Lab ID = 806635-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.976	Expected/Added 1.00(1.00)	Recovery 97.6	Acceptance Range 90 - 110 Lab ID = 806635-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.980	Expected/Added 1.00(1.00)	Recovery 98.0	Acceptance Range 90 - 110 Lab ID = 806635-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.03(1.00)	Recovery 99.0	Acceptance Range 90 - 110 Lab ID = 806635-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.04(1.00)	Recovery 97.6	Acceptance Range 90 - 110 Lab ID = 806635-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.03(1.00)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806635-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.03(1.00)	Recovery 99.9	Acceptance Range 90 - 110 Lab ID = 806635-012
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.04(1.00)	Recovery 97.9	Acceptance Range 90 - 110



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Matrix Spike						Lab ID = 806635-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.03(1.00)	Recovery 98.0	Acceptance Range 90 - 110 Lab ID = 806635-014
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.04(1.00)	Recovery 97.7	Acceptance Range 90 - 110 Lab ID = 806635-015
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 0.974	Expected/Added 1.02(1.00)	Recovery 95.8	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.88	Expected 5.00	Recovery 97.5	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.98	Expected 10.0	Recovery 99.8	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.98	Expected 10.0	Recovery 99.8	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.97	Expected 10.0	Recovery 99.7	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.96	Expected 10.0	Recovery 99.6	Acceptance Range 95 - 105



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Bat	ch 03CrH13G	

Chrome VI by EPA 218.6 Parameter		Unit		03CrH13G lyzed DI	F MDL	RL	Result
806635-002 Chromium, Hexa	avalent	ug/L		2/2013 15:37 1.0		0.20	ND
Method Blank	avaient	ug/L	00/12	72010 10:07	0.00320	0.20	- ND
Parameter Chromium, Hexavalent Duplicate	Unit ug/L	DF 1.00	Result ND			lah ID = :	806791-005
Parameter Chromium, Hexavalent	ameter Unit D		Result 17.8	Expected 17.9			nce Range
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.201	Expected 0.200	Recovery 100	Accepta 70 - 130	nce Range
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.88	,		Acceptance Rang 90 - 110 Lab ID = 806635-00	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.956	Expected/Added 1.02(1.00)	Recovery 93.7	90 - 110	nce Range 306790-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 6.01	Expected/Added 6.02(5.00)	Recovery 99.8	90 - 110	nce Range 806790-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 9.01	Expected/Added 9.19(5.00)	Recovery 96.4	90 - 110	nce Range 306790-003
Parameter Chromium, Hexavalent Matrix Spike	ter Unit DF Result Expected/Added Recovery um, Hexavalent ug/L 1.00 7.60 7.90(5.00) 94.0		Acceptance Rang 90 - 110 Lab ID = 806790-00				
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 6.70	Expected/Added 6.93(5.00)	Recovery 95.4	90 - 110	nce Range 306790-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.00(1.00)	Recovery 106	Accepta 90 - 110	nce Range



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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
Chromit	ım	ug/L	03/06/2013 10:13	1.00	0.0920	1.0	ND
Mangan	ese	ug/L	03/06/2013 10:13	1.00	0.0860	0.50	0.68
Molybde	enum	ug/L	03/06/2013 10:13	1.00	0.207	2.0	4.2
Seleniu	n	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
Chromit	ım	ug/L	03/06/2013 13:05	1.00	0.0920	1.0	ND
Mangan	ese	ug/L	03/06/2013 13:05	1.00	0.0860	0.50	0.91
Molybde	enum	ug/L	03/06/2013 13:05	1.00	0.207	2.0	4.1
Seleniur	n	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
Mangan	ese	ug/L	03/06/2013 11:52	1.00	0.0860	0.50	3.0
Molybde	num	ug/L	03/06/2013 11:52	1.00	0.207	2.0	4.2
Seleniur	n	ug/L	03/06/2013 11:52	1.00	0.0800	5.0	ND
306635-004 Arsenic		ug/L	03/06/2013 11:59	1.00	0.100	0.50	2.1
Chromiu	ım	ug/L	03/06/2013 11:59	1.00	0.0920	1.0	ND
Mangan	ese	ug/L	03/06/2013 11:59	1.00	0.0860	0.50	14.3
Molybde	num	ug/L	03/06/2013 11:59	1.00	0.207	2.0	4.7
Seleniur	n	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
Chromit	ım	ug/L	03/06/2013 12:05	1.00	0.0920	1.0	ND
Mangan	ese	ug/L	03/06/2013 12:05	1.00	0.0860	0.50	8.6
Molybde	num	ug/L	03/06/2013 12:05	1.00	0.207	2.0	4.1
Seleniur	n	ug/L	03/06/2013 12:05	1.00	0.0800	5.0	ND
306635-008 Arsenic		ug/L	03/06/2013 12:11	1.00	0.100	0.50	2.2
Chromit	ım	ug/L	03/06/2013 12:11	1.00	0.0920	1.0	ND
Mangan	ese	ug/L	03/06/2013 12:11	1.00	0.0860	0.50	0.55
Molybde	num	ug/L	03/06/2013 12:11	1.00	0.207	2.0	4.1
Seleniur	n	ug/L	03/06/2013 12:11	1.00	0.0800	5.0	ND
306635-009 Arsenic		ug/L	03/06/2013 12:17	1.00	0.100	0.50	2.3
Chromit	ım	ug/L	03/06/2013 12:17	1.00	0.0920	1.0	ND
Mangan	ese	ug/L	03/06/2013 12:17	1.00	0.0860	0.50	0.72
Molybd∈		ug/L	03/06/2013 12:17	1.00	0.207	2.0	4.4
Seleniur		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 V	erification					
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



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Parameter		Unit	Ana	lyzed [	F	MDL	RL	Result
306635-003 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 Calibratio	n Verification	ŀ						
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.204	0.200		102	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	52.6	50.0		105	85 - 11	5
Matrix Spike							Lab ID =	806635-003
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	50.0	50.0(50.0)		100	75 - 12	5
Matrix Spike Duplica	ite						Lab ID =	806635-003
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	51.0	50.0(50.0)		102	75 - 125	5
MRCCS - Secondary	/							
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	20.1	20.0		101	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.5	20.0		97.5	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.4	20.0		97.1	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.6	20.0		97.9	90 - 110	)
Interference Check S	Standard A							
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	ND	0		-	•	J



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Parameter		Unit	Ana	lyzed	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	7/2013 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	F	RPD	Accepta	nce Range
Iron	ug/L	1.00	ND	0		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Iron	ug/L	1.00	54.7	50.0		109	85 - 115	5
Matrix Spike							Lab ID =	806635-001
Parameter	Unit	DF	Result	Expected/Ad	ded F	Recovery	Accepta	ince 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/Ad	ded F	Recovery		nce Range
Iron	ug/L	1.00	51.2	50.0(50.0)		102	75 - 125	j
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	•	nce Range
Iron	ug/L	1.00	5280	5000		106	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery		nce Range
Iron	ug/L	1.00	5190	5000		104	90 - 110	)



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pH by SM 4500-H B			Batch	03PH13C				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806635-001 pH		рН	03/05	5/2013 09:46	1.00	0.0784	4.00	8.16
806635-002 pH		рН	03/05	5/2013 09:50	1.00	0.0784	4.00	8.22
806635-003 pH		рН	03/05	5/2013 09:55	1.00	0.0784	4.00	8.22
806635-004 pH		рН	03/05	5/2013 09:58	1.00	0.0784	4.00	8.11
806635-005 pH		pН	03/05	5/2013 10:00	1.00	0.0784	4.00	8.18
806635-008 pH		pН	03/05	5/2013 10:03	1.00	0.0784	4.00	8.21
806635-009 pH		pН	03/05	5/2013 10:05	1.00	0.0784	4.00	8.21
806635-010 pH		pН	03/05	5/2013 10:07	1.00	0.0784	4.00	8.19
806635-011 pH		pН	03/05	5/2013 10:10	1.00	0.0784	4.00	8.18
806635-012 pH		рН	03/05	5/2013 09:43	1.00	0.0784	4.00	8.21
806635-013 pH		рН	03/05	5/2013 10:17	1.00	0.0784	4.00	8.23
806635-014 pH		рН	03/05	5/2013 10:19	1.00	0.0784	4.00	8.25
Duplicate							Lab ID =	806635-011
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
рН	рН	1.00	8.19	8.18		0.122	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
рН	рН	1.00	7.00	7.00		100	90 - 110	)
Lab Control Sample [	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
рН	рН	1.00	7.03	7.00		100	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
рН	рН	1.00	7.02	7.00		100	90 - 110	)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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Printed 3/19/2013

Total Suspended Solids	Fotal Suspended Solids by SM 2540 D							
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
806635-001 Total Suspended	d Solids	mg/L	03/06	3/2013	1.00	0.349	10.0	ND
806635-002 Total Suspended	d Solids	mg/L	03/06/2013		1.00	0.349	10.0	ND
806635-003 Total Suspended	d Solids	mg/L	03/06	6/2013	1.00	0.349	10.0	ND
806635-004 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	28.4
806635-005 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	11.6
806635-008 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-009 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-010 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-011 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-012 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-013 Total Suspended	d Solids	mg/L	03/06	5/2013	1.00	0.349	10.0	ND
806635-014 Total Suspended	d Solids	mg/L	03/06	5/2013	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	F	RPD	Accepta	ınce Range
Total Suspended Solids	mg/L	1.00	ND	0		0	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	101	100		101	90 - 110	)
Lab Control Sample D	uplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	97.0	100		97.0	90 - 110	)

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

fo - Mona Nassimi

Manager, Analytical Services



### 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	1.4068	1 4068	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:

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.	Measurd 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

**Duplicate Determinations Difference Summary** 

Dublica	c Detellini	anona Dine	telice only	nai y			
Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?		-
806635-14	0	Ó	_#DIVIO!O	≤5%	#DIV/0!"	yes	8184
806587	0.0203	0.0205	0.5%	5%	Yes	1	

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

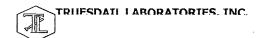
A = Weght of the first sample in (g).

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

C = Average weight in (g).

Reviewer Printed Name

GAUTAM Analyst Printed Name



# Alkalinity by SM 2320B

	Analytica	al Batch:	0	3ALK13A	
		Matrix:		WATER	$\neg$
	Date of A	Analysis:		3/5/13	
_	r	Matrix: 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 CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO <sub>3</sub> (ppm)	CO3 Alkalinity as CaCO, (ppm)	OH Alkalinity as CaCO <sub>3</sub> (ppm)	Low Alkalinity as CaCO <sub>3</sub>
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	1000	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	1
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	1000	0.0	6.05		121.0	5	121.0	121.0	ND ND	, ND	
					iii and a second	-								
					<u> </u>									
					1									

Calculations as follows:

Tor P=

Where:

 $A \times N \times 50000$ 

mL sample

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

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

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

mL sample

B = mL titrant to first recorded pH Where:

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

**<**5

Laboratory			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	arriinar y	
QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	98	100	98.0%	90-110	Yes
LCSD	94	100	94.0%	90-110	Yes

QC Within

Control?

Yes

**Duplicate Determination Difference Summary** 

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
806627-16	76	80	5.1%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Cample Mau	y ohive (i	י נשטוויטוי	oummai y									
Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
806635-14	119	1	100	100	215	219.00	96%	75-125	Yes			
000000-14		1	100	100				10-120				

Melissa S. Analyst Printed Name

**Blank Summary** 

Measured

Value, ppm

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

806635 3/4/2013 3:52:47 PM

Page 1 OF 2

	me PG&ETopock	<	Container:	3X250 ml Poly	250 Poly	Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
=	nager Jay Piper		servatives:	(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	For Sample Conditions  See Form Attached		
Sample Mai	nager Shawn Duff	fy	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	ÑΑ	NA	The Committee of the Charles		
			ding Time:	28	28	180	180	180	14	14	14	14	14			
Task Order Project 20° Turnaround	13-RMP-190 d Time 10 Days ate: 3/4/2013		<i>M</i> atrix	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)	РН (SM4500HB)	TSS (SM2540)	ALERT !! Level III QC	Number of Containers	
C-BNS-D-190	3/4/2013	12:35	Water	X		2		T		· ·	~	-	~			COMMEN
C-I-3-0-190		10:42	Water	<del>                                      </del>		X	X	X	X	X	X	X	X		9	<del> </del>
C-I-3-S-190		11:00	Water	X		X	X	X	Х	Х	X	X	X		9	
C-MAR-D-190			-	Х		X	Х	Х	Х	Х	X	Х	X		9	T PH:
C-MAR-S-190	W 11 12 U 2 U	13:12	Water	X		X	X	Х	Х	Х	X	Х	X		9	600
C-MW-80-190	4.30.0010	13:27	Water	Х		Х	X	X	Х	X	Х	X	Х		9	1 601
C-MW-81-190	97.55.66.25	11:37	Water		Х										April 1	
	3/4/2013	12:22	Water		X										1	
C-R22A-D-190	~ ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	11:47	Water	X		Х	X	Х	Х	Х	Х	Х	Х		9	<del>                                     </del>
C-R22A-S-190		12:05	Water	Х		Х	Х	Х	Х	Х	Х	Х	Х		9	
C-R27-D-190	3/4/2013	14:01	Water	Х		Х	Х	Х	Х	x	Х	X	Х		9	<u> </u>
C-R27-S-190	3/4/2013	14:16	Water	X		Х	Х	Х	Х	x	х	Ж	Х		9	Im/2
C-TAZ-D-190	3/4/2013	9:45	Water	X		Х	Х	Х	Х	Х	Х	Х	Х		9	65
C.TA7.C.40A	3/4/2013	10:03	Water	Х		Х	Х	X	X	Х	Х	Х	Х		9	601
C-TAZ-S-190 R63-190		11.20	Water	Х	1	Х	x	×	x	X	х	x	Х		9	1

Sampled by Retinquished by

Received by

Relinquished by Received by

1630

12:30Lab Name: Truesdail Laboratories, Inc. 22/30 Lab Phone: (714) 730-6239

Method of Shipment:

On Ice: yes / no

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

#### CH2MHILL

**CHAIN OF CUSTODY RECORD** 



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			1
Location Topock Project Manager Jay Piper	Preservatives	(NH4)2S	(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			
Sample Manager Shawn Duffy	Filtered	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			ĺ
	Holding Time	28	28	180	180	180	14	14	14	14	14			
	TIME Matrix	Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe		Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	РН (SM4500НВ)	TSS (SM2540)	ALERT !! Level III QC	Number of Containers	сомі
RMP-AB1-190 3/4/2013 1	14:30 Water		Х										4	
	•				,							TOTAL NUMBER OF CONTAINERS	111	

Approved by Sampled by

Received by

Signatures

Date/Time 3-4~13 1630

**Shipping Details** 

ATTN:

March 4-5, 2013

Special Instructions:

On Ice: yes / no

Method of Shipment:

Sample Custody

Report Copy to

Received by 3/4//3 /6:30 Airbill No: 3-4-13 11:3 Eab Name: Truesdail Laboratories, Inc. Relinquished by

Lab Phone: (714) 730-6239

Shawn Duffy (530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

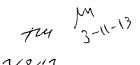
Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3,5/13	806633-3	9.5	NIA	NIA	NA	RY3
				ļ i		- j
	4					
	_6				·	
	-7					
	~3					
	_9					
	10					
	11					
V	-12	· V				d.
3/5/13	8066341	9.5	NIA	MA	NA	Rn
	-2	1	i i			
	-3					
	-4					
	-5					
	-6					
	-7			!		
	3	!				
	-9					
	-10					
	~11					
	12					
	_13			<u> </u>	4	4
3,5/13	806635-1	9.5	N/A	N/4	1010	RB
	-2	1				
	-3				.	
	6					
	-7					
	- 8	<u> </u>	<u> </u>	<u> </u>	<u>j</u>	V

my 3-11-13

3/8/13

# 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
315/1	3 806635-9	9.5	NIA	1 Nu 1A	212	PB
	-10				-	1
	-11			<u> </u>		
	12				-	
	-13					· <b>/</b>
	-14					
	-15	l le	1	1-1-		h
3/6/11	803668-1	9,5	NA	NA	NIA	TH
	~2			<del>                                     </del>		
	-,1					
	· · ·					
	-5					
	-6		***************************************			
	-7		·			
	-8					
	-9 -10					
	-11		•			
	-12					
	-13					
	-/4					
	-15					
V	-16	.1		J	1	3.
3/6/13	806669-1	7,0	2mc/100ml	9.5	10:20	Tres
<u> </u>	-2	<u> </u>	J	J	d	
3/6/13	806 670 -1	7.0	2 ml /100 pg (	9.5	10:20	Pu
¥	-2	1	l	1		<b>V</b>
3/6/13	806673	9.5	NA	NA	W/A	tra
3/6/13	806696-1	7.0	2mc/100mc	9.5	15:45	TM
	1 -2	J	2mc/100ml	<u> </u>	1	Tay





**Turbidity/pH Check** 

			iuibii	alty/pH C	IIICUN			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41	12	2/25/13	DC	Yes			
806520	. 71	42		1	1			
806493 (1-5)	71	12						
806494 (1-5)	71	62	l l		L L			
306552	<b>&lt;</b> 1	72	2-27-13	Br	×es	11:00		
806553L1-4)		<2						
806554 (1-4)				1				
806542 (1-3)	r)			<u> </u>				
806542(1-3)		72	,		~0	12:00	2/28/13 2 15:35	
80 8545							J	
806537	۷ ا	٤2	¥	or	yes			
806565	۷۱	72	<u> </u>	<u> </u>	. ges	14:∞	2/28/13 20 15:30	
806562(1-19)	41	72	2 28/13	ES	no	9:30	3/11/3 00 60	pHZ2
806567(10-12)	<u> </u>		9 ~		<u></u>	1	<u> </u>	· \(\nu\)
806570 (1-2)	71	ZZ			yes			
806 572 (1-2)	. 1	12			ijis ijes			
806586 (1,2)	<u>۲۱</u>	72		DC	ges	15:30		
306617	71 5 INIU	.42	3/4/13	<b>9</b> C	yer			
\$06632 (1-12)	<1		3-5-19	BL				
8066344133-6								
806135 (1-598-14)				+-				
806620(1-2,4)	21	72	312/13	ŁŚ	NO	12:00		
806620(12,47)		1	915117	1	1	12.00		
80625		<b>Z</b> 2			ijes			
806626		J						
406 68861-27512	<1	<2	3-6-13	BE	xes			
896669 (1-2)	1	72	1		1			Lab file A cicliful
80667061-27	1							J
80867911-5)		<2	1					
806643	71	42		DC	yes			
806651	41	J.		١	. 1			
806688	71	>2	4	·l	Ų.	12:30		
906667	<1	72		BI-	V	14100		
80666361-3	<u> </u>		*		k	1500 B		
806694610-12				1		15:00		
806688(4-6)						4		
80 6650	41	12	3/4/13	n	yes			
806649					1			
806648								
806647								
806646								
806652			·					
8106671	<i>.</i>	<u> </u>	4	4	J			

#### Notes:

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

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## Sample Integrity & Analysis Discrepancy Form

CI	ient: <u>E2</u>	Lab#
Da	te Delivered: <u>0岁 0</u> 灯 13 Time: <u>೩೩.′೪</u> ೦ By: □Mail 🍳	Field Service
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No □N/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No ÇÎN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No œN/A
<b>5</b> .	Were all requested analyses understood and acceptable?	AYes □No □N/A
<i>6</i> .	Were samples received in a chilled condition? Temperature (if yes)? $\frac{3.5 \text{ °C}}{}$	ÆYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆYes □No □N/A
<b>8</b> .	Were sample custody seals intact?	□Yes □No ÞÍN/A
9.	Does the number of samples received agree with COC?	Je Yes □No □N/A
10.	Did sample labels correspond with the client ID's?	∯Yes □No □N/A
<b>1</b> 1.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐ Truesdail □ Client	✓ Yes □No □N/A
12.	Were samples pH checked? pH = <u>\$elec.o.c</u>	☐Yes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT):   RUSH & Std	□Yes □No □N/A
15.	Sample Matrix: □Liquid □Drinking Water □Ground W □Sludge □Soil □Wipe □Paint □Solid ☑	11. 1
16.	Comments:	
17.	Sample Check-In completed by Truesdail Log-In/Receiving:	L. Steabury







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

Established 1931



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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			

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# 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		Annual Control of the	
C-NR4-D-190	9.50	No			
C-NR4-S-190	9.50	No		1 <b>V</b> 11 No. 1	
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** 

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Laboratory No.: 806668
Date Received: March 5, 2013

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

Attention: Shawn Duffy

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

## **Analytical Results Summary**

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
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 CaCO3)	130	mg/L	5.00
806668-001	C-CON-D-190	SM2320B	NONE	3/5/2013	9:49	Alkalinity, Carbonate (As CaCO3)	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	pН	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 CaCO3)	124	mg/L	5.00
806668-002	C-CON-S-190	SM2320B	NONE	3/5/2013	10:06	Alkalinity, Carbonate (As CaCO3)	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	рH	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

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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 II	D 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 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	рH	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	pН	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



		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	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	pΗ	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	pН	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



		Analysis	Extraction	_	Sample	_			
Lab Sample ID	Field ID	Method	Method	Sample Date	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	рH	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	pН	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	pН	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	pН	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



TRUESDAIL LABORATORIES, IN	IC.
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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 CaCO3)	128	mg/L	5.00
806668-014	RRB-190	SM2320B	NONE	3/5/2013	9:13	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-014	RRB-190	SM2540D	NONE	3/5/2013	9:13	Suspended Solids (Residue, Non-Filterable)	ND	-	10.0
806668-014	RRB-190	SM4500HB	NONE	3/5/2013	9:13 9:13	PH	8.23 J	mg/L	4.00
806668-014	RRB-190	SW6010B	FLDFLT	3/5/2013	9:13 9:13	Iron	0.23 J ND	pH	20.0
806668-014	RRB-190	SW6010B	NONE	3/5/2013	9:13 9:13	Iron		ug/L	
	RRB-190						76.8	ug/L	20.0
806668-014		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	рΗ	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	рΗ	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.

## TRUESDAIL LABORATORIES, INC.

**EXCELLENCE IN INDEPENDENT TESTING** 



Established 1931

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

Printed 3/20/2013

Laboratory No. 806668

### REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

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

Release Number:

Samples Received on 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.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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806668-014 Nitrate as Nitrogen		mg/L	mg/L 03/06/2013 16:31		0.00830	0.500 ND
Method Blank						
Parameter Fluoride Sulfate	Unit mg/L mg/L	DF 1.00 1.00	Result ND ND			
Nitrate as Nitrogen  Duplicate	mg/L	1.00	ND			Lab ID = 806670-001
Parameter Sulfate Duplicate	Unit mg/L	DF 100	Result 546	Expected 550	RPD 0.689	Acceptance Range 0 - 20 Lab ID = 806670-002
Parameter Fluoride Nitrate as Nitrogen Lab Control Sample	Unit mg/L mg/L	DF 5.00 5.00	Result 2.74 3.16	Expected 2.51 3.34	RPD 8.65 5.44	Acceptance Range 0 - 20 0 - 20
Parameter Fluoride Sulfate Nitrate as Nitrogen Matrix Spike	Unit mg/L mg/L mg/L	DF 1.00 1.00 1.00	Result 4.16 20.6 4.07	Expected 4.00 20.0 4.00	Recovery 104 103 102	Acceptance Range 90 - 110 90 - 110 90 - 110 Lab ID = 806670-001
Parameter Sulfate Matrix Spike	Unit mg/L	DF 100	Result 1060	Expected/Added 1050(500)	Recovery 102	Acceptance Range 85 - 115 Lab ID = 806670-002
Parameter Fluoride Nitrate as Nitrogen MRCCS - Secondary	Unit mg/L mg/L	DF 5.00 5.00	Result 23.6 22.8	Expected/Added 22.5(20.0) 23.3(20.0)	Recovery 106 97.2	Acceptance Range 85 - 115 85 - 115
Parameter Fluoride Sulfate Nitrate as Nitrogen MRCVS - Primary	Unit mg/L mg/L mg/L	DF 1.00 1.00 1.00	Result 4.15 20.6 4.06	Expected 4.00 20.0 4.00	Recovery 104 103 102	Acceptance Range 90 - 110 90 - 110 90 - 110
Parameter Fluoride MRCVS - Primary	Unit mg/L	DF 1.00	Result 3.20	Expected 3.00	Recovery 107	Acceptance Range 90 - 110
Parameter Fluoride	Unit mg/L	DF 1.00	Result 3.19	Expected 3.00	Recovery 106	Acceptance Range 90 - 110

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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Alkalinity by SM 2320B

Batch 03ALK13B

Alkalinity by SM 2320B		Batch U3ALK13B					
Parameter	Unit	Analyzed	DF	MDL	RL	Result	
806668-001 Alkalinity as CaCO3	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 CaCO3	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	
306668-005 Alkalinity as CaCO3	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 CaCO3	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 CaCO3	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	
306668-008 Alkalinity as CaCO3	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	
306668-009 Alkalinity as CaCO3	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	
306668-010 Alkalinity as CaCO3	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 CaCO3	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 CaCO3	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	
306668-014 Alkalinity as CaCO3	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 Project Number: 423575.MP.02.RM		_	Page 5 of 29 Printed 3/20/2013
Method Blank						
Parameter Alkalinity as CaCO3 Duplicate	Unit mg/L	DF 1.00	Result ND			Lab ID = 806668-007
Parameter Alkalinity as CaCO3 Lab Control Sample	Unit mg/L	DF 1.00	Result 126	Expected 126	RPD 0	Acceptance Range 0 - 20
Parameter Alkalinity as CaCO3 Lab Control Sample I	Unit mg/L Duplicate	DF 1.00	Result 99.0	Expected 100	Recovery 99.0	Acceptance Range 90 - 110
Parameter Alkalinity as CaCO3 Matrix Spike	Unit mg/L	DF 1.00	Result 100	Expected 100	Recovery 100	Acceptance Range 90 - 110 Lab ID = 806670-002
Parameter Alkalinity as CaCO3	Unit mg/L	DF 1.00	Result 246	Expected/Added 243(100)	Recovery 103	Acceptance Range 75 - 125



Client: E2 Consulting Engineers, Inc.

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Project Number: 423575.MP.02.RM

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Specific Conductivity - EPA 120.1		Batch 03EC13C						
Parameter	il eta Waliapel e gazari ili	Unit	An	alyzed	DF	MDL	RL	Result
806668-001 Specific Condu	uctivity	umhos/	cm 03/0	03/06/2013		0.116	2.00	866
806668-002 Specific Condu	uctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	865
806668-005 Specific Conductivity		umhos/	cm 03/0	06/2013	1.00	0.116	2.00	867
806668-006 Specific Condu	uctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	872
806668-007 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	875
806668-008 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	875
806668-009 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	876
806668-010 Specific Condu	ıctivity	umhos/	cm 03/0	06/2013	1.00	0.116	2.00	871
806668-011 Specific Condu	ıctivity	umhos/	cm 03/0	6/2013	1.00	0.116	2.00	873
806668-012 Specific Condu	ıctivity	umhos/	cm 03/0	6/2013	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 Condu	ıctivity	umhos/	cm 03/0	6/2013	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	F	RPD	Acceptance Range	
Specific Conductivity	umhos	1.00	874	874		0	0 - 10	
Duplicate							Lab ID =	806670-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
Specific Conductivity	umhos	1.00	7440	7440		0	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Specific Conductivity	umhos	1.00	710	706		100	90 - 110	)
Lab Control Sample	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Specific Conductivity  MRCCS - Secondary	umhos y	1.00	703	706		99.6	90 - 110	)
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ance Range
Specific Conductivity	umhos	1.00	707	706		100	90 - 110	)



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 8 of 29

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Metals by EPA 6010B, Total			Batch	031313A-Th2				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
806668-001 Iron		ug/L	03/13	3/2013 15:29	1.00	9.50	20.0	24.5
806668-002 Iron		ug/L	03/13	3/2013 15:54	1.00	9.50	20.0	ND
806668-005 Iron		ug/L	03/13	3/2013 16:00	1.00	9.50	20.0	ND
806668-006 Iron		ug/L	03/13	3/2013 16:06	1.00	9.50	20.0	ND
806668-007 Iron		ug/L	03/13	3/2013 16:13	1.00	9.50	20.0	21.7
806668-008 Iron		ug/L	03/13	3/2013 16:37	1.00	9.50	20.0	ND
806668-009 Iron		ug/L	03/13	3/2013 16:44	1.00	9.50	20.0	22.4
806668-010 Iron		ug/L	03/13	3/2013 16:50	1.00	9.50	20.0	ND
806668-011 Iron		ug/L	03/13	3/2013 16:56	1.00	9.50	20.0	ND
806668-012 Iron		ug/L	03/13	3/2013 17:02	1.00	9.50	20.0	ND
806668-014 Iron		ug/L	03/13	3/2013 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	Accepta	ince Range
Iron	ug/L	1.00	27.0	24.5		9.71	0 - 20	_
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Iron	ug/L	1.00	53.5	50.0		107	85 - 115	;
Matrix Spike							Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Add	ded	Recovery	Accepta	nce Range
Iron	ug/L	1.00	74.9	74.5(50.0)		101	75 - 125	j
Matrix Spike Duplicate							Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Add	ded	Recovery	Accepta	nce Range
Iron	ug/L	1.00	75.5	74.5(50.0)		102	75 - 125	j
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Iron	ug/L	1.00	5080	5000		102	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range
Iron	ug/L	1.00	4970	5000		99.4	90 - 110	)



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Chrome VI by EPA 218.6			Batch	03CrH13K				
Parameter	elikeli elikelikelikelikelikelikelikelikelikelik	Unit	Anal	yzed	DF	MDL	RL	Result
806668-001 Chromium, Hexa	avalent	ug/L	03/14	/2013 08:15	1.00	0.00920	0.20	ND
806668-002 Chromium, Hexa	avalent	ug/L	03/14	03/14/2013 08:26		0.00920	0.20	ND
806668-003 Chromium, Hexa	avalent	ug/L	03/14	/2013 08:36	1.00	0.00920	0.20	ND
806668-004 Chromium, Hexa	avalent	ug/L	03/14	/2013 08:47	1.00	0.00920	0.20	ND
806668-005 Chromium, Hexa	avalent	ug/L	03/14	/2013 08:57	1.00	0.00920	0.20	ND
806668-006 Chromium, Hexa	avalent	ug/L	03/14	/2013 09:07	1.00	0.00920	0.20	ND
806668-007 Chromium, Hexa	avalent	ug/L	03/14	/2013 09:18	1.00	0.00920	0.20	ND
806668-008 Chromium, Hexa	avalent	ug/L	03/14	/2013 09:59	1.00	0.00920	0.20	ND
806668-009 Chromium, Hexa	avalent	ug/L	03/14	/2013 10:10	1.00	0.00920	0.20	ND
806668-010 Chromium, Hexa	avalent	ug/L	03/14	/2013 10:20	1.00	0.00920	0.20	ND
806668-011 Chromium, Hexa	avalent	ug/L	03/14	/2013 10:31	1.00	0.00920	0.20	ND
806668-012 Chromium, Hexa	avalent	ug/L	03/14	/2013 10:41	1.00	0.00920	0.20	ND
806668-013 Chromium, Hexavalent		ug/L	03/14/	03/14/2013 10:51 1.00 0.00920		0.00920	0.20	ND
806668-014 Chromium, Hexa	avalent	ug/L	03/14/	/2013 11:02	1.00	0.00920	0.20	ND
806668-015 Chromium, Hexa	avalent	ug/L	03/14/	/2013 11:12	1.00	0.00920	0.20	ND
Method Blank								
Parameter	Unit	ÐF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	806668-002
Parameter	Unit	ÐF	Result	Expected	Į	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	ı	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	0.203	0.200		102	70 - 130	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accepta	nce 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/A	Added I	Recovery	Accepta	nce 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/A	Added I	Recovery	Accepta	nce 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 Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.961	Expected/Added 1.00(1.00)	Recovery 96.1	Acceptance Range 90 - 110 Lab ID = 806668-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.964	Expected/Added 1.00(1.00)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 806668-005	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.986	Expected/Added 1.03(1.00)	Recovery 95.5	Acceptance Range 90 - 110 Lab ID = 806668-006	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 97.2	Acceptance Range 90 - 110 Lab ID = 806668-007	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.973	Expected/Added 1.03(1.00)	Recovery 94.0	Acceptance Range 90 - 110 Lab ID = 806668-008	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.03(1.00)	Recovery 96.7	Acceptance Range 90 - 110 Łab ID = 806668-009	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.978	Expected/Added 1.03(1.00)	Recovery 94.5	Acceptance Range 90 - 110 Lab ID = 806668-010	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.07	Expected/Added 1.03(1.00)	Recovery 104	Acceptance Range 90 - 110 Lab ID = 806668-011	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.990	Expected/Added 1.03(1.00)	Recovery 95.7	Acceptance Range 90 - 110 Łab ID = 806668-012	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.11	Expected/Added 1.03(1.00)	Recovery 108	Acceptance Range 90 - 110 Lab ID = 806668-013	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.959	Expected/Added 1.00(1.00)	Recovery 95.9	Acceptance Range 90 - 110 Lab ID = 806668-014	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.988	Expected/Added 1.03(1.00)	Recovery 95.9	Acceptance Range 90 - 110	

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Matrix Spike						Lab ID = 806668-015	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.961	Expected/Added 1.01(1.00)	Recovery 94.7	Acceptance Range 90 - 110 Lab ID = 806826-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.08(1.00)	Recovery 96.1	Acceptance Range 90 - 110 Lab ID = 806826-001	
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 5.00	Result 4.80	Expected/Added 5.11(5.00)	Recovery 93.8	Acceptance Range 90 - 110	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.97	Expected 5.00	Recovery 99.5	Acceptance Range 90 - 110	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.94	Expected 10.0	Recovery 99.4	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.93	Expected 10.0	Recovery 99.3	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.81	Expected 10.0	Recovery 98.1	Acceptance Range 95 - 105	



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Chrome VI by EPA 218.6			Batch	03CrH13L				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806668-016 Chromium, Hexa	avalent	ug/L	03/18	3/2013 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	-	ince Range
Chromium, Hexavalent	ug/L	100	1740	1740		0.142	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected		Recovery		ince Range
Chromium, Hexavalent	ug/L	1.00	0.222	0.200		111	70 - 130	)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	-	ince Range
Chromium, Hexavalent	ug/L	1.00	5.02	5.00		100	90 - 110	
Matrix Spike						_		806668-016
Parameter Chromium Hoveyelent	Unit	DF 1.00	Result 1.02	Expected/Adde 1.02(1.00)	ed	Recovery 99.2	Accepta 90 - 110	ince Range
Chromium, Hexavalent  Matrix Spike	ug/L	1.00	1.02	1.02(1.00)		99.2		, 806909-001
	1.111	DE	<b>.</b>	=		Б		
Parameter Chromium, Hexavalent	Unit ug/L	DF 10.0	Result 280	Expected/Adde 282(150)	ea	Recovery 99.0	90 - 110	ince Range
Matrix Spike	ug/L	10.0	200	202(100)		33.0		, 806909-002
Parameter	Unit	DF	Result	Expected/Adde	, d	Recovery		
Chromium, Hexavalent	ug/L	10.0	286	285(150)	:u	100	90 - 110	ince Range
Matrix Spike	G· =			(,				806909-003
Parameter	Unit	DF	Result	Expected/Adde	h	Recovery		nce Range
Chromium, Hexavalent	ug/L	250	6360	6370(3750)	, <b>.</b>	99.6	90 - 110	_
Matrix Spike	_						Lab ID =	806909-005
Parameter	Unit	DF	Result	Expected/Adde	ed	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	100	3710	3740(2000)		98.3	90 - 110	_
Matrix Spike							Lab ID =	806909-006
Parameter	Unit	DF	Result	Expected/Adde	ed	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	100	3720	3680(2000)		102	90 - 110	



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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
306668-006 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
306668-007 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
306668-008 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
306668-009 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
306668-010 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
306668-011 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	F	RPD	Accepta	nce 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 \	erification/							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce 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	F	Recovery	Accepta	nce Range
Arsenic	ug/L	2.00	45.5	50.0		91.0	85 - 115	;
Chromium	ug/ <b>L</b>	2.00	49.4	50.0		98.9	85 - 115	;
Manganese	ug/L	2.00		50.0		95.5	85 - 115	•
Molybdenum	ug/L	2.00	50.7	50.0		101	85 - 115	;



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Matrix Spike						Lab ID = 806668-001
Parameter Arsenic	Unit ug/L	DF 2.00	Result 43.0	Expected/Added 52.2(50.0)	Recovery 81.5	Acceptance Range 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 Arsenic	Unit ug/L	DF 1.00	Result 18.8	Expected 20.0	Recovery 93.8	Acceptance Range 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  MRCVS - Primary	ug/L	1.00	19.3	20.0	96.6	90 - 110
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 Manganese	Unit ug/L	DF 1.00	Result 18.6	Expected 20.0	Recovery 92.8	Acceptance Range 90 - 110



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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806668-001 Selenium		ug/L	03/12	2/2013 14:57	2.00	0.160	5.0	ND
806668-002 Selenium		ug/L	03/12	2/2013 16:01	2.00	0.160	5.0	ND
806668-005 Selenium		ug/L	03/12	2/2013 16:09	2.00	0.160	5.0	ND
806668-006 Selenium		ug/L	03/12	2/2013 16:16	2.00	0.160	5.0	ND
806668-007 Selenium		ug/L	03/12/2013 16:23 2.00 0.160		0.160	5.0	ND	
806668-008 Selenium		ug/L	03/12	2/2013 16:30	2.00	0.160	5.0	ND
806668-009 Selenium		ug/L	03/12	2/2013 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	03/12/2013 16:52 2.00		0.160	5.0	ND
806668-012 Selenium		ug/L	03/12	2/2013 16:59	2.00	0.160	5.0	ND
806668-014 Selenium		ug/L	03/12	2/2013 17:06	2.00	0.160	5.0	ND
Method Blank								
Parameter Selenium	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	806668-001
Parameter Selenium	Unit ug/L	DF 2.00	Result ND	Expected 0	F	RPD 0	Accepta 0 - 20	ance Range
Low Level Calibration	Verification							
Parameter Selenium Lab Control Sample	Unit ug/L	DF 1.00	Result 0.208	Expected 0.200	F	Recovery 104	Accepta 70 - 130	ance Range )
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Selenium	ug/L	2.00	44.2	50.0		88.5	85 - 118	5
Matrix Spike							Lab ID =	806668-001
Parameter Selenium	Unit ug/L	DF 2.00	Result 40.9	Expected/Ac 50.0(50.0)	dded f	Recovery 81.9	75 - 125	
Matrix Spike Duplicate							Lab ID =	806668-001
Parameter Selenium	Unit ug/L	DF 2.00	Result 41.8	Expected/Ac 50.0(50.0)	dded F	Recovery 83.6	Accepta 75 - 125	ance Range
MRCCS - Secondary						_	_	_
Parameter Selenium	Unit ug/L	DF 1.00	Result 20.4	Expected 20.0	F	Recovery 102	Accepta 90 - 110	ance Range )



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Metals by EPA 6020A, I	Dissolved		Batch	031513A-ICPMS-1				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806668-010 Manganese		ug/L	03/15	5/2013 13:57 2	.00 0.1	72	0.50	0.52
Molybdenum		ug/L	03/15	5/2013 13:57 2	.00 0.4	14	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		Accepta	ince Range
Manganese	ug/L	2.00	0.653	0.648	0.73	8	0 - 20	J
Molybdenum	ug/L	2.00	4.78	5.44	12.8		0 - 20	
Low Level Calibration	n Verification	1						
Parameter	Unit	DF	Result	Expected	Recov	ery	Accepta	nce 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	Recov	ery	Accepta	nce 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/Adde	d Recov	ery	Accepta	nce 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 Duplica	ite :						Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Adde	d Recov	ery	Accepta	nce 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	Recov	ery	Accepta	nce 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	Recov	ery	Accepta	nce Range
Manganese	ug/L	1.00	18.9	20.0	94.4	•	90 - 110	-



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Project Name:
Project Number:

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Metals by EPA 6010B, Dis	solved		Batch 031213A-Th2					
Parameter		Unit	Ana	lyzed	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	Accepta	ance Range
Iron	ug/L	1.00	ND	0		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery		ance Range
Iron	ug/L	1.00	52.3	50.0		105	85 - 115	
Matrix Spike							Lab ID =	806668-001
Parameter	Unit	DF	Result	Expected/Ad	dded	Recovery	•	ance 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/Ad	dded	Recovery	•	ance Range
Iron	ug/L	1.00	50.0	50.0(50.0)		100	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	•	ance Range
Iron	ug/L	1.00	4930	5000		98.6	90 - 110	)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery		ince Range
Iron	ug/L	1.00	4780	5000		95.5	90 - 110	)



Unit

рΗ

DF

1.00

Result

7.02

Report Continued

Client: E2 Consulting Engineers, Inc.

Parameter

рΗ

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Acceptance Range

90 - 110

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result	
806668-001 pH		pН	03/06	5/2013 10:30	1.00	0.0784	4.00	8.28	- J
806668-002 pH		рН	03/06	6/2013 10:32	1.00	0.0784	4.00	8.29	J
806668-005 pH		рН	03/06	5/2013 10:35	1.00	0.0784	4.00	8.25	
806668-006 pH		рН	03/06	3/2013 10:38	1.00	0.0784	4.00	8.26	
806668-007 pH		pН	03/06	5/2013 10:40	1.00	0.0784	4.00	8.24	
806668-008 pH		рН	03/06	6/2013 10:42	1.00	1.00 0.0784		8.24	
806668-009 pH		рН	03/06	5/2013 10:45	1.00 0.0784		4.00	8.24	_
Duplicate							Lab ID =	806668-009	
Parameter pH	Unit pH	DF 1.00	Result 8.24	-		Accepta 0 - 20	ance Range		
Lab Control Sample									
Parameter pH	Unit pH	DF 1.00	Result 7.01	Expected 7.00	F	Recovery 100	Accepta 90 - 110	ance Range )	
Lab Control Sample D	uplicate								
Parameter pH	Unit pH	DF 1.00	Result 7.03			•		ance Range )	
•	•								

Expected

7.00

Recovery

100



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pH by SM 4500-H B			Batch	03PH13E					
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result	
806668-010 pH		рН	03/06	8/2013 10:55	1.00	0.0784	4.00	8.20	_
806668-011 pH		рН	03/06	6/2013 10:57	1.00	0.0784	4.00	8.30	J
806668-012 pH		рН	03/06	8/2013 11:00	1.00	0.0784	4.00	8.33	J
806668-014 pH		pН	03/06	8/2013 11:03	1.00	0.0784	4.00	8.23	J
806668-015 pH		рН	03/06	8/2013 11:05	1.00	0.0784	4.00	7.50	J
806668-016 pH		рН	03/06	6/2013 11:07	1.00	0.0784	4.00	7.57	_ J
Duplicate							Lab ID =	806669-002	2
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range	е
pН	рН	1.00	7.25	7.25		0	0 - 20		
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range	Э
рН	рН	1.00	7.02	7.00		100	90 - 110	כ	
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range	Э
pН	pН	1.00	7.02	7.00		100	90 - 110	)	



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Total Suspended Solids	s by SM 25	40 D	Batch	03TSS13D				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
806668-001 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-002 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-005 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-006 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-007 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-008 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-009 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-010 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-011 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-012 Total Suspende	d Solids	mg/L	03/08	3/2013	1.00	0.349	10.0	ND
806668-014 Total Suspende	d Solids	mg/L_	03/08	3/2013	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	F	RPD	Accepta	ance Range
Total Suspended Solids	mg/L	1.00	ND	0		0	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Total Suspended Solids	mg/L	1.00	98.0	100		98.0	90 - 110	)
Lab Control Sample (	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Total Suspended Solids	mg/L	1.00	97.0	100		97.0	90 - 110	)

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services



#### TRUESDAIL LABORATORIES INC.

### 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	8-866608	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
J <b>7</b> 3	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
J <b>7</b> 7	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
J6†	LCS-2	100	1 3889	1,3986	1.3986	0.0000	No	0.0097	97.0	25.0	97.0

Calculation as follows:

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

Where:

A = weight of dish + residue in grams.

B = weight of dish in grams.

C = mL of sample filtered.

RL= reporting limit.

ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	98	100	98.0%	90-110%	Yes
LCSD	97	100	97.0%	90-110%	Yes

**Duplicate Determinations Difference Summary** 

Lab Number	Sample Weight,	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

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

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

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

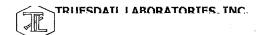
B = Weght of the second sample in (g).

C = Average weight in (g).

Maksim G. Reviewer Printed Name



Gautam S. Analyst Printed Name



## Alkalinity by SM 2320B

03ALK13B Analytical Batch: Matrix: WATER Date of Analysis: 3/6/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCØ3 Conc. as CaCO <sub>3</sub> (ppm)	CO3 Alkalinity as CaCO <sub>3</sub> (ppm)	OH Alkalinity as CaCO <sub>3</sub> (ppm)	Low Alkalinity as CaCO <sub>3</sub>
BLANK	6,90	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	132000111
806668-1	8.19	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
806668-2	8.23	50	0.02		0.0	6,20		124.0	5	124.0	124.0	ND	ND	
806668-5	8.22	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
806668-6	8.22	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
806668-7	8.20	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
806668-8	8.19	50	0,02		0.0	6.15		123.0	5	123.0	123.0	ND	ND	
806668-9	8.19	50	0.02		0.0	6,15		123.0	5	123.0	123.0	ND	ND	
806668-10	8.19	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
806668-11	8.28	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	ND	
806668-12	8.28	50	0.02		0.0	6.10		122.0	5	122.0	122.0	ND	ND	
806668-14	8.20	50	0.02		0.0	6,40		128.0	5	128.0	128.0	ND	ND	
806670-2	7.64	50	0.02		0.0	7.15		143.0	5	143.0	143.0	ND	ND	
806682-1	7.85	50	0,02		0.0	4.25		85.0	5	85.0	85.0	ND	ND	
806668-7 DUP	8.20	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
806670-2 MS	9.02	50	0.02	1,7	34.0	12.30		246.0	5	246.0	178.0	68	ND	
LCS	10.28	50	0.02	2.3	45.0	4,95		99.0	5	99.0	9.0	90	ND	
LCSD	10.32	50	0.02	2.2	44.0	5.00	ļ	100.0	5	100.0	12.0	88	ND	
											-			<del> </del>
				1									1	1

Calculations as follows:

Tor P=

Where:

A~x~N~x~50000

mL sample T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used N = normality of standard acid

as mg/L CaCO3

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

mL sample

Where: B = mL titrant to first recorded pH

Low Alkalinity: =

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

<del>-</del>5

QC Std I,D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	100	100	100.0%	90-110	Yes

QC Within

Control?

Yes

**Duplicate Determination Difference Summary** 

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC WithIn Control?		
806668-7	126	126	0.0%	20%	Yes		

Sample Matrix Spike (MS/MSD) Summary

Cample man	iv oblive (i	י נטטוווטוי	Juliliary										
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			
000070-2		1	100	100				75-125					ı

Melissa S. Analyst Printed Name

**Blank Summary** 

Measured

Value, ppm

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name

056

806668

CH2MHILL

**CHAIN OF CUSTODY RECORD** 

3/5/2013 2:14:57 PM

OF 2

															Ŭ. <u>-</u>	- Alex
Project Name PG	&E Topoc	k	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			
Location Topoci		Desa		(NH4)2S	(NH4)2S	HNO3,	HNO3,	HNO3,	4°C	4°C	4°C	4°C	4°C			-
Project Manager	-		ervatives:	04/NH40 H, 4°C	Ò4/ <b>N</b> H4O H, 4°C	4°C	4°C	4°C								
Sample Manager	Shawn Dul	ffy	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			_
			ling Time:	28	28	180	180	180	14	14	14	14	14			
Project Number Task Order Project 2013-RMI Turnaround Time Shipping Date: 3 COC Number: 2	P-190 10 Days	5	Matrix	Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)	ALERT!! LevelIII QC	Number of Containers	COMMENTS
C-CON-D-190	3/5/2013	9:49	Water	X	<u> </u>	х	Х	Х	Х	Х	Х	Х	Х		9	7
C-CON-S-190	3/5/2013	10:06	Water	X		х	Х	×	х	Х	X	Х	Х		9	JPH =2
C-MW-82-190	3/5/2013	8:30	Water		х										Ą	60207
C-MW-83-190	3/5/2013	9:17	Water		X										1	<del>- 5 3/ 5/ -</del>
C-NR1-D-190	3/5/2013	10:47	Water	Х		Х	х	Х	х	х	Х	Х	х		9	)
C-NR1-S-190	3/5/2013	11:01	Water	Х		х	x	Х	х	Х	X	X	Х		9	
C-NR3-D-190	3/5/2013	11:35	Water	х	<del> </del>	X	×	х	Х	Х	Х	X	х	For Sample Conditions	9	<b>I</b> /
C-NR3-S-190	3/5/2013	11:48	Water	×	<del> </del>	x	X	х	х	Х	X	×	Х		9	DU=2
C-NR4-D-190	3/5/2013	12:15	Water	×		х	х	х	Х	Х	Х	х	Х	588 FORM Attached	9	(GOTUA)
C-NR4-S-190	3/5/2013	12:32	Water	х	<u> </u>	х	Х	х	Х	Х	Х	×	х		9	601017
R-19-190	3/5/2013	8:54	Water	Х		X	х	х	×	X	Х	×	X		9	
R-28-190	3/5/2013	8:41	Water	×		х	X	Х	Х	X	Х	Х	×		9	IJ
RMP-AB2-190	3/5/2013	12:40	Water		×										1	ľ
/ RRB-190	3/5/2013	9:13	Water	X		X	X	х	×	Х	X	X	х		9	M=2
			L		<b>_</b>		ļ		~ =		~ *				<u> </u>	60201

Approved by

Sampled by

Religiquished by

Received by

Signatures

Date/Time 3-5-/3 /625

22:30Lab Name: Truesdail Laboratories, Inc.

Method of Shipment:

On Ice: yes / no

**Shipping Details** 

23/3-CLab Phone: (714) 730-6239

Special Instructions:

ATTN: March 4-5, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303 60100



CH2MHILL

**CHAIN OF CUSTODY RECORD** 

3/5/2013 2:14:58 PM

Page 2 OF 2

Project Name Po		k C	ontainer:	ml Poly		Poly	+	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Project Manager		Prese	rvatives:	(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			
Sample Manager	Shawn Dut	ffy	Filtered:	Field	NA	NA	Field	Field	NA	NΑ	NA	NA	NA			
		Holdi	ing Time:	28	28	180	180	180	14	14	14	14	14			
Project Number Task Order Project 2013-RN Turnaround Time Shipping Date: 3	IP-190 • 10 Days 3/5/2013	S	Matrix	Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	РН (SM4500HB)	TSS (SM2540)		Number of Containers	СОММЕ
SW1-190	3/5/2013	7:15	Water	X				X	Х			х			5	1 has
SW2-190	3/5/2013	7:31	Water	х				Х	Х			Х			5	194
		<del></del>					-							TOTAL NUMBER OF CONTAINERS	112	ac



Approved by	
Approved by	

Sampled by

Received by

Relinquished by

Received by

Signatures

Date/Time 3~5~/3

22:35 Lab Name: Truesdail Laboratories, Inc.

3/5/-13 22/3 Lab Phone: (714) 730-6239

**Shipping Details** 

Method of Shipment:

courier

On Ice: yes / no

ATTN:

Special Instructions: March 4-5, 2013

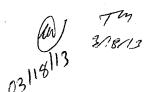
Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

# Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial	рН	Buffer A	dded (mL)	Fina	al pH	Time B	uffered	Init	ials
315/17	3 806635-9	9.	5	14	A	10	14	21	Δ	R.	n
								· .			
	-11										
	12								•		
	-13										
	-14			· .							
	-15	E		<i>J</i>		<u></u>				Jr.	
3/6/13	803668-1	9,5	-	NIE	1	NI	4	NIA		Thy	,
	-2									$\perp$	
	-,3										
	~4									_	
	-1										
	-6									-	
	-7										
	-9							· ·		_	
	-9		$\dashv$								
	-10					_				-	
	-11										
	-12									$\perp$	-
	<i>-</i> -[3]		_			-+				+	
	-15					-				$\dashv$	$\dashv$
	-16		+								$\dashv$
9/6/13	806669-1	7.0		2 m/	100 m L	G, C		10:20		Tres	-
V	-2		$\top$	1	0025			10-20		1	$\dashv$
3/6/13	806670-1	7.0	-	2 ml/1	00,1	9.5		16-20		PM	$\dashv$
4	-2	J		J	VIZ. L	<del>- 1</del>		10:20		1/	$\dashv$
3/6/13	806673	9.5		NA		NIA		N/A		tu	$\dashv$
- / - /	806696-1	7.0	$\top$	•	100mc	9.5		15:4	_		$\dashv$
I	1-2	J		Zml/	: T	V		J	_	TM	$\exists$
											$\exists$





Turbidity/nH Check

			Turbic	dity/pH C	heck		,	
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
006497(1,2)	41	12	2/25/13	DC	Yes			
806520	- 71	42		1	j			
806493 (1-5)	71	. 12						
806494 (1-5)	>1	62						
306552	<1	72	2-27-13	35	Xes	11:00		
806553L1-4)		<2						
81655441-4)				1				
80655 C194-1	r)							
806542(1-3)		72			~°	12:00	2/28/13 2 15:35	
80 8545	1						J	
806537	41	42	1	or	ijes			, <u></u>
806565	41	72	ı	4	ges	14:00	2/28/13 & 15:30	
306562(1-14)	41	72	2/28/13	ES	no	9:30	3/1/13 00 10:00	DHZ 2
806567(10-12)	1			1	J	1	1	$\nu$
806570 (1-2)	71	ZZ			ye			
806 572 (1-2)	71	42		7	yeg iyis			
806586 (1,2)	41	72	l	0c	ges	15:30		
306617	7/25/1/10	.42	3/4/13	or	yes			
506632 (1-12)	<b>&lt;</b> 1		3-5-19	BL	9			
806833(1-12)								
8066344193-6							•	
806135 (1-508-14)								
806620(1-2,4)	21	72	3/5/13	ŁŚ	NÒ	12:00		
806627 (16,23)		<u> </u>		.	1			
806625		<b>Z</b> 2			ijes			
806626	1			1				
GUE 68861-50215	<1	<2	3-6-13	BE	xes			
806669 (1-2)		72						A CICH FUL
80667061-27								4
806679(1-5)		<u> くて</u>	\					
806643	71	42		DC	ijes			
806651	41	l			·			
806688	71	>2	<u> </u>	J I	<u> </u>	12:30		
906667	<1 1	ን፣		BI-	V	14:00		
80666361-3	+-+					Brank.		
806694610-12						15:00		
806682(4-6)						4		
80 66 50	41	22	3/4/13	n	yes	4		
806649								
806648				_				
8016647								
806646								
806652								
806171	./	٠.٠	4	4	J.			

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

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## Sample Integrity & Analysis Discrepancy Form

Cli	ent: <u>E 2</u>	_ Lab # <u>\$0666</u> 0
Dat	te Delivered: <u>03</u> / <u>05</u> / 13 Time: <u>₫೩′ 30</u> By: □Mail     €	¶Field Service □Client
1.	Was a Chain of Custody received and signed?	ØYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No □N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No Øn/A
<b>5</b> .	Were all requested analyses understood and acceptable?	ØaYes □No □N/A
<b>6</b> .	Were samples received in a chilled condition? Temperature (if yes)? <u>३ a २ <b>°C</b></u>	ÆYes □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 đN/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?	ØYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: △Truesdail □Client	ædYes □No □N/A
2.	Were samples pH checked? pH = $\underline{Sel\ C}$ . $\mathcal{O}$ . $\mathcal{C}$ .	ZYes □No □N/A
3.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	Yes INO IN/A
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ <b>RUSH</b>	⊠Yes □No □N/A
5.	Sample Matrix: □Liquid □Drinking Water □Ground □Sludge □Soil □Wipe □Paint □Solid □	
<b>5</b> .	Comments:	
7	Sample Check-In completed by Truesdail Log-In/Receiving:	Lindia



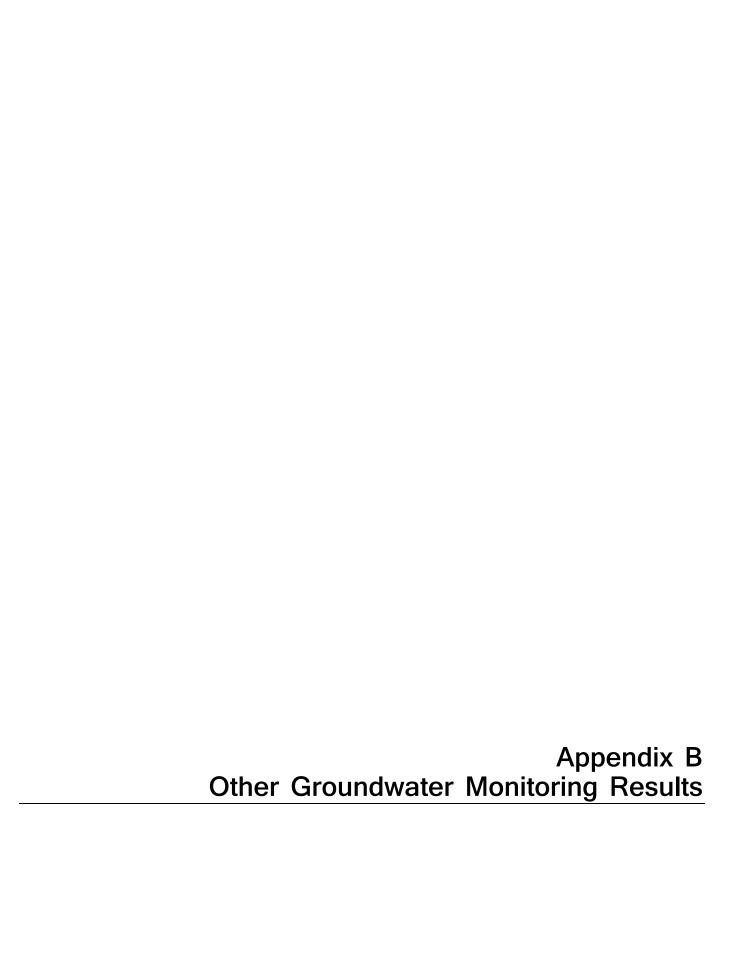


Table B-1
Arsenic Results in Monitoring Wells, March 2012 through March 2013
First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

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 <sub>FD</sub>	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 <sub>FD</sub>	D 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 <sub>FD</sub>	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
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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-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
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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
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-36-50	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
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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
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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 <sub>FD</sub>	7.1
MW-61-110	BR	03-May-12	3.2
		27-Sep-12	2.0
		27-Sep-12 <sub>FD</sub>	2.1
		27-Nov-12	3.2
		27-Nov-12 <sub>FD</sub>	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
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-68BR-280	BR	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.

 $\mu$ g/L = micrograms per liter.

The California primary drinking water standard maximum contaminant level (MCL) for arsenic is 10 µg/L.

The Background Study Upper Tolerance Limit for arsenic at the site is 24.3 µg/L.

Wells are assigned to separate Aquifer zones for results reporting:

SA = shallow interval of Alluvial Aquifer.

MA = mid-depth interval of Alluvial Aquifer.

DA = deep interval of Alluvial Aquifer.

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

For additional information on the East Ravine-Topock Compressor Station wells installed in 2009 through 2012, please see:

CH2M HILL. 2012d. Technical Memorandum. Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation, Pacific Gas and Electronic Company, Topock Compressor Station, Needles, California. November 15.

Date Printed: 5/3/2013

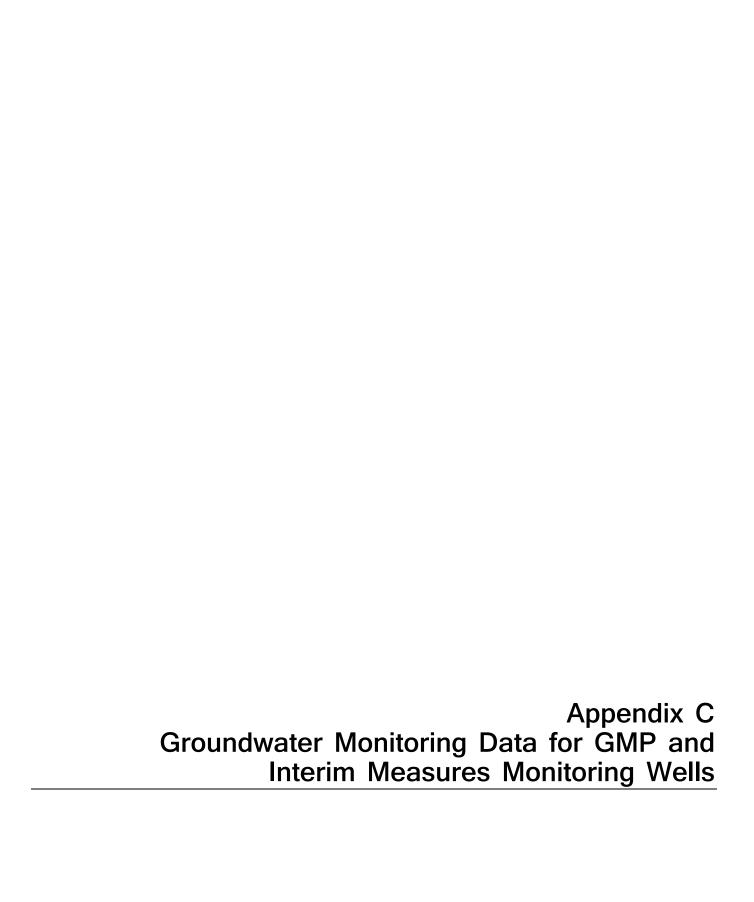


Table C-1
Chemical Performance Monitoring Analytical Results, First Quarter 2013
First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

	0	Total Dissolved							Alkalinity		Diss	olved Metals		
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	(total)	Calcium	Magnesium	Potassium So	odium	Boron
Monitoring We	lls	•								•				
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	ļ			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
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PG&E Topock Compressor Station, Needles, California

	0	Total Dissolved							Alkalinity		Diss	olved Metal	s	
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	•	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Well	s									•				
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

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

	0	Total Dissolved							Alkalinity		Diss	olved Metal	s	
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	(total)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Well	s									1				
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

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

		Total							Alkalinity		Diss	olved Metals		
Location	Sample Date	Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	-	Calcium	Magnesium	Potassium S	odium	Boron
Monitoring We	lls													
MW-25	14-Dec-05 FD	896	-8.4	-50.0	219	155	3.75	ND (0.5)	156	73.0	14.1	9.71	151	0.382
	09-Mar-06	910	-8.4	-64.1	245	164	3.83	ND (0.5)	170	76.4	15.6	6.97	210	0.39
	03-May-06	907	-9.0	-59.4	272	172	3.95	ND (0.5)	150	78.0	17.3	7.38	222	0.418
	03-May-06 FD	924	-9.0	-61.0	274	173	3.94	ND (0.5)	155	79.7	17.8	7.53	245	0.431
	03-Oct-06	892	-8.9	-62.7	222	158	4.09	ND (0.5)	163	73.3	15.0	7.25	206	0.466
	06-Mar-07	843	-9.0	-66.9	221	164	3.95	ND (0.5)	160	72.9	14.4	6.85	203	0.459
	02-Oct-07	796	-9.0	-65.8	189	155	4.58	ND (1.0)	180	66.0	14.0	7.90	200	0.49
	02-Oct-07 FD	758	-9.0	-65.7	195	157	4.40	ND (1.0)	190	63.0	13.0	7.70	220	0.46
	07-Oct-08	740	-9.9	-68.5	170	150	4.30	ND (0.5)	200	59.2	12.9	9.89	143	0.559
	07-Oct-08 FD	730	-10.1	-69.1	170	150	4.40	ND (0.5)	210	58.4	12.9	10.2	144	0.559
	21-Sep-09	660	-8.91	-69.9	180	130	4.30	ND (0.5)	200	64.0	12.0	7.20	180	0.46
	21-Sep-09 FD	650	-8.87	-69.5	180	130	4.30	ND (0.5)	200	64.0	12.0	7.90	190	0.47
	07-Dec-10	780	-9.4	-68.9	220	120	4.80	ND (1.0)	180	74.0	15.0	10.0	180	0.43
	15-Dec-11	860	-9.2	-68.6	270	120	5.90	ND (1.0)	170	89.0	19.0	8.50	210	0.49
	15-Dec-11 FD	890	-8.9	-66.7	280	120	6.00	ND (0.5)	170	91.0	19.0	8.00	220	0.50
	11-Dec-12	970	-9.1	-67.6	340	140	7.25 *	ND (0.5)	160	90.0	19.0	7.90	200	0.38
MW-26	08-Mar-05	1840	-8.8	-70.0	756	370	4.48	ND (0.5)	98.7	166	41.6	10.7	439	0.557
	08-Mar-05 FD	1800	-8.7	-70.0	708	338	4.45	ND (0.5)	96.1	166	40.9	11.4	438	0.559
	13-Jun-05	2130	-8.2	-65.0	847	371	4.90	ND (0.5)	103	178	44.6	14.0	511	0.663
	04-Oct-05	2120	-7.8	-68.0	779	372	4.88	0.601	109	166	40.4	19.8	352	0.526
	12-Dec-05	2610	-8.5	-55.0	788	372	4.88	0.546	99.7	162	39.9	20.3	349	0.613
	08-Mar-06	2070	-8.6	-60.4	772	324	4.90	ND (0.5)	121	155	38.1	11.7	434 J	0.621
	01-May-06	2130	-8.9	-62.7	927	382	4.87	ND (0.5)	121	165	42.0	12.8	555	0.723
	03-Oct-06	2220	-8.8	-63.0	894	370	6.22	ND (2.5)	105	170	43.9	12.8	510	0.692
	12-Mar-07	2280	-9.0	-67.0	917	387	6.02	0.646	90.0	163	41.6	12.9	621	0.622
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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

	0	Total Dissolved							Alkalinity		Diss	olved Metal	s	
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	(total)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wel	ls	•								•				
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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		Total							Alkalinity		Diss	olved Metals		
Location	Sample Date	Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	(total)	Calcium	Magnesium	Potassium S	odium	Boron
Monitoring Wel	lls	<u>I</u>												
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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		Total Dissolved							Alkalinity		Disse	olved Metals		
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	(total)	Calcium	Magnesium	Potassium So	odium	Boron
Monitoring We	lls	<u> </u>												
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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	01-	Total Dissolved							Alkalinity		Diss	olved Metal	s	
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	(total)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Well	s									•				
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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	0	Total Dissolved							Alkalinity		Diss	olved Metal	ls	
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	(total)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring We	lls									•				
MW-32-35	11-Dec-06	10400	-9.0	-70.4	5090	1000	ND (0.5)	1.90	338	845	173	22.5	2620	1.43
	06-Mar-07	12600	-10.2	-75.4	6070	1200	ND (0.5)	2.65	360	1080	209	23.5	2910	1.35
	30-Apr-07	12100	-9.9	-78.7	6610	1280	ND (0.2)	2.60	475	1250	273	26.2	3280	1.35
	01-Oct-07	13700	-8.9	-72.7	6830	1120	ND (1.0)	2.62	490	1000	390	29.0	4000	1.70
	03-Oct-08	15000	-9.8	-73.1	7600	1300	ND (2.5)	3.10	550	829	150	52.3	3490	1.49
	22-Sep-09	13000	-9.32	-75.2	6900	1400	ND (2.5)	2.80	530	880	400	53.0	3100	1.70
	09-Dec-10	11000	-10.2	-84.2	5500	1600	ND (2.5)	ND (2.5)	590	750	390 J	51.0 J	3000	1.70 J
	09-Dec-11	8500	-10.8	-84.2	5000	1700	ND (2.5)	ND (2.5)	640	680	310	34.0	3100	1.70
	05-Dec-12	10000	-11	-89.0	4300	1700	0.0274 *	ND (5.0)	630	460	240	31.0	2700	1.30
MW-34-55	10-Mar-05	6230	-10.8	-82.0	2620	739	ND (0.5)	0.654	240	366	71.3	29.1	1900	1.19
	15-Jul-05		-10.3	-84.0	2250	607	ND (0.5)	ND (0.5)	242	247	52.0	16.5	1420	1.02
	05-Oct-05	5150	-10.6	-88.0	2170	619	ND (0.5)	ND (0.5)	232	272	59.1	25.8	1230	1.20
	14-Dec-05	5100	-10.8	-74.0	2150	552	ND (0.5)	0.588	236	217	45.0	27.2	965	0.937
	08-Mar-06	4850	-10.8	-86.8	2080	593	ND (0.5)	ND (0.5)	272	256	54.2	13.5	1640	0.956
	03-May-06	4320	-11.5	-84.3	2070	500	ND (0.5)	ND (0.5)	302	198	44.8	11.1	1360	0.846
	04-Oct-06	1680 J	-12.2	-94.8	443	230	ND (0.5)	ND (0.5)	368	37.6	8.08	4.59	536	0.54
	03-Oct-07	730	-11.3	-96.6	109	266	ND (1.0)	ND (1.0)	190	15.0	3.30	3.30	290	0.26
	07-Oct-08	700	-13	-100.0	100	250	ND (0.5)		170	72.4	16.9	5.26	192	0.248
	30-Sep-09	700	-12.3	-101.0					160	77.0	17.0	4.40	120	0.15
	07-Dec-10	590	-12.1	-98.8	87.0	230	ND (0.5)	ND (0.5)	140	81.0	19.0	5.10	100	0.10
	06-Dec-11	630	-12.3	-101.0	83.0	220	ND (0.5)	ND (0.5)	160	81.0	19.0	4.60	100	0.19
	12-Dec-12	630	-12.7	-105.0	78.0	210	ND (0.01) *	ND (0.5)	140	75.0	20.0	3.70	100	0.15
MW-34-80	08-Mar-05	6940	-10.4	-83.0	4180	1040	ND (0.5)	1.01	304	439	68.1	28.0	2750	1.65
	15-Mar-05	8980			3920	ND (5.0)	ND (1.0)		288	445	65.7	29.7	2990	
	30-Jun-05	7840	-8.4	-82.0	3910	979	ND (0.5)	ND (0.5)	302	497	76.5	27.7	2670	1.66

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	0	Total Dissolved							Alkalinity		Diss	olved Metal	ls	
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	(total)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wel	lls													
MW-34-80	05-Oct-05	10200	-10.1	-85.0	3880	1060	ND (0.5)	ND (0.5)	302	429	72.5	47.4	1660	1.57
	14-Dec-05	8800	-10.2	-71.0	3700	880	ND (0.5)	0.854	297	432	68.3	54.9	1710	1.54
	09-Mar-06	7830	-9.9	-86.8	3520	986	ND (0.5)	ND (0.5)	313	383	65.8	24.0	2420	1.49
	03-May-06	7950	-11.7	-77.6	3700	921	ND (0.5)	ND (0.5)	297	425	70.3	23.9	2480	1.38
	04-Oct-06	7080	-11.3	-81.8	3210	786	ND (0.5)	0.737	268	341	65.4	21.1	2170	1.31
	12-Dec-06	6510	-10.5	-80.9	3190	789	ND (0.5)	0.742	288	298	62.9	18.9	2040	1.26
	05-Mar-07	6360 J	-11.5	-85.8	3300	783	ND (0.5)	0.72	205	315	68.3	19.4	2020	1.29
	30-Apr-07	6390	-11.5	-88.9	3320 J	889 J	ND (0.2)	ND (1.0)	245	282	57.0	18.6	2080	1.33
	03-Oct-07	5490	-11.3	-87.8	2630	696	ND (1.0)	ND (1.0)	240	220	53.0	21.0	2000	1.20
	13-Dec-07	5420	-10.9	-88.6	2380	698	ND (1.0)	ND (1.0)	264	193	49.1	25.4	1450	1.09
	12-Mar-08	5500	-11.4	-87.3	2510	739	ND (1.0)	ND (1.0)	238	237	52.6	19.2	2030	1.14
	06-May-08	5820	-11.4	-87.3	2460	753	ND (0.2)	0.525	216	230	49.0	30.0	1600	1.20
	07-Oct-08	5300	-11.8	-87.6	2400	720	ND (2.0)	ND (2.0)	250	223	46.3	22.0	1220	0.765
	10-Dec-08	5300	-11	-93.1	2190	698	ND (1.0)	ND (1.0)	253	147	45.2	20.6	3880	1.11
	10-Mar-09	5100	-10.9	-84.8	2300	700 J	ND (2.5)	ND (2.5)	240	219	46.3	22.2	1480	1.08
	30-Apr-09	5830	-11.5	-85.8	2340	768	ND (1.0)	ND (1.0)	237	219	50.0	24.6	1510	1.11
	30-Sep-09	4000	-10.8	-88.9	2300	710	ND (1.0)	ND (1.0)	230	240	46.0	22.0	1500	0.98
	10-Mar-10	4900	-12.1	-91.6	2100	660	ND (1.0)	ND (1.0)	240	220 J	41.0	28.0	1400 J	0.93
	07-Dec-10	4600	-11.1	-87.3	2300	700	ND (1.0)	ND (1.0)	220	240	47.0	24.0	1300	1.00
	06-Dec-11	3900	-11.1	-88.1	1900	640	ND (1.0)	ND (1.0)	230	220	43.0	16.0	1300	1.10
	12-Dec-12	4300	-11.2	-90.2	1800	630	ND (0.01) *	ND (1.0)	250	220	51.0	17.0	1300	1.00
	12-Dec-12 FD		-11.1	-89.3	1800	630	ND (0.01) *		250	210	48.0		1300	
MW-34-100	14-Mar-05	10800			5010	1210	ND (1.0)		175	221	17.4	34.1	3600	
	21-Jun-05	11300	-9.7	-75.0	5350	1270	1.05	ND (0.5)	179	229	17.4	27.1	3510	2.22
	21-Jun-05 FD	10900 J	-9.5	-77.0	4920	1180	1.03	ND (0.5)	179	243	18.2	32.1	3740	2.36

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	B Deuterium			Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
					Chloride	Sulfate				Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells	s	•												
MW-34-100	05-Oct-05	10400	-9.9	-83.0	4530	1150	1.20	ND (0.5)	172	171	13.8	55.2	2450	2.57
	05-Oct-05 FD	10400	-9.9	-83.0	4680	1200	1.21	ND (0.5)	172	228	14.1	50.9	2730	2.57
	14-Dec-05									226	14.9	62.9	2530	2.32
	14-Dec-05 FD									220	15.1	64.2	2530	2.40
	08-Mar-06	10000	-11.4	-75.5 J	4720	1180	1.39		152	179	12.1	32.5	3580	2.41
	08-Mar-06 FD	10100	-10.1	-102 J	4920	1220	1.39		159	182	11.9	36.5	3530	2.46
	30-Apr-07	10600	-10.9	-80.7	5920	1040	1.38		123	186	12.0	31.5	3840	2.39
	30-Apr-07 FD	11900	-11.2	-82.1	5880	1050	1.37		123	189	12.0	32.1	3920	2.40
	03-Oct-07	10700	-10.2	-78.2	5350	970	1.19	ND (1.0)	120	170	11.0	44.0	4300	2.50
	03-Oct-07 FD	10500	-10.6	-78.4	5360	953	1.03	ND (1.0)	120	160	10.0	43.0	4300	2.40
	07-Oct-08	11000	-10.9	-80.8	5400	1200	ND (2.5)	ND (2.5)	140	158	10.6	54.5	2970 J	2.35
	07-Oct-08 FD	11000	-11	-81.3	5600	1200	ND (2.5)	ND (2.5)	140	184	11.5	56.7	3880 J	2.59
	30-Sep-09				5500	1300	ND (5.0)		170	200	11.0	73.0	3800	2.30
	08-Dec-10	10000	-9.8	-79.5	5800	1300	ND (2.5)	ND (2.5)	140 J	190	9.60	52.0 J	4100	2.60
	08-Dec-10 FD	9900	-10	-80.4	5700	1200	ND (1.0)	ND (1.0)	89.0 J	180	9.80	60.0 J	4000	2.50
	06-Dec-11	10000	-10.1	-79.2	5700	1300	ND (2.5)	ND (2.5)	120	170	7.60	43.0	4000	2.70
	06-Dec-11 FD	9400	-10	-79.5	5600	1200	ND (2.5)	ND (2.5)	120	160	7.40	43.0 J	3900	2.70
	26-Nov-12	11000	-10.1	-80.5	5900	1200	0.444 *	ND (2.5)	120	150	8.60	47.0	3100	2.60
	26-Nov-12 FD	11000	-10.2	-80.9	5900	1200	0.421 *	ND (2.5)	130	150	8.20	47.0	3200	2.60
Surface Water S	tations	•								•				
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
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Location	Sample Date	Total Dissolved Solids	Oxygen-18	B Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium Sodiu	m 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

	Commis	Total Dissolved							Alkalinity	Dissolved Metals				
Location	Sample Date	Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide		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.

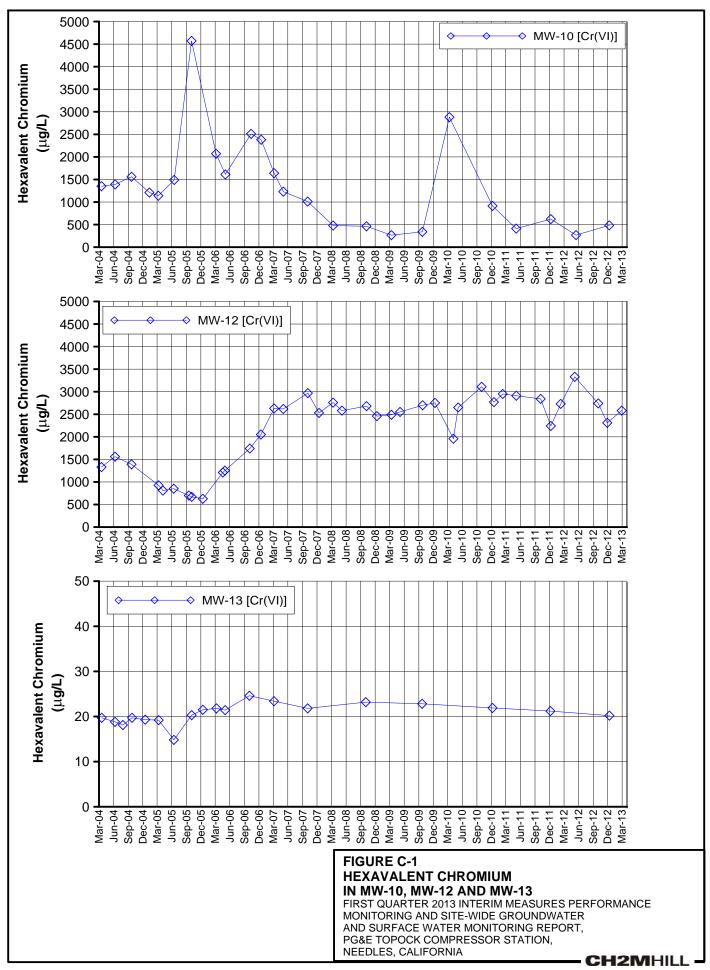
ND =parameter not detected at the listed reporting limit.

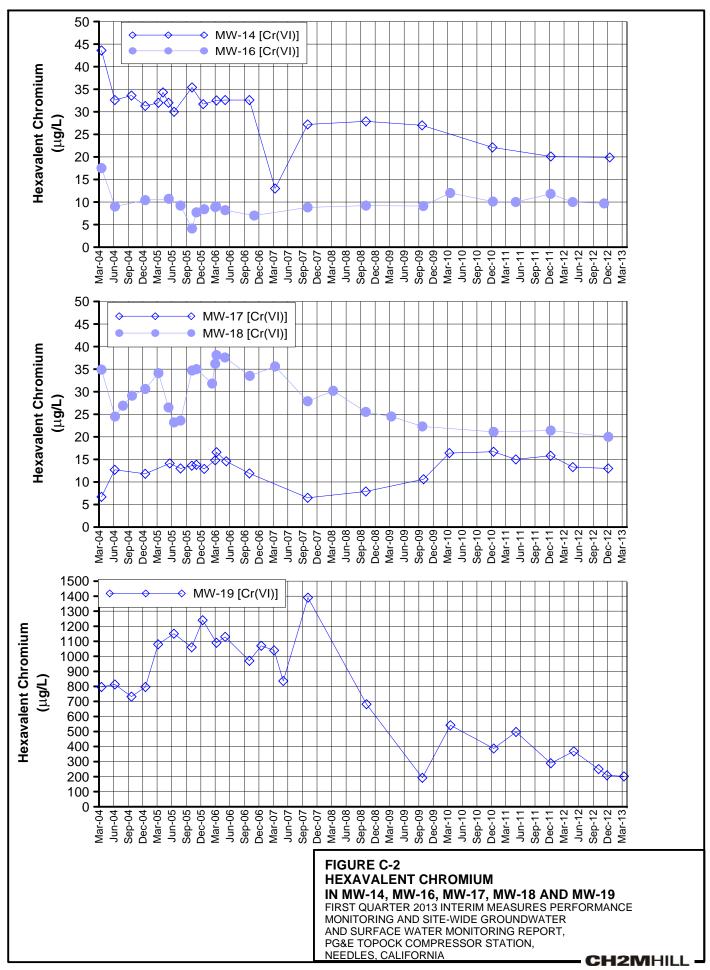
General chemistry results in milligrams per liter (mg/L), except Oxygen-18 and Deuterium, which are expressed as differences from global standards in parts per thousand.

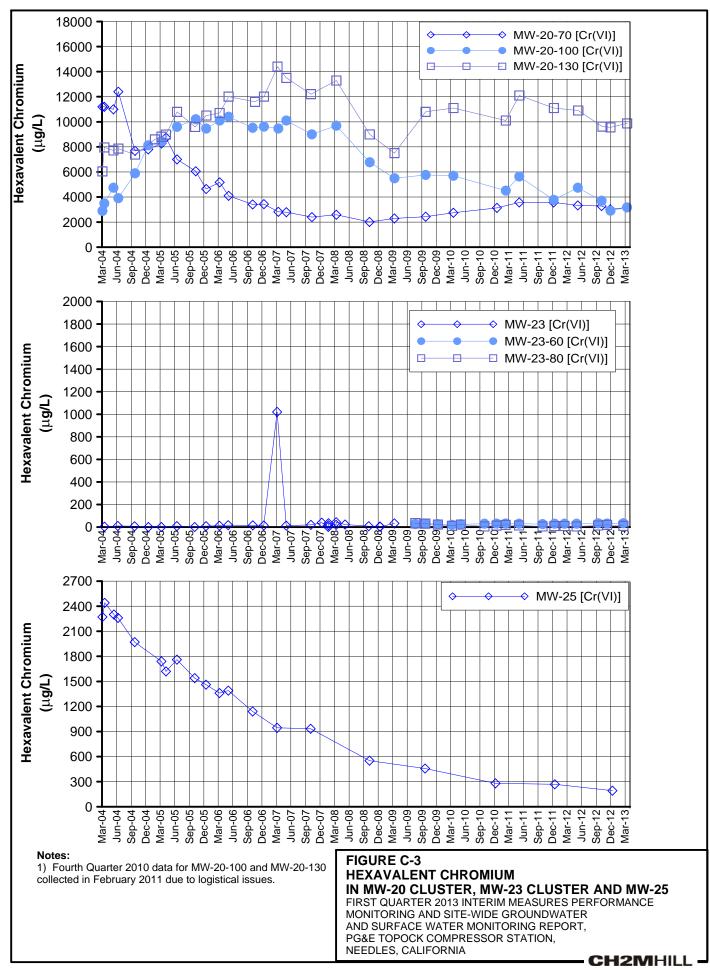
Alkalinity (total) reported as calcium carbonate. Nitrate reported as nitrogen (N).

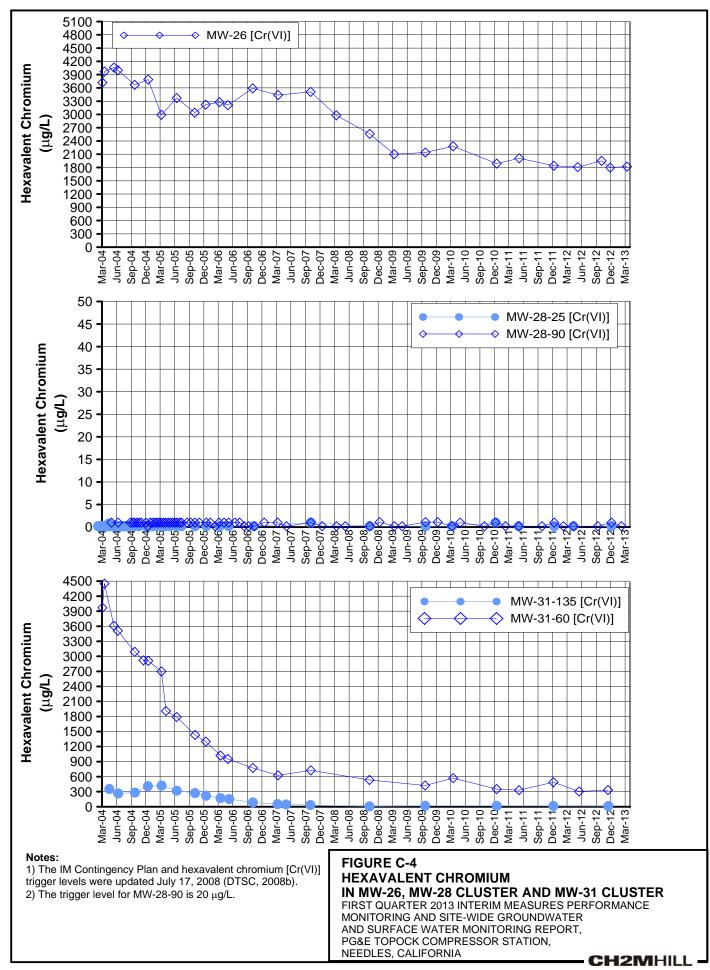
<sup>\*</sup> Nitrate as nitrogen was not requested. Nitrate/nitrite as nitrogen is shown.

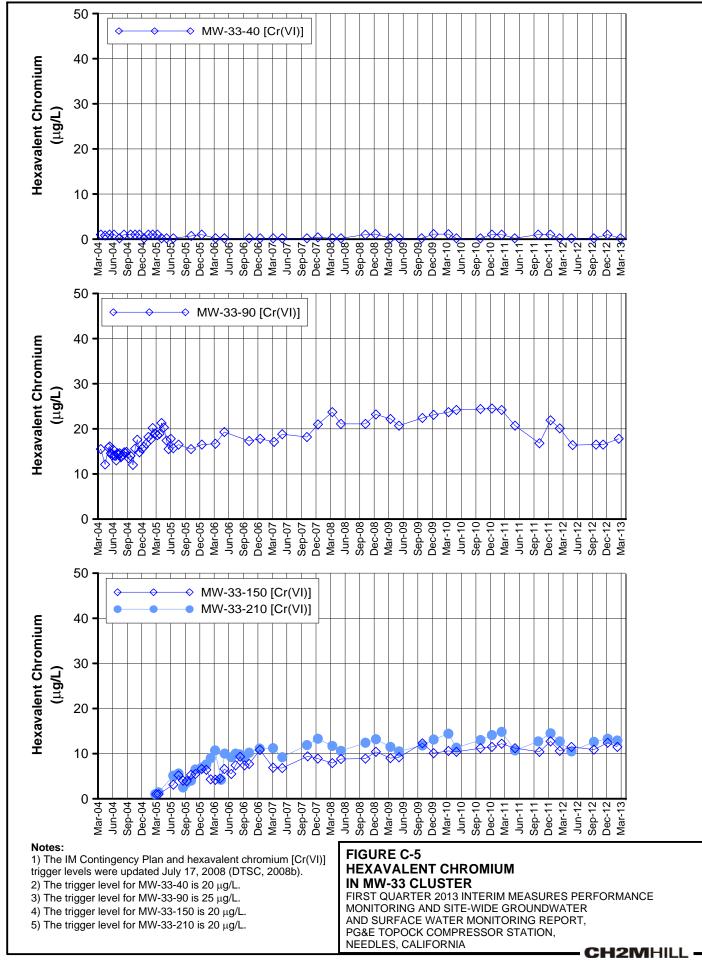
<sup>&</sup>lt;sup>a</sup> Data collected February 2011 due to field logistical issues.

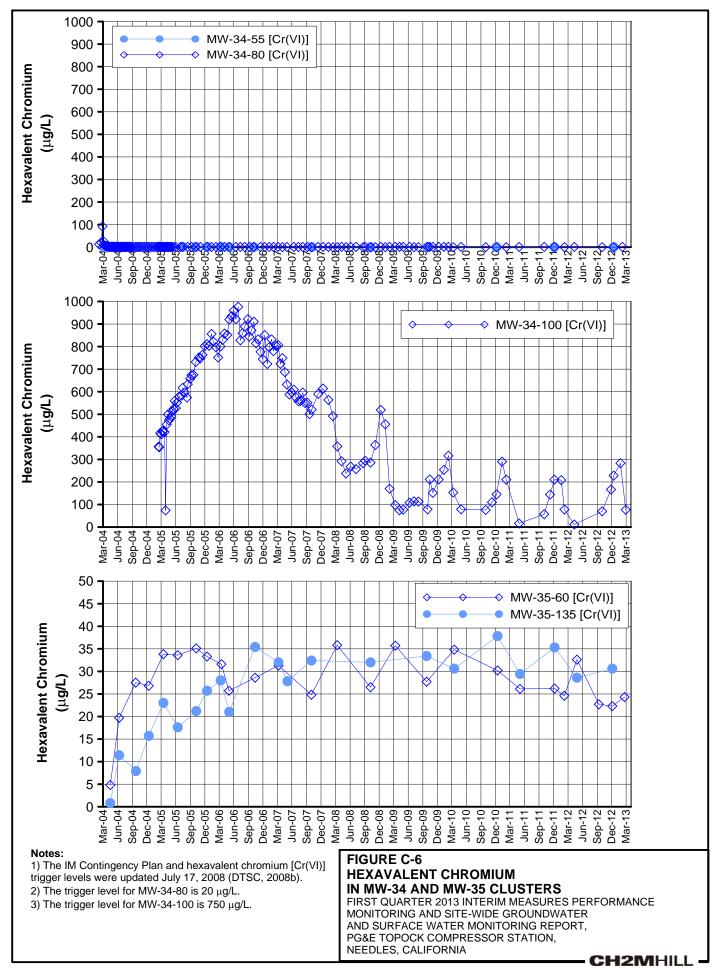


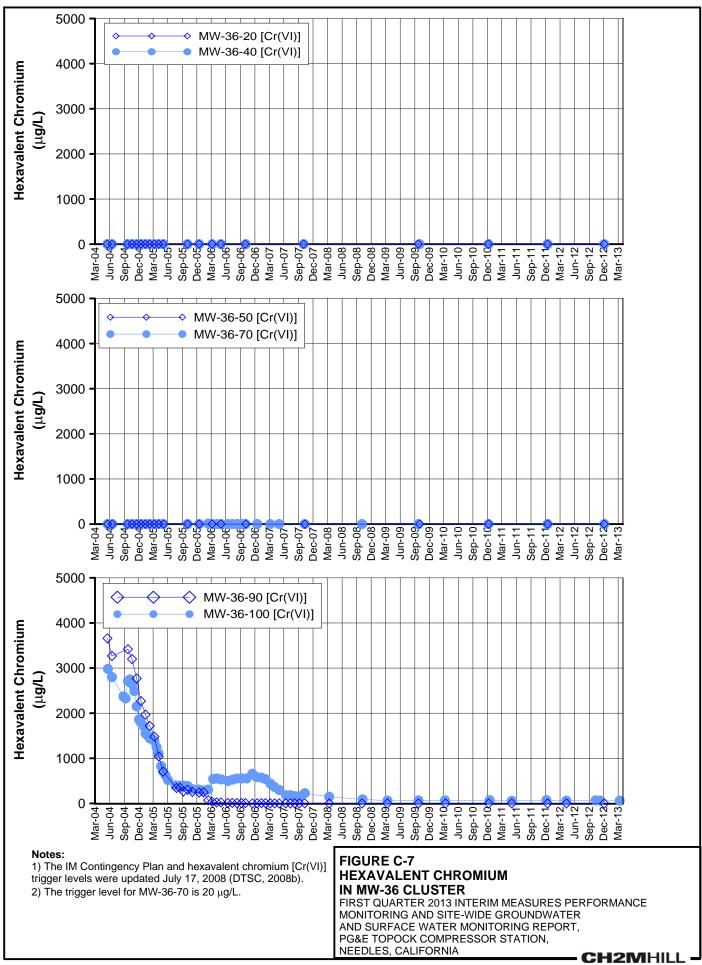


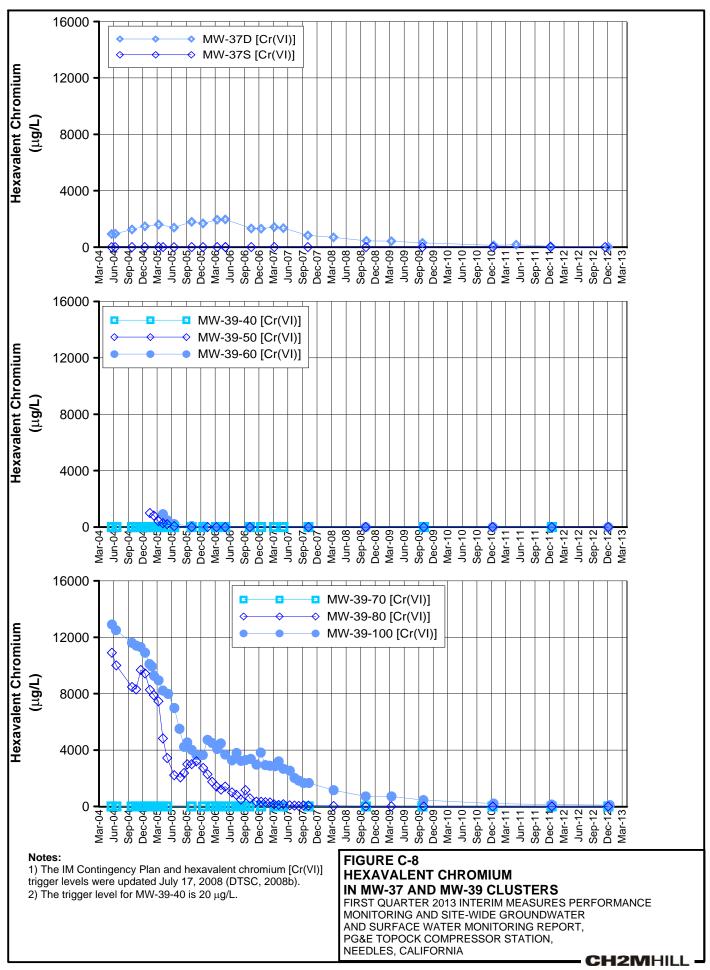


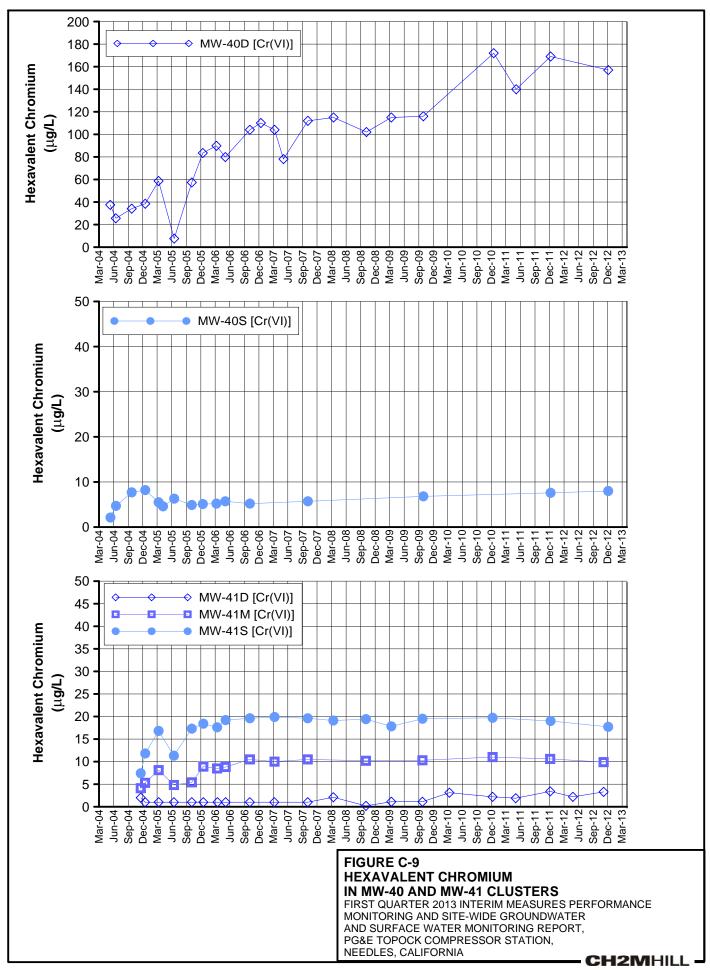


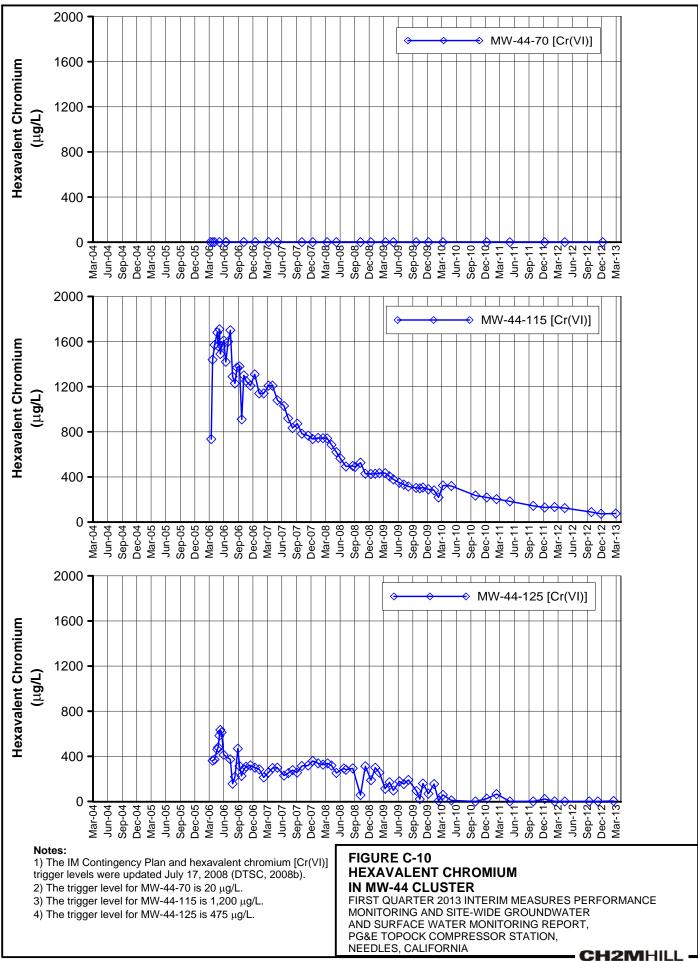


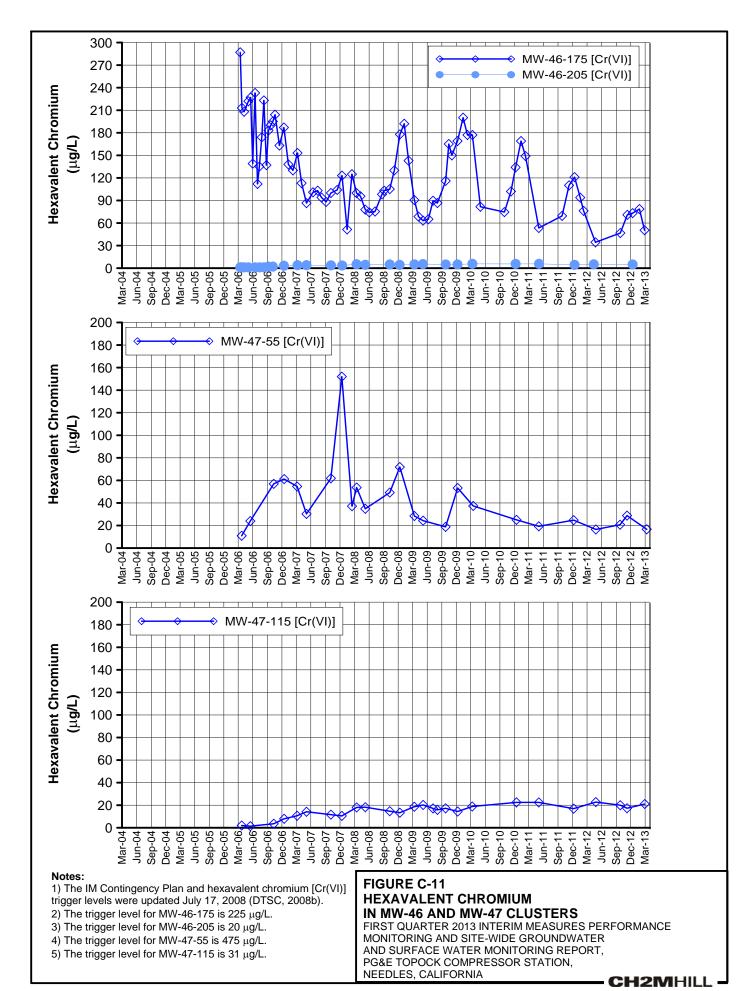


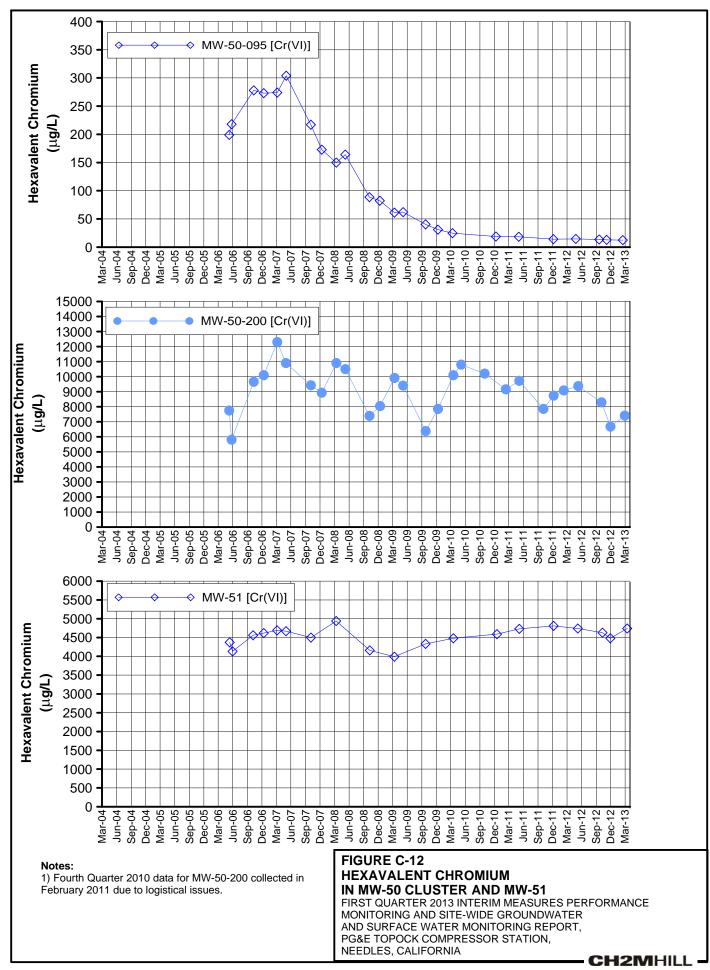


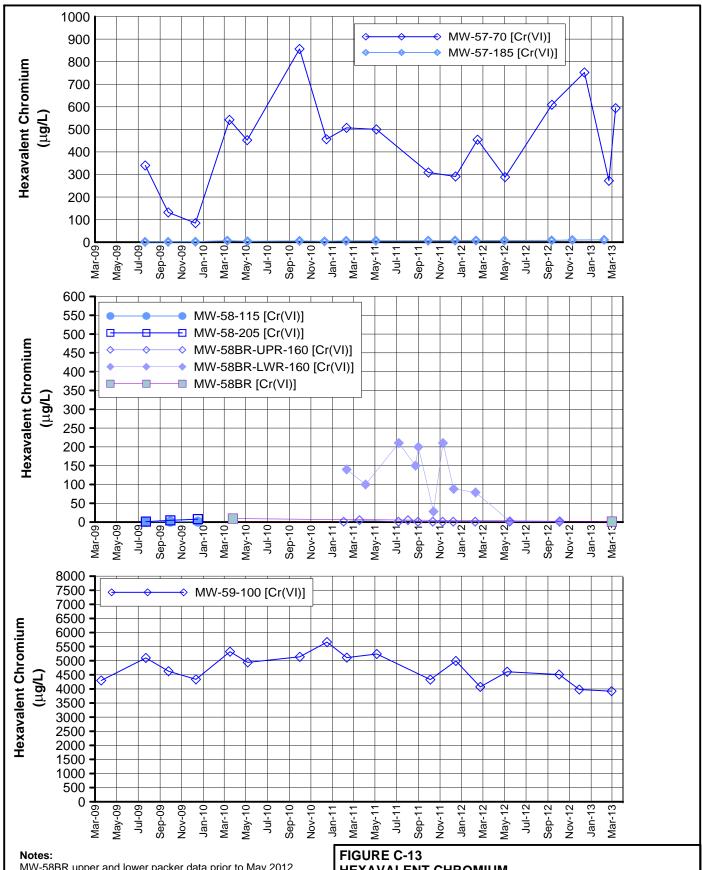










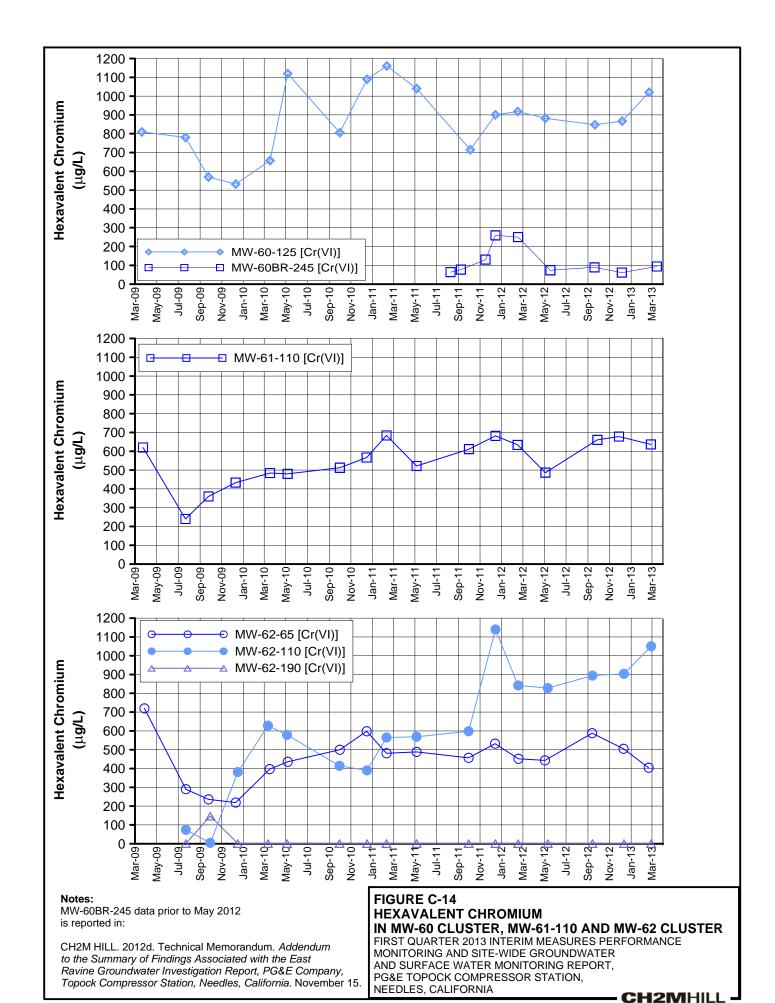


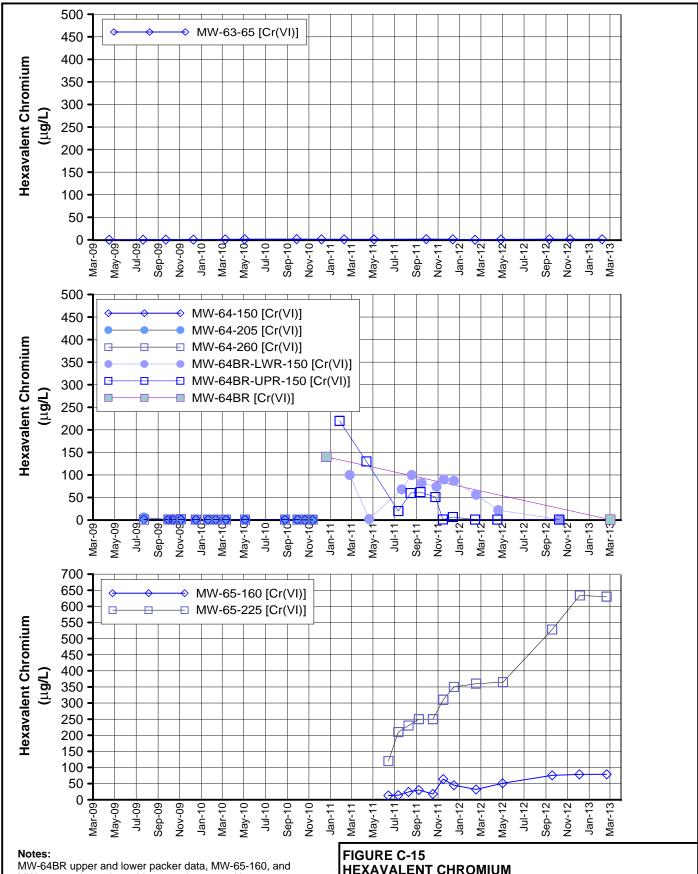
MW-58BR upper and lower packer data prior to May 2012 is reported in:

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. **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

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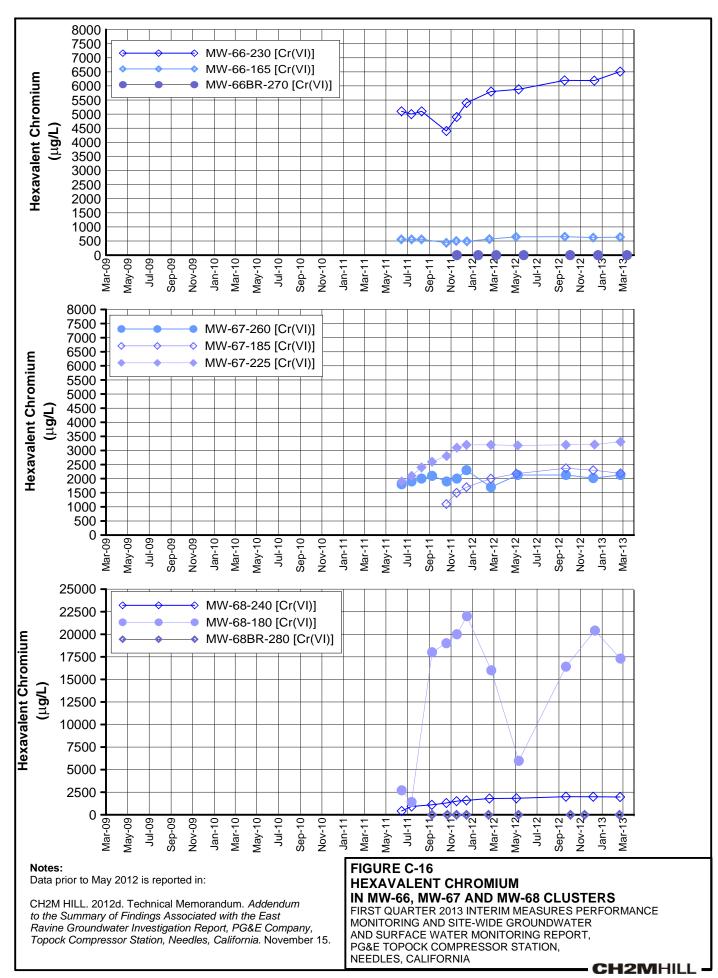
## MW-65-225 data prior to May 2012 is reported in:

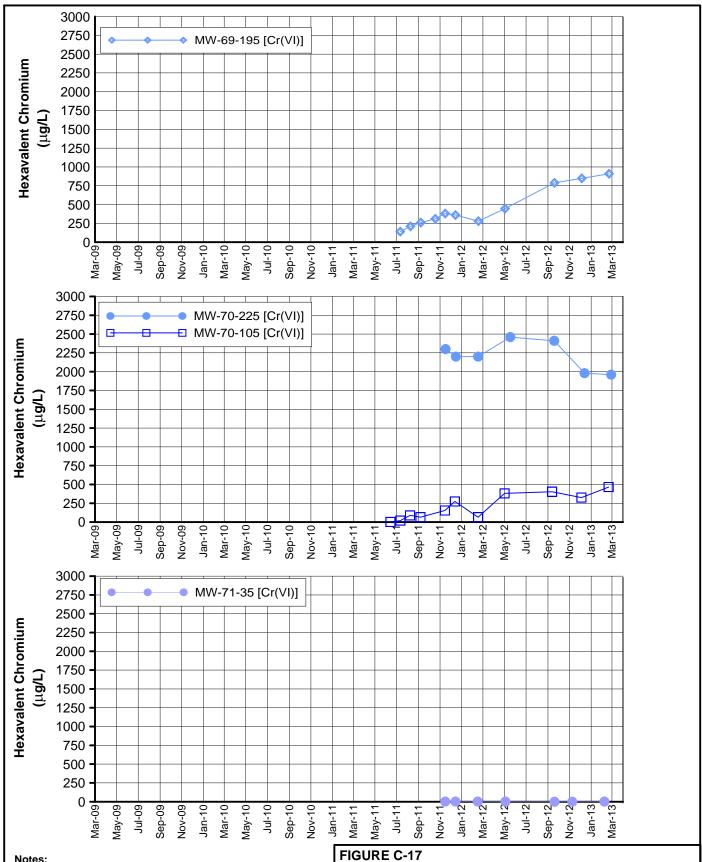
CH2M HILL. 2012d. Technical Memorandum. Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California. November 15.

### **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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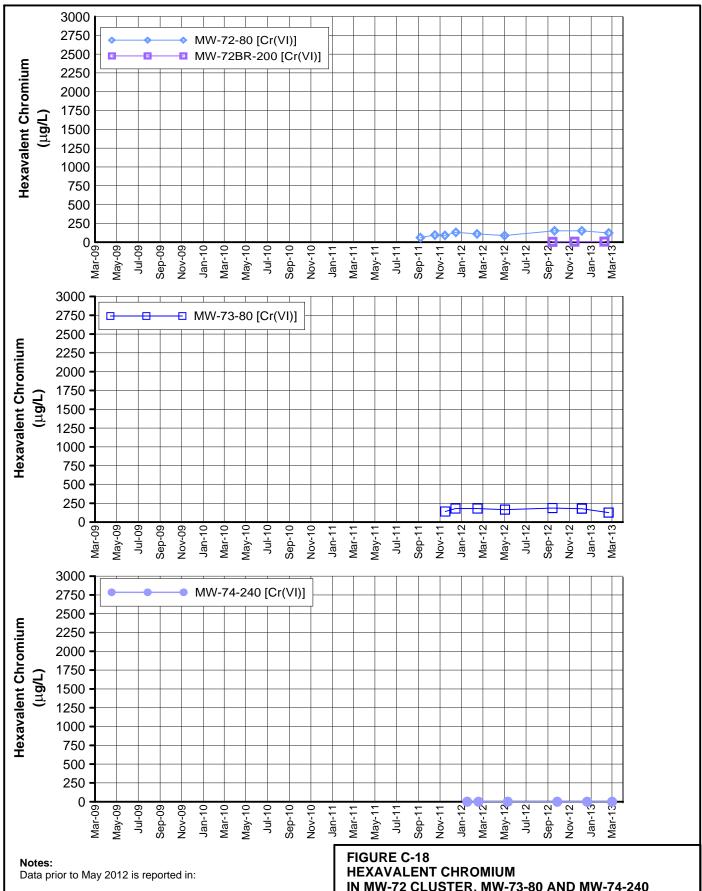
## **Notes:** Data prior to May 2012 is reported in:

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-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.

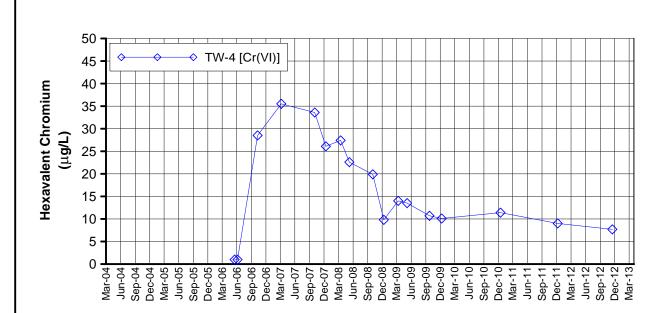
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NEEDLES, CALIFORNIA



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.

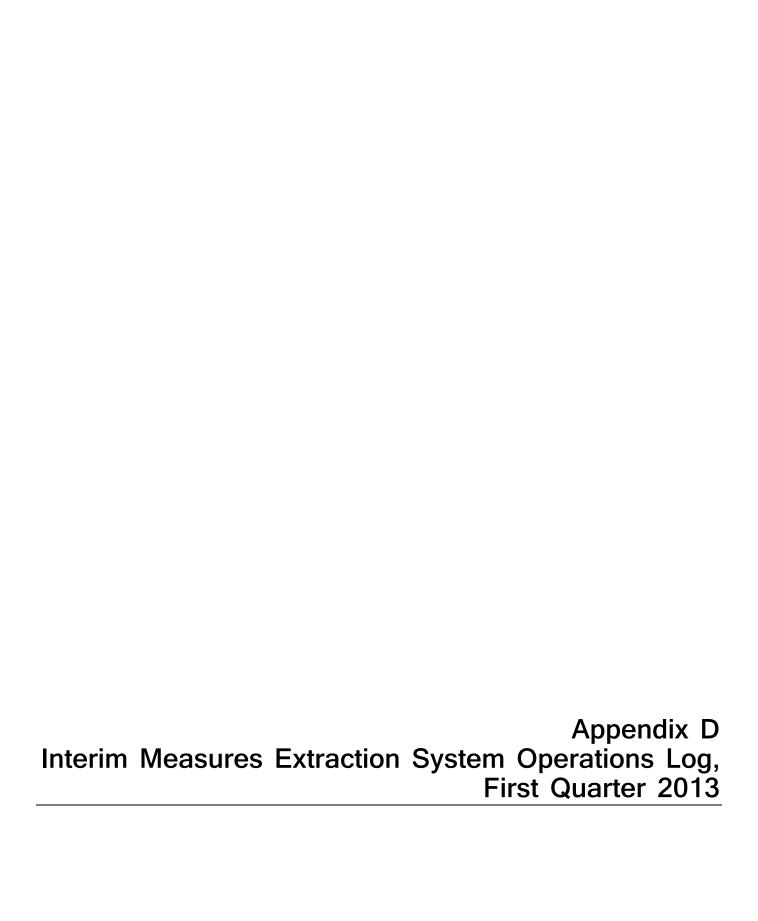
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-80 AND MW-74-240
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA
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### FIGURE C-19 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,
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### **APPENDIX D**

## 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 mircofilter performance. Extraction system downtime was 1 hour, 18 minutes.

D-1

- **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.

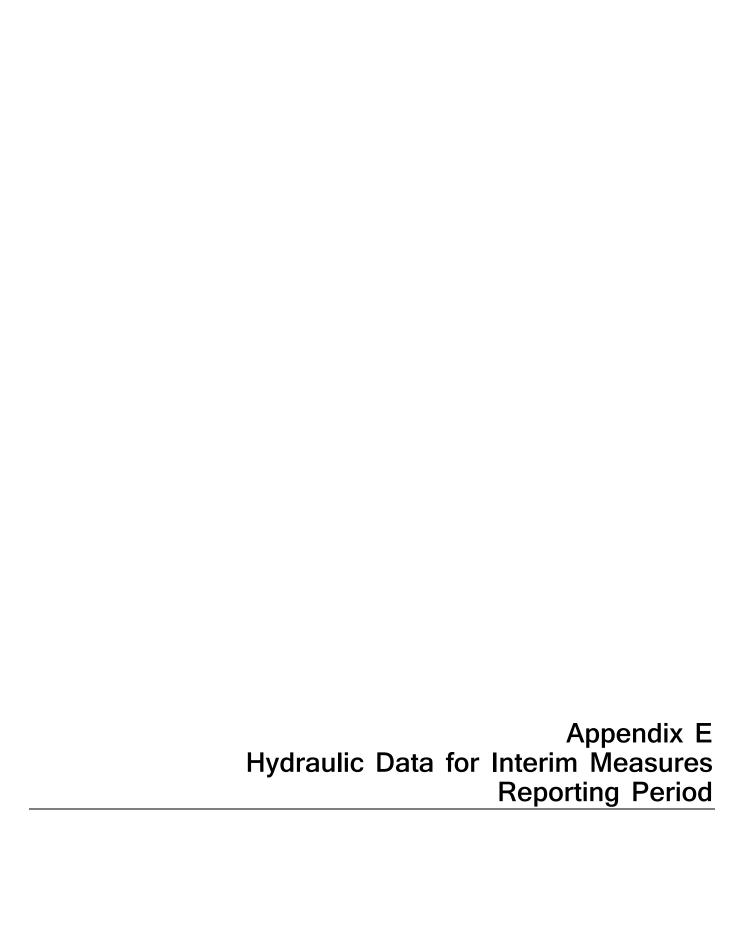


Table E-1

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		452.65 452.06	454.01	455.55 454.50	453.22	90
MW-36-100	Deep Zone	452.06 452.37	453.10 453.44	454.88	453.57	90
MW-39-040	Deep Zone Shallow Zone	452.82	453.88	455.32	454.01	90
MW-39-050	Middle Zone	452.62 452.67	453.70	455.32	453.84	90
MW-39-060 MW-39-070	Middle Zone	452.52	453.53	454.92	453.66	90 90
	Middle Zone	452.10	453.02	454.29	453.14	
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

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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.

