Topock Project Executive Abstract

Document Title: Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California Submitting Agency: California Department of Toxic Substances Control (DTSC) Final Document? ☒ Yes ☐ No	Date of Document: 3/14/14 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E
Priority Status: ☐ **HIGH** ☐ **MED** ☒ **LOW** Is this time critical? ☐ Yes ☒ No Type of Document: ☐ Draft ☒ Report ☐ Letter ☐ Memo ☐ Other / Explain:	Action Required: ☒ Information Only ☐ Review & Comment Return to: _____ _____ By Date:_____ ☐ Other / Explain:
What does this information pertain to? ☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) ☐ 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:	Is this a Regulatory Requirement? ☒ Yes ☐ No If no, why is the document needed?
What is the consequence of NOT doing this item? What is the consequence of DOING this item? Report is required to be in compliance with DTSC requirements.	Other Justification/s: ☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

This combined quarterly and annual report documents the monitoring activities and performance evaluation of the Interim Measure (IM) hydraulic containment system under the IM Performance Monitoring Program and the Groundwater Monitoring Program and Surface Water Monitoring Program for the Topock Project. Hydraulic and chemical monitoring data were collected and used to evaluate IM hydraulic containment system performance based on a set of standards approved by DTSC. Key items included in this report are: (1) measured groundwater elevations and hydraulic gradient data at compliance well pairs that indicate the direction of groundwater flow is away from the Colorado River and toward the pumping centers onsite; (2) hexavalent chromium data for monitoring wells; (3) pumping rates and volumes from the IM extraction system; and (4) Groundwater Monitoring Program and Surface Water Monitoring Program activities and results.

Based on the data and evaluation presented in this report, the IM performance standard has been met for the fourth quarter 2013 and annual reporting period. On July 23, 2010, DTSC approved a revised reporting schedule for this report; this was done at the request of DTSC to minimize the time between data collection and report submittal. As a result, the fourth quarter includes only the months of November and December 2013. The average pumping rate for the IM extraction system over fourth quarter 2013 was 131.9 gallons per minute, and an estimated 98.1 pounds (44.5 kilograms) of chromium were removed. To date the IM extraction system has removed a total of 7,800 pounds (3,540 kilograms) of chromium.

Written by: PG&E

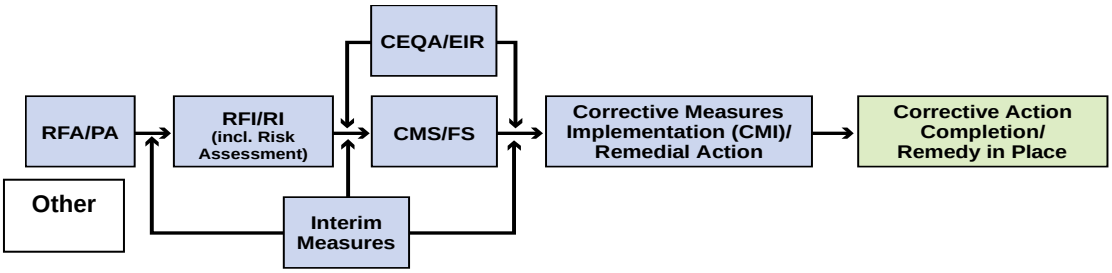
Recommendations:
This report presents recommendations for changes in the PMP-GMP for 2014 onward.

How is this information related to the Final Remedy or Regulatory Requirements:
This report is required by DTSC as part of the Interim Measures Performance Monitoring Program.

Other requirements of this information?
None.

Related Reports and Documents:

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



Legend
RFA/PA – RCRA Facility Assessment/Preliminary Assessment
RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)
CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study
CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

Version 9

Pacific Gas and Electric Company

Yvonne J. Meeks
Manager

Environmental Remediation

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

Location
6588 Ontario Road
San Luis Obispo, CA 93405

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

March 14, 2014

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

Subject: *Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* (Document ID: PGE20140314A)

Dear Mr. Yue:

Enclosed is the *Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California,* for Pacific Gas and Electric Company'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 fourth quarter (November through December 2013) performance monitoring results for the IMs hydraulic containment system and provides the annual performance evaluation for the 2013 reporting period (January through December 2013). This report also presents groundwater and surface water monitoring activities, results, and analyses related to the Groundwater and Surface Water Monitoring Programs during the 2013 reporting period.

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

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

Sincerely,

Yvonne Meeks
Topock Project Manager

Enclosure

cc: Chris Guerre/DTSC
Karen Baker/DTSC
Pam Innis/DOI
Susan Young/CA-SLC
Nancy Garcia/AZ-SLD

SFO\140720002
ES031314233614BAO

Final Report

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

PG&E Topock Compressor Station, Needles, California

Document ID: PGE20140314A

Prepared for

California Department of Toxic Substances Control

on behalf of

Pacific Gas and Electric Company

March 14, 2014

CH2MHILL®
155 Grand Avenue Suite 800
Oakland, CA 94612

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

PG&E Topock Compressor Station,
Needles, California

Prepared for

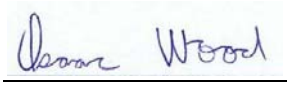
California Department of Toxic Substances Control

On behalf of

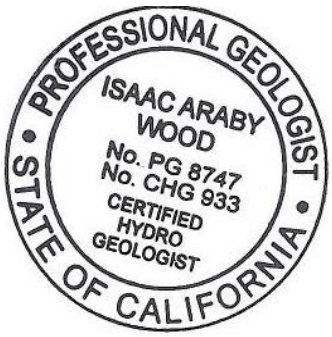
Pacific Gas and Electric Company

March 14, 2014

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

Contents

Section **Page**

Acronyms and Abbreviations ... ix

1.0 Introduction ... 1-1
1.1 Site-wide Groundwater and Surface Water Monitoring Program ... 1-1
1.1.1 Groundwater Monitoring Program and Surface Water Monitoring Program Networks ... 1-2
1.1.2 Changes to the Groundwater Monitoring Program in 2013 ... 1-2
1.1.3 Additional Baseline Data Collection in Support of Future Groundwater Remedy ... 1-2
1.2 Interim Measure Performance Monitoring Program ... 1-2
1.2.1 Performance Monitoring Program Monitoring Networks ... 1-3

2.0 Fourth Quarter 2013 Monitoring Activities ... 2-1
2.1 Groundwater Monitoring Program ... 2-1
2.1.1 Monthly ... 2-1
2.1.2 Quarterly/Biennially ... 2-1
2.1.3 Well Maintenance ... 2-1
2.2 Surface Water Monitoring Program ... 2-2
2.3 Performance Monitoring Program ... 2-2

3.0 Results for Site-wide Groundwater Monitoring and Surface Water Sampling ... 3-1
3.1 Groundwater Results for Cr(VI) and Chromium ... 3-1
3.1.1 Fourth Quarter Groundwater Results for Cr(VI) and Chromium ... 3-1
3.1.2 Annual Evaluation of Groundwater Results for Cr(VI) and Chromium ... 3-1
3.2 Other Groundwater Monitoring Results ... 3-2
3.2.1 Contaminants of Potential Concern and In Situ Byproducts ... 3-2
3.2.2 Title 22 Metals ... 3-3
3.2.3 Arsenic Sampling in Monitoring Wells ... 3-3
3.2.4 Background Study Metals ... 3-3
3.2.5 Laboratory-specific Conductance Results ... 3-3
3.2.6 Water Level Monitoring ... 3-4
3.2.7 Field Parameter Data ... 3-4
3.2.8 Additional Water Quality Characterization ... 3-4
3.3 Surface Water Results for Cr(VI) and Chromium ... 3-4
3.4 Data Validation and Completeness ... 3-4
3.5 Summary of 2013 Grounding Monitoring Program and Surface Water Monitoring Program Results ... 3-5

4.0 Fourth Quarter Interim Measures Performance Monitoring Program Evaluation ... 4-1
4.1 Water Quality Results for Performance Monitoring Program Floodplain Wells ... 4-1
4.2 Cr(VI) Distribution and Trends in Performance Monitoring Program Wells ... 4-1
4.3 Performance Monitoring Program Contingency Plan Cr(VI) Monitoring ... 4-1
4.4 Extraction Systems Operations ... 4-1
4.5 Hydraulic Gradient and River Levels during Quarterly Period ... 4-2
4.6 Projected River Levels during Next Quarter ... 4-3
4.7 Quarterly Performance Monitoring Program Evaluation Summary ... 4-3

5.0 Annual Performance Monitoring Program Evaluation ... 5-1
5.1 Extraction System Operations for Annual Reporting Period ... 5-1
5.1.1 Extraction Facilities and Operations ... 5-1

5.1.2 Extracted Groundwater Quality and Trends 5-1
5.2 Capture Zone Analysis for Annual Reporting Period 5-2
5.2.1 Monthly Average Gradients 5-2
5.2.2 Annual Average Gradients 5-2
5.2.3 Analysis and Evaluation of Capture Zone 5-2
5.3 Evaluation of Groundwater Quality Trend 5-3
5.3.1 Cr(VI) Distribution and Trends 5-3
5.3.2 Groundwater Geochemistry in Interim Measures Extraction Area 5-4
5.4 Conclusions and Status of Interim Measures Operations 5-4
5.4.1 Performance Evaluation 5-4
5.4.2 Status of Operations and Monitoring 5-5

6.0 Upcoming Operation and Monitoring Events 6-1
6.1 Groundwater Monitoring Program 6-1
6.1.1 Quarterly Monitoring 6-1
6.1.2 Monthly Monitoring 6-1
6.2 Surface Water Monitoring Program 6-1
6.3 Performance Monitoring Program 6-1
6.3.1 Extraction 6-1
6.3.2 Transducer Download 6-1

7.0 Recommendations 7-1
7.1 Recommended Modifications to the Performance Monitoring Program 7-1
7.2 Recommended Modifications to the Groundwater Monitoring Program Reporting Schedule 7-1
7.3 Recommended Modifications to Groundwater Monitoring Program Sampling Frequency and Analytical List 7-1
7.3.1 Groundwater Monitoring Program Sampling Frequency Modifications 7-2
7.3.2 Groundwater Monitoring Program Analytical Plan Modifications 7-3
7.4 Recommendation for Site-wide Implementation of Micropurge Groundwater Sampling Method 7-4
7.4.1 Field Technology Trial 7-4
7.4.2 Trial Results 7-4
7.4.3 Sampling Approach Recommendation 7-5
7.5 Schedule for Recommendations Review 7-5

8.0 References 8-1

Tables

1-1 Topock Monitoring Reporting Schedule
3-1 Groundwater Sampling Results, September 2012 through December 2013
3-2a Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013
3-2b Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Statistics, Fourth Quarter 2013
3-3 Title 22 Metals Results, January 2013 through December 2013
3-4 Surface Water Sampling Results, January 2013 through December 2013
3-5 COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, January 2013 through December 2013
4-1 Pumping Rate and Extracted Volume for IM System, Fourth Quarter 2013 and Annual 2013
4-2 Average Hydraulic Gradients Measured at Well Pairs, Fourth Quarter 2013
4-3 Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3
5-1 Summary of Pumping Rate and Extracted Volume for 2013 Reporting Period
5-2 Analytical Results for Extraction Wells, January 2013 through December 2013

5-3 Calculated Hydraulic Gradients for Well Pairs by Month for 2013 Reporting Period
7-1 Proposed Schedule Changes for GMP-PMP Reporting
7-2 Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications

Figures

1-1 Locations of IM-3 Facilities and Monitoring Locations
1-2 Monitoring Locations and Sampling Frequency for GMP
1-3 Monitoring Locations and Sampling Frequency for RMP
1-4 Locations of Wells and Cross-sections Used for IM Performance Monitoring
3-1a Cr(VI) Sampling Results, Shallow Wells in Alluvial Aquifer and Bedrock, Fourth Quarter 2013
3-1b Cr(VI) Sampling Results, Mid-depth Wells in Alluvial Aquifer and Bedrock, Fourth Quarter 2013
3-1c Cr(VI) Sampling Results, Deep Wells in Alluvial Aquifer and Bedrock, Fourth Quarter 2013
3-2a Molybdenum Sampling Results, Fourth Quarter 2013
3-2b Nitrate Sampling Results, Fourth Quarter 2013
3-2c Selenium Sampling Results, Fourth Quarter 2013
3-2d Arsenic Sampling Results, Fourth Quarter 2013
3-2e Manganese Sampling Results, Fourth Quarter 2013
3-3 Groundwater Elevation Map Shallow Zone of the Alluvial Aquifer (Water Table), December 16, 2013
4-1 Maximum Cr(VI) Concentrations in Alluvial Aquifer and Bedrock, Fourth Quarter 2013
4-2 Cr(VI) Concentrations, Floodplain Cross-section B, Fourth Quarter 2013
4-3a Average Groundwater Elevations in Shallow Wells and River Elevations, Fourth Quarter 2013
4-3b Average Groundwater Elevations in Mid-depth Wells, Fourth Quarter 2013
4-3c Average Groundwater Elevations in Deep Wells, Fourth Quarter 2013
4-4 Average Groundwater Elevations for Wells in Floodplain Cross-section A, Fourth Quarter 2013
4-5 Past and Predicted Future River Levels at Topock Compressor Station
5-1 Monthly Combined Pumping Volumes and Percent Uptime, 2013 Reporting Period
5-2 Cr(VI) and Total Dissolved Solids Concentrations in Extraction Wells TW-3D and PE-1, 2013 Reporting Period
5-3 Measured Hydraulic Gradients, River Elevation, and Pumping Rate, 2013 Reporting Period
5-4a Average Groundwater Elevations in Shallow Wells and River Elevations, 2013 Reporting Period
5-4b Average Groundwater Elevations in Mid-depth Wells, 2013 Reporting Period
5-4c Average Groundwater Elevations in Deep Wells, 2013 Reporting Period
5-5 Average Groundwater Elevations for Wells in Floodplain Cross-section A, 2013 Reporting Period
5-6 Magnitude and Direction of Hydraulic Gradients in Lower Depth Interval During 2013 Annual Period
5-7 Cr(VI) Concentration Trends in Selected Performance Monitoring Wells, April 2005 through December 2013
5-8 Distribution of Cr(VI), Geochemical Indicator Parameters, and In Situ Byproducts in Floodplain Wells
5-9 Distribution of Cr(VI), Geochemical Indicator Parameters, and In Situ Byproducts in Floodplain Wells, Cross-section A, Fourth Quarter 2013
5-10 Average Stable Isotopes of Oxygen and Deuterium, January 2013 through December 2013
5-11a Distribution of River Signature in Floodplain Wells, Shallow Wells (Upper Depth Interval)
5-11b Distribution of River Signature in Floodplain Wells, Mid-Depth Wells (Middle Depth Interval)
5-11c Distribution of River Signature in Floodplain Wells, Deep Wells (Lower Depth Interval)
7-1 Monitoring Locations and Proposed Sampling Frequency for GMP

Appendices

A Well Inspections and Construction Information
B Lab Reports, November through December 2013 (Provided on CD-ROM Only with Hard Copy Submittal)
C Chromium Trend Graphs
D Other Groundwater Monitoring Results
E Hydraulic Data for Interim Measures Reporting Period

F Groundwater Monitoring Data for Groundwater Monitoring Program and Performance Monitoring Program
G Interim Measures Extraction System Operations Log, November 2013 through December 2013
H Groundwater Analytical Results for Field Trial of Alternative Sampling Approaches

Acronyms and Abbreviations

δ^2H	deuterium
$\delta^{18}O$	oxygen-18, stable isotope of oxygen
µg/L	micrograms per liter
ADEQ	Arizona Department of Environmental Quality
AWQ	annual water quality analysis
BP	byproducts
BWQ	biennial water quality analysis
CMP	Compliance Monitoring Program
Cr(VI)	hexavalent chromium
COPC	contaminants of potential concern
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
ft/ft	foot or feet per foot
GMP	Groundwater Monitoring Program
gpm	gallons per minute
IM	interim measure
IMCP	Interim Measures Contingency Plan
IM-3	Interim Measures Number 3
MCL	maximum contaminant level
ORP	oxidation-reduction potential
PG&E	Pacific Gas and Electric Company
PMP	Performance Monitoring Program
RCRA	Resource Conservation and Recovery Act
RMP	Surface Water Monitoring Program
TDS	total dissolved solids
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
UTL	upper tolerance limit

1.0 Introduction

Pacific Gas and Electric Company (PG&E) is implementing Interim Measures (IMs) to address chromium concentrations in groundwater at the Topock Compressor Station. 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 (figures are located at the end of this report). This report presents the monitoring data from three PG&E monitoring programs:

- Site-wide Groundwater Monitoring Program (GMP)
- Site-wide Surface Water Monitoring Program (RMP)
- Interim Measures No. 3 (IM-3) Performance Monitoring Program (PMP)

This report presents the monitoring data from PG&E's GMP, RMP, and PMP collected from November 1, 2013, through December 31, 2013 (hereafter referred to as Fourth Quarter 2013). In addition, this report serves as an annual report and provides a summary of groundwater and surface water monitoring results for samples collected from January 1, 2013 through December 31, 2013 (hereafter referred to as the annual reporting period) under the Topock GMP and RMP. The data collected as part of the GMP and RMP are presented in Section 3.0. The data collected for the current quarter (November through December) as part of the PMP are presented in Section 4.0. An evaluation of data collected under the PMP for the annual reporting period are presented in Section 5.0. Further, this report provides recommended changes to future monitoring activities for the GMP and PMP (Section 7.0).

This combined GMP (including RMP) and PMP reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC, 2009a). 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 presents the current sampling and reporting schedule (tables are located at the end of this report).

1.1 Site-wide Groundwater and Surface Water Monitoring Program

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

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

In compliance with the requirements for Groundwater and Surface Water Monitoring Program directive of April 2005 (DTSC, 2005a), this document presents the Fourth Quarter 2013 and annual GMP and RMP report for the IM monitoring activities from November 1, 2013 through December 31, 2013.

1.1.1 Groundwater Monitoring Program and Surface Water Monitoring Program Networks

Figure 1-2 shows the current locations and sampling frequencies of the monitoring wells in the GMP. Table A-1 in Appendix A summarizes the well construction and sampling methods for wells in the GMP and other monitoring wells at the site. The complete GMP includes 146 groundwater monitoring wells, which consist of the following:

- One hundred twenty-nine monitoring wells in California (including two normally 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 IM-3 extraction wells
- Five test wells

Sampling frequencies for the GMP wells were updated beginning in First Quarter 2010 following the DTSC's 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 (ADEQ, 2010) and the April 28, 2010, directive from DTSC (DTSC, 2010c).

Figure 1-3 shows the locations and sampling frequencies of the RMP. The RMP consists of the following:

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

1.1.2 Changes to the Groundwater Monitoring Program in 2013

Well inspections are performed quarterly and are discussed in Section 2.1.3 (DTSC, 2013).

1.1.3 Additional Baseline Data Collection in Support of Future Groundwater Remedy

Additional samples, not requested by DTSC, were collected from surface and groundwater sample locations as part of the baseline sampling in support of the groundwater remedy. Samples were analyzed for the following analytes: chloride, sulfate, bromide, calcium, magnesium, potassium, sodium, boron, alkalinity, total dissolved solids (TDS), and stable isotopes oxygen 18 ($\delta^{18}O$) and deuterium ($\delta^{2}H$).

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 Fourth Quarter 2013 PMP evaluation for the IM monitoring activities from November 1, 2013 through December 31, 2013.

The Topock project IM consists of groundwater extraction for hydraulic control of the chromium 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. 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. Figure 1-1 shows the location of the IM-3 extraction, conveyance, treatment, and injection facilities.

In a letter dated February 14, 2005, DTSC established the criteria for evaluating the performance of the IM (DTSC, 2005c). As defined by DTSC, the performance standard for this IM is to "establish and maintain a net landward hydraulic gradient, both horizontally and vertically, that ensures that hexavalent chromium [Cr(VI)] concentrations at or greater than 20 micrograms per liter [µg/L] in the floodplain are contained for removal and treatment" (DTSC, 2005c). A draft *Performance Monitoring Plan for Interim Measures in the Floodplain Area,*

Pacific Gas and Electric Company, Topock Compressor Station, Needles, California (CH2M HILL, 2005a) was submitted to DTSC on April 15, 2005 (herein referred to as the PMP).

The February 2005 DTSC directive also defined the monitoring and reporting requirements for the IM (DTSC, 2005b). 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 (DTSC, 2007a, 2008a-b); and July 23, 2010 (DTSC, 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 that were in service/active as of December 2013 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)

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.

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

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 floodplain aquifer is considered to be hydraulically undivided. The subdivision of the aquifer into three depth intervals is an appropriate construct for presenting and evaluating 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.

2.0 Fourth Quarter 2013 Monitoring Activities

This section provides a summary of the monitoring and sampling activities completed during Fourth Quarter 2013.

2.1 Groundwater Monitoring Program

2.1.1 Monthly

The active IM extraction wells (PE-1 and TW-3D) were sampled for Cr(VI) and chromium during November and December 2013. Cr(VI), chromium, and arsenic samples were collected from wells MW-34-100 and MW-46-175 in November and December per DTSC direction (DTSC, 2010a).

2.1.2 Quarterly/Biennially

The Fourth Quarter 2013 GMP groundwater monitoring event was conducted between November 4 and December 19, 2013 and consisted of sampling:

- One hundred forty-one groundwater monitoring wells
- Two active IM extraction wells

Samples from these wells were submitted for laboratory analysis of Cr(VI), chromium, and specific conductance. Additional field-measured parameters consisted of oxidation-reduction potential (ORP) and pH.

In addition, groundwater samples were collected at selected GMP wells during the Fourth Quarter 2013 sampling event for analysis of:

- California Code of Regulations Title 22 metals analyses, which includes arsenic at three wells (MW-10, MW-12, and MW-22).
- Background metals as recommended in the background study report (CH2M HILL, 2008) at two wells (MW-16 and MW-17).
- Arsenic from a subset of wells screened in fluvial sediments, as directed by DTSC in the Corrective Measures Study review comment No. 186 (DTSC, 2009b).
- Arsenic from bedrock monitoring wells.
- Contaminants of potential concern (COPCs), including molybdenum, nitrate as Nitrogen (referred to as nitrate hereafter), and selenium and potential in situ byproducts (manganese, iron, and arsenic) from a subset of wells (DTSC, 2010b, 2011).
- To assist in the future groundwater remedy performance evaluation, select monitoring wells were analyzed for additional non-routine parameters during the December 2013 monitoring event. Sample analysis included chloride and bromide, calcium, magnesium, potassium, and sodium, boron, alkalinity, and stable isotopes $\delta^{18}O$ and $\delta^{2}H$.

2.1.3 Well Maintenance

In a letter from DTSC dated January 28, 2013, PG&E was directed to assess conditions at existing wells quarterly pursuant to PG&E's *Draft Performance Monitoring Plan for Interim Measures in the Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California* (CH2M HILL, 2005a) and the *Sampling and Analysis Field Procedures Topock Program Manual, Revision 1, Pacific Gas and Electric Company, Topock Project* (CH2M HILL, 2005b) to ensure that monitoring wells are in compliance with the California Well Standards. Table A-1 in Appendix A provides the quarterly inspection log, field observations, and required mitigation actions for well maintenance.

2.2 Surface Water Monitoring Program

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

2.3 Performance Monitoring Program

Groundwater samples for the PMP were collected during the GMP sampling event. In addition, PMP pressure transducers, which monitor hydraulic gradients of the Alluvial Aquifer, were downloaded in the first week of every month (November and December). 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.

3.0 Results for Site-wide Groundwater Monitoring and Surface Water Sampling

This section presents the analytical results for groundwater and surface water monitoring conducted during Fourth Quarter 2013. In addition, this section summarizes the site-wide groundwater and surface water sample results for the 2013 annual reporting period.

3.1 Groundwater Results for Cr(VI) and Chromium

3.1.1 Fourth Quarter Groundwater Results for Cr(VI) and Chromium

Table 3-1 presents Fourth Quarter 2013 data, including Cr(VI), chromium, field ORP, specific conductance, and field pH in groundwater samples collected from September 2012 through December 2013. During Fourth Quarter 2013, the maximum detected Cr(VI) concentration was 21,100 µg/L at well MW-68-180. The laboratory reports for results from November through December 2013 are provided in Appendix B.

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 the Fourth Quarter 2013 sampling event. Figures 3-1a through 3-1c also show the approximate outlines of Cr(VI) concentration contours greater than 32 µg/L for the Alluvial Aquifer and bedrock. The value of 32 µg/L is based on the calculated natural background upper tolerance limit (UTL) for Cr(VI) in groundwater from the background study (CH2M HILL, 2009a).

3.1.2 Annual Evaluation of Groundwater Results for Cr(VI) and Chromium

Table 3-1 presents the results for Cr(VI), chromium, field ORP, specific conductance, and field pH in groundwater samples collected from September 2012 to December 2013. Cr(VI) concentration trend graphs for GMP monitoring wells are presented in Appendix C, Figures C-1 through C-19. This section presents observed results for wells that are not evaluated for the PMP.

A review of the GMP Cr(VI) concentration trend plots (Figures C-1 through C-19 and Table 3-1) reveals the following observed Cr(VI) trends since IM groundwater extraction began in 2004:

- Concentrations have been declining at MW-14 and MW-18. The lowest concentration to date at MW-18 was reported in November 2013.
- Concentrations at the shallow alluvial well MW-25 have steadily decreased, with the lowest concentration to date reported in December 2013 (Figure C-3).
- Concentrations at MW-26 and the MW-31 cluster initially decreased but generally have been stable since 2011. The lowest concentrations to date at these wells was reported for May 2013 (Figure C-4).
- Concentrations have decreased in MW-37D (Figure C-8).
- Concentrations have increased in MW-40D (Figure C-9).
- Concentrations in well MW-50-095 continue to slowly decline, with the lowest concentration reported to date in November 2013 (Figure C-12).
- Concentrations in well MW-50-200 are generally decreasing since reaching a maximum concentration of over 12,000 µg/L in 2007.
- Concentrations at bedrock well MW-62-110 appear to be increasing (Figure C-14).
- Concentrations at the MW-65 cluster have been increasing (Figure C-15).
- Cr(VI) concentrations at MW-66-165 and MW-66BR-270 have been stable since 2011, while concentrations at MW-66-230 have been slowly increasing since October 2011 (Figure C-16).

- Concentrations at the MW-67 cluster increased in 2011 during initial sampling events but generally have been stable since January 2012 (Figure C-16).
- Concentrations at MW-68-180 appear to fluctuate seasonally, (high in winter and low in summer) and have recently been the highest of any well at the site (Figure C-16). Concentrations at MW-68-240 have been generally stable since 2012 (Figure C-16). Concentrations at MW-68BR-280 are stable and have been nondetect for the 2013 reporting period.
- Concentrations at bedrock well MW-69-195 have been increasing overall since 2011 but were stable in 2013 monitoring (Figure C-17).
- Concentrations at bedrock well MW-70-225 are stable to decreasing, while concentrations at bedrock well MW-70-105 are increasing overall.

Analytical results for the eight Arizona wells were nondetect for chromium at five wells, with low concentrations reported for MW-55-120 (7.6 µg/L), MW-56S (2.6 µg/L), and MW-56D (1.6 µg/L). These results were consistent with regional background concentrations and historical data for the Arizona wells.

The Park Moabi water production wells, Park Moabi-3 and Park Moabi-4, had detections of 4.1 and 12.6 µg/L for Cr(VI) and 7.9 and 18.0 µg/L for chromium, respectively, in December 2013. These Cr(VI) and chromium detections were below the California drinking water standard of 50 µg/L for chromium (California Code of Regulations Title 22, Division 4, Chapter 15) and consistent with regional background concentrations.

3.2 Other Groundwater Monitoring Results

3.2.1 Contaminants of Potential Concern and In Situ Byproducts

Tables 3-2a and 3-2b presents the COPCs, in situ byproducts, and other analytes sampling results and summaries for groundwater monitoring wells in fourth quarter sampling. Figures 3-2a through 3-2e present the molybdenum, nitrate (as N), selenium, arsenic, and manganese results for Fourth Quarter 2013, respectively. Results were compared to the background UTLs calculated and reported in the *Revised Final RCRA Facility Investigation/ Remedial Investigation Report, Volume 2* (CH2M HILL, 2009a). Background UTLs were only calculated for regional alluvial wells during the background study so these background UTLs may not be appropriate for bedrock wells.

Molybdenum. The concentrations and distribution of dissolved molybdenum for Fourth Quarter 2013 are shown on Figure 3-2a. Results for 30 of the 76 wells sampled for molybdenum were above the calculated background UTL for molybdenum (36.3 µg/L). The well locations with the highest molybdenum results (≥100 µg/L) include MW-33-40, MW-44-125, MW-46-175, and bedrock well PGE-8. Molybdenum has no California or federal maximum contaminant level (MCL). The maximum molybdenum result was collected from MW-33-040 with a result of 250 µg/L, which is within the typical range of molybdenum for this well. Molybdenum concentration trend graphs for GMP monitoring wells are presented in Figures C-20 through C-34 in Appendix C.

Nitrate as Nitrogen. Nitrate samples were analyzed using USEPA Method 353.2, except for TW-3D and PE-1, which were 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 concentrations and distribution of nitrate as Nitrogen for Fourth Quarter 2013 are shown on Figure 3-2B. Results for 22 of the 140 wells sampled were above the calculated background UTL for nitrate of 5.03 mg/L. Ten of these 20 wells exceeded the MCL of 10.0 µg/L. The maximum nitrate result was collected from MW-67-185 at 35.3 mg/L. Nitrate (as Nitrogen) concentration trend graphs for GMP monitoring wells are presented in Figures C-35 through C-53 in Appendix C.

Selenium. The concentrations and distribution of selenium for Fourth Quarter 2013 are shown on Figure 3-2c. Results for 11 of 76 wells sampled were above the calculated background UTL for selenium of 10.3 µg/L, including four nondetections with reporting limits above 10.3. Two wells (MW-67-185 and MW-67-225) exceeded the MCL

of 50 µg/L for selenium. The maximum result was from MW-67-185, at 180 µg/L. Selenium concentration trend graphs for GMP monitoring wells are presented in Figures C-54 through C-68 in Appendix C.

In Situ Byproducts. The concentrations and distribution of arsenic for Fourth Quarter 2013 are shown on Figure 3-2d and discussed further in Section 3.2.3. The concentrations and distribution of manganese for the Fourth Quarter 2013 are shown on Figure 3-2e.

Results for in situ byproduct sampling and geochemical indicator parameters are presented in Tables 3-2a-b and in Table D-1 in Appendix D. An evaluation of in situ byproduct sample results for floodplain wells with additional geochemical parameters collected for PMP performance monitoring is presented in Section 5.3.2.

3.2.2 Title 22 Metals

Table 3-3 presents the California Code of Regulations Title 22 metals results for the GMP monitoring wells (MW-10, MW-12, and MW-22) sampled during Fourth Quarter 2013 and previous 2013 monitoring events. The concentrations of Title 22 metals consistently detected in monitoring wells remained generally stable overall during the 2013 monitoring period.

In addition to chromium, the trace metals detected in MW-10 during the Fourth Quarter 2013 groundwater sampling event were arsenic, barium, molybdenum, selenium, and vanadium. The dissolved concentrations of the trace metals detected during the Fourth Quarter 2013 event in MW-10—other than chromium—are below the respective federal and California MCL drinking water standards.

In addition to chromium, the trace metals detected in MW-12 during the Fourth Quarter 2013 groundwater sampling event were arsenic, barium, molybdenum, selenium, and vanadium. The dissolved concentrations of the trace metals detected in MW-12 during the Fourth Quarter 2013 event—other than chromium and arsenic—are below the respective federal and California MCL drinking water standards.

The trace metals detected in MW-22 during the Fourth Quarter 2013 groundwater sampling event were arsenic, barium, cobalt, and molybdenum. The dissolved concentrations of the trace metals detected during the Fourth Quarter 2013 event—other than arsenic—are below the respective federal and California MCL drinking water standards.

3.2.3 Arsenic Sampling in Monitoring Wells

Eighty-one fluvial/alluvial wells were sampled for arsenic in Fourth Quarter 2013 and are presented on Figure 3-2d). These results and results for previous 2013 monitoring events are presented in Tables 3-2a-b. Arsenic was detected in 80 of the 81 samples analyzed for arsenic. Eleven of the monitoring well samples had arsenic concentrations greater than the California MCL of 10 µg/L. The maximum concentration was detected in MW-12 at 38.0 µg/L.

Bedrock well arsenic results are presented in Table 3-2. Arsenic was detected in 21 of the 22 bedrock wells sampled for arsenic in the Fourth Quarter 2013 event. Three of the bedrock monitoring well samples had arsenic concentrations just above the California MCL of 10 µg/L: MW-57-185 at 14.0 µg/L, MW-72BR-200 at 13.0 µg/L, and MW-74-240 at 14.0 µg/L.

3.2.4 Background Study Metals

Table D-2 presents the trace metals sampling results for Fourth Quarter 2013 sampling from monitoring wells MW-16 and MW-17, as recommended by DTSC during review of the background study report (CH2M HILL, 2008). The purpose of this monitoring was to detect time trends in trace metals, if any, beyond the period of the background study; the trend of background metals at these wells is that they are generally stable.

3.2.5 Laboratory Specific Conductance Results

In 2007, PG&E was directed by DTSC to continue collecting samples for laboratory analysis of specific conductance (DTSC, 2007c). Specific conductance results for the 2013 reporting period are presented in Table 3-1. The salient trend in specific conductance results is a correlation of lower specific conductance over time at floodplain wells that also show increasing river water isotopic signature. Decreasing specific conductance can also indicate that

IM-3 pumping is drawing river water into the floodplain groundwater. For wells adjacent to the Colorado River, a greater influence of river water can be seen at summer high river levels.

3.2.6 Water Level Monitoring

Table D-3 in Appendix D presents the manual water level measurements collected during the 2013 reporting period. Table D-3 also lists salinity data for the wells where water levels were measured. Groundwater salinity during Fourth Quarter 2013 ranged from 0.06 percent (MW-27-20 and MW-27-60) to 3.0 percent (well MW-32-020)—a range that is consistent with results of prior monitoring. Due to the variation in groundwater salinity at the site, the groundwater elevations measured in the monitoring wells have been adjusted (normalized) to an equivalent freshwater head (Fetter, 1994).

Beginning in June 2005, at DTSC's direction (DTSC, 2005c), a site-wide water level data set has been collected quarterly as part of the GMP to prepare a groundwater elevation contour map for the shallow zone (upper-depth interval) of the Alluvial Aquifer. That requirement was changed to annually in the September 28, 2007, letter from DTSC (DTSC, 2007c).

Figure 3-3 presents the groundwater elevation contours for the shallow-depth interval of the Alluvial Aquifer. A site-wide water level survey was conducted on December 16, 2013, involving the manual collection of groundwater level data at 26 shallow wells within approximately a 1-hour period. Because groundwater levels at the site fluctuate continuously in response to changes in the river stage, these groundwater elevation contours reflect transient conditions at the time of measurement and may not be representative of the average groundwater flow directions.

3.2.7 Field Parameter Data

A field water-quality meter and flow-through cell were used to measure parameters during well purging and groundwater sampling (CH2M HILL, 2005b). Water quality field measurements were also recorded during surface water sampling. Table D-4 summarizes the field water quality data collected (specific conductance, temperature, pH, ORP, and dissolved oxygen) from January 2013 through December 2013.

3.2.8 Additional Water Quality Characterization

Additional analytes including selected anions, cations, and dissolved metals, and $\delta^{18}O$ and $\delta^{2}H$, were collected from selected wells to assist in future remedy performance evaluation. These data are presented in Table D-5.

3.3 Surface Water Results for Cr(VI) and Chromium

Table 3-4 presents results of Cr(VI), chromium, specific conductance, and lab pH from the Fourth Quarter 2013 surface water monitoring event and the 2013 reporting period. During the fourth quarter and 2013 reporting periods, Cr(VI) and chromium were not detected above reporting limits at any in-channel, shoreline, or other surface water monitoring locations. Table 3-5 presents results for the COPCs (molybdenum, nitrate as Nitrogen, and selenium), in situ byproducts (manganese, iron, and arsenic), and other geochemical indicator parameters.

3.4 Data Validation and Completeness

Laboratory analytical data from the Fourth 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 data reported this quarter:

- Twenty-three Cr(VI) (USEPA 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. No flags were applied.
- Five field duplicate pairs had a relative percent difference greater than the upper control limit for one or more analyte. The results were qualified and flagged "J." As explained in table footnotes, a "J" flag indicates that the concentration as reported is considered to be an estimate.

- Five samples had matrix spike recoveries that were outside the control limits (one sample had two analytes, while the other four had just one analyte outside the control limits) —one dissolved calcium, one dissolved iron (Method SW 6010B), one dissolved chromium, and three dissolved manganese (Method SW 6020A). The associated sample results were qualified as estimated and flagged "J."
- Two samples for alkalinity (Method SM 2320b) and two for hexavalent chromium (USEPA Method 218.6) were analyzed outside the USEPA-recommended holding time. The results were qualified as estimated and flagged "J."
- Two samples were received at the laboratory at a temperature greater than 8° C. The sample results for alkalinity (Method SM 2320B), chloride, nitrate, sulfate (USEPA Method 300.0), Cr(VI) (USEPA Method 218.6 and Method SM 3500-CrB), conductivity (USEPA Method 120), and TDS (Method SM 2540C) were qualified as estimated and flagged "J."
- Based on the March 2007 USEPA ruling and reaffirmed in the May 2012 USEPA ruling, pH has a 15-minute holding time. As a result, all samples analyzed in a certified lab by Method SM4500-HB (pH) are analyzed outside the USEPA-recommended holding time. Therefore, the pH results for the fourth quarter sampling events analyzed in a certified lab were qualified as estimated and flagged "J."

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

3.5 Summary of 2013 Grounding Monitoring Program and Surface Water Monitoring Program Results

During 2013, quarterly (including semiannual and biennial events, hereafter referred as quarterly) events occurred in February, April-May, September-October, and November-December. Quarterly events in April-May and September-October were timed to occur before and after Southwestern willow flycatcher nesting season to minimize biological impacts to potential nesting habitat from the field activities during these larger-scale sampling events.

Key observations and data trends for this quarter and previous periods include the following:

- Chromium concentrations in many GMP monitoring wells near the floodplain and active extraction wells are stable or declining, with fluctuating concentrations present at some locations.
- Concentrations in several of the East Ravine/Topock Compressor Station wells are stable or increasing.
- During the fourth quarter and 2013 reporting periods, Cr(VI) and chromium were not detected above reporting limits at any in-channel, shoreline, or other surface water monitoring locations.
- The COPCs carried forward from the RCRA Facility Investigation Volume 2, Addendum and Corrective Measures Study/Feasibility Study (molybdenum, selenium, and nitrate) continue to be detected in a subset of monitoring wells above their background UTLs (CH2M HILL, 2009a-c).
- Arsenic was detected in 101 of the 103 fluvial/alluvial and bedrock wells analyzed for arsenic; 14 of these samples exceeded the California MCL (10 µg/L).

4.0 Fourth Quarter Interim Measures Performance Monitoring Program Evaluation

This section presents the quarterly PMP evaluation summary.

4.1 Water Quality Results for Performance Monitoring Program Floodplain Wells

Table F-1 in Appendix F presents the results of general chemistry and stable isotope analyses for 15 PMP monitoring wells and two river stations during sampling events from March 2005 through December 2013. In July 2008, DTSC approved modifications to the PMP IM chemical PMP (DTSC, 2008b). With those modifications, nine monitoring wells and one river station are now sampled for IM chemical performance monitoring. 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 TDS, chloride, sulfate, nitrate, bromide, calcium, potassium, magnesium, sodium, boron, alkalinity, δ^2H, and δ^{18}O to monitor the effects of IM pumping on groundwater chemistry. Section 5.3.2.2 of this report provides an evaluation of the general chemistry groundwater data for the floodplain area.

4.2 Cr(VI) Distribution and Trends in Performance Monitoring Program Wells

The Fourth 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 view on Figure 4-1.[1] Figure 4-2 presents the Fourth 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.

Appendix C includes Cr(VI) concentration trend graphs for selected monitoring well clusters through December 2013. Sample results for the 2013 reporting period are presented in Table 3-1. An evaluation of chromium trends in PMP wells is presented in the annual performance evaluation in Section 5.3.

4.3 Performance Monitoring Program Contingency Plan Cr(VI) 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. Appendix C includes Cr(VI) concentration trend graphs for the IMCP wells. The IMCP well Cr(VI) results in the fourth quarter and throughout 2013 were all below their assigned trigger levels.

4.4 Extraction Systems Operations

Pumping data for the IM-3 groundwater extraction system for the Fourth Quarter 2013 reporting period of November 1 through December 31 are presented in Table 4-1. From November 1, 2013 through December 31, 2013, the volume of groundwater extracted and treated by the IM-3 system was 11,585,427 gallons. An estimated 98.1 pounds (44.5 kilograms) of chromium were removed from the aquifer between October 1, 2013 and December 31, 2013.[2]

---

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

[2] On July 23, 2010, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from October 1, 2013, through December 31, 2013; this IM-3 sample collection period is in line with previous reports

During Fourth Quarter 2013, extraction wells TW-3D and PE-1 operated at a combined pumping rate of 131.9 gallons per minute (gpm), including periods of planned and unplanned downtime. The average monthly pumping rates were 129.5 gpm (November 2013) and 134.2 gpm (December 2013) during the reporting period. Extraction wells TW-2S and TW-2D were operated briefly during December 2013. The operational run-time percentage for the IM extraction system was 98.2 percent during this reporting period. The operations log for the extraction system during Fourth Quarter 2013, including planned and unplanned downtime, is included in Appendix G.

The concentrate (that is, saline water) from the reverse osmosis system was shipped offsite as a nonhazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona for treatment and disposal. Four containers of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada during Fourth 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.

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 55 wells (excluding five Arizona locations) 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 Fourth Quarter 2013 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 PMP. Groundwater elevation hydrographs for the PMP wells during the Fourth Quarter 2013 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 Fourth Quarter 2013 groundwater elevations for the shallow, mid-depth, and deep wells are presented and contoured in plan view on Figures 4-3A through 4-3C. Average groundwater elevations for wells on floodplain Cross-section A are presented and contoured on Figure 4-4. 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. Consequently, some wells with screen intervals significantly deeper than most of the lower-interval wells exhibit water levels that are not contoured in the plan view on Figure 4-3C.

For the Fourth Quarter 2013 reporting period, transducer data were recorded in wells located on the Arizona side of the Colorado River. The quarterly average groundwater elevations for wells MW-55-120, MW-54-85, MW-54-140, and MW-54-195 are presented on Figure 4-3C, if available, and are used for contouring, where appropriate. With the exception of well MW-55-45, the wells in the MW-54 and MW-55 clusters are screened in the deep interval of the Alluvial Aquifer. Well MW-55-45 is screened over the boundary between the shallow and middle intervals.

Deep zone water levels shown on Figure 4-3C indicate that potentiometric levels in monitoring wells in Arizona are higher than those in wells across the river on the California floodplain. This means that the hydraulic gradient on the Arizona side of the river is directed to the west and, as a result, groundwater flow would also be toward the west in that area. This is consistent with the site conceptual model and with the current numerical groundwater flow model.

prior to combining the GMP with the PMP reports. The PMP/GMP reporting schedule uses July through October as third quarter and November through December as fourth quarter due to sampling event timing; these reporting periods differ from IM-3.

Hydraulic gradients were measured during the Fourth Quarter 2013 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 4-2 presents the average monthly hydraulic gradients that were measured between the gradient well pairs in November and December 2013. Strong landward gradients were measured each month. The overall average gradients for all well pairs ranged from 0.0047 to 0.0057 foot per foot (ft/ft). This is 4.7 to 5.7 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 2.0 to 2.1 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from 8.7 to 11.2 times the target gradient. The southern well pair gradients ranged from 3.5 to 3.8 times the target gradient for the fourth quarter 2012 reporting period. Graphs of the hydraulic gradients, monthly average pumping rates, and river levels for the quarterly period are presented in the annual performance evaluation in Section 5.2.

4.6 Projected River Levels during Next Quarter

The Colorado River stage near the Topock Compressor Station is measured at the I-3 location and is directly influenced by releases from Davis Dam and, to a lesser degree, from Lake Havasu elevations, both of which are controlled by the United States Bureau of Reclamation (USBR). Total releases from Davis Dam follow a predictable annual cycle, with largest monthly releases typically in spring and early summer and smallest monthly releases in late fall/winter (November and December). Superimposed on 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 4-5 shows the river stage measured at I-3 superimposed on the projected I-3 river levels. Projected river levels for future months are based on the USBR projections of Davis Dam discharge and Lake Havasu levels from the month preceding. For example, the projected river level for January 2014 is based on the December 2013 USBR projections 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 4-5 are summarized in Table 4-3. The future projections shown on Figure 4-5 are based on USBR long-range projections of Davis Dam releases and Lake Havasu levels from December 2013. There is more uncertainty in these projections at longer times in the future because water demand is based on various elements including climatic factors.

Current USBR projections, presented in Table 4-3, show that the average Davis Dam release for January 2014 (8,300 cubic feet per second) will be more than the actual release in December 2013 (7,636 cubic feet per second). Based on January 2014 USBR projections, it is anticipated that the Colorado River level at the I-3 gage location in January 2014 will be approximately 0.4 foot higher compared to the actual levels in December 2013. Current projections show that the water levels will increase through the next quarterly reporting period (January through March), further increasing to the maximum levels of the year in April 2014, as shown on Figure 4-5.

4.7 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from November and December 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 Fourth Quarter 2013 were 4.7 to 5.7 times the required minimum magnitude, as shown in Table 4-2. 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 Fourth Quarter 2013 reporting period.

A total of 11,585,427 gallons of groundwater was extracted between November and December 2013 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during Fourth Quarter 2013, including system downtime, was 131.9 gpm. An estimated 98.1 pounds (44.5 kilograms) of chromium were removed from groundwater during the period October 1 through December 31, 2013, as presented in Table 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. Presentation and evaluation of the Cr(VI) trends observed in the performance monitoring area during the Fourth Quarter 2013 reporting period are discussed in Section 5.3.

5.0 Annual Performance Monitoring Program Evaluation

The section presents the annual PMP evaluation summary.

5.1 Extraction System Operations for Annual Reporting Period

5.1.1 Extraction Facilities and Operations

Pumping data for the IM-3 groundwater extraction system for the 2013 annual reporting period are presented in Table 5-1. Extraction wells TW-3D and PE-1 operated throughout the annual reporting period at the target pumping rate of 135 gpm, excluding periods of planned and unplanned downtime. During the annual reporting period, extraction wells TW-2S and TW-2D were operated only for short-term support of the extraction system or field operations or for periodic groundwater sampling.

An estimated total of 68,362,245 gallons of groundwater were extracted from January 2013 through December 2013. Approximately 374 pounds (170 kilograms) of chromium were removed from the aquifer by pumping over the 2013 annual reporting period, as discussed in Table 4-1. The total mass of chromium removed by the IM-2 and IM-3 extraction systems during IM pumping from March 2004 through December 31, 2013, is approximately 7,800 pounds (3,540 kilograms). The average annual pumping rate during the 2013 reporting period was 130.1 gpm, with pumping mainly from extraction wells TW-3D and PE-1.

During the month of August, a series of lightning strikes at the IM-3 treatment facility and to the City of Needles power system caused significant damage to electrical components at the treatment facility. On August 18, 2013, the lightning strikes caused the flow meters at both TW-3D and PE-01 to fail. However, the extraction pumps continued to operate following the lightning strikes without operable flow meters. Flow meters were replaced as soon as they were available. The flow meter at PE-01 was replaced on August 29, 2013, and the flow meter at TW-3D was replaced September 4, 2013. Chromium removed estimates for this period only include data from when the flow meters were operating correctly. Therefore, chromium mass removal in August and September is an underestimation of actual mass removal. Because the extraction wells' flow meters were not operable for a portion of the months of August and September, the monthly extraction rate and volume was estimated by subtracting the average input flow from the process drain tank from the raw water storage tank output flow at the IM-3 facility.

Figure 5-1 summarizes the monthly pumping rates, cumulative volumes extracted, and the percentage of time that the extraction system was in operation during the 2013 reporting period. This figure shows that pumping rates were relatively consistent month to month, with IM-3 running at close to maximum capacity. The consistent high pumping rates are corroborated by the high percentage of uptime for the IM extraction and treatment facilities throughout the year. The decrease in uptime during April 2013 was due to the planned annual treatment plant maintenance event. The decrease in August 2013 was due to the planned semiannual treatment plant maintenance.

5.1.2 Extracted Groundwater Quality and Trends

Extraction well TW-3D was brought online in late December 2005, and groundwater extraction at well PE-1 on the floodplain began on January 25, 2006; both wells have been operating continuously for the IM. Table 5-2 presents the analytical results for Cr(VI), chromium, and TDS for extraction wells TW-3D and PE-1 during the 2013 reporting period.

The Cr(VI) and TDS concentration trends for TW-3D and PE-1 are plotted on Figure 5-2. During the 2013 reporting period, Cr(VI) concentrations in TW-3D remained stable, ranging from a maximum value of 1,020 µg/L in February 2013 to a minimum value of 728 µg/L in September 2013. TDS concentrations in TW-3D for this period have remained stable.

The Cr(VI) concentrations in the extracted groundwater at well PE-1, located on the floodplain, have ranged from 8.1 to 4.7 µg/L during the reporting period, with a slow declining trend, as shown on Figure 5-2. TDS concentrations in PE-1 for this period have remained stable.

5.2 Capture Zone Analysis for Annual Reporting Period

5.2.1 Monthly Average Gradients

Table 5-3 presents the hydraulic gradients measured between the selected gradient control well pairs during the period January 2013 through December 2013. The overall average gradient for well pairs exceeded the target landward gradient for each month in the reporting period. In addition, the IM target landward gradient criterion of 0.001 ft/ft was met each month at individual gradient control well pairs during the annual reporting period. While exceeding the performance standard each month the gradient was calculated, the northern well pair (MW-31-135/ MW-33-150) generally had the lowest measured gradients because it is not aligned along the gradient generated by pumping. The gradient measurements at the northern well pair underestimate the true gradient.

Figure 5-3 summarizes the overall average monthly hydraulic gradient, individual well pair gradients, and the river stage and average pumping rates during the 2013 reporting period. During the annual reporting period, the average daily river levels ranged from a high of 458.1 feet above mean sea level (April 2013) to a low of 451.4 feet above mean sea level (December 2013). Strong overall average landward gradients were measured each month, even during the lower river stages observed in January, November, and December 2013.

5.2.2 Annual Average Gradients

Groundwater contour maps presenting the annual average groundwater elevation data in the upper, mid-depth, and lower aquifer intervals are shown on Figures 5-4A through 5-4C for the 2013 reporting period. The Fourth Quarter 2013 Cr(VI) contours are also shown on the annual average gradient maps. The annual average groundwater elevation data are presented in floodplain Cross-section A on Figure 5-5. Table E-2 presents a listing of the annual average, minimum, and maximum groundwater elevations for the wells used for the 2013 performance monitoring evaluation.

The net annual landward gradients illustrated on the aquifer interval maps (Figures 5-4A through 5-4C) show that the gradients are landward and are comparable to the gradient maps prepared using previous monitoring data (CH2M HILL, 2009d-f, 2010a-d, 2011a-d, and 2012a-d, 2013a-d).

5.2.3 Analysis and Evaluation of Capture Zone

The methodology and results of the capture zone evaluations for 2013 are summarized in the following subsections.

5.2.3.1 Well Group Gradient Averaging

The temporal variation in magnitude and direction of horizontal hydraulic gradients in the lower-depth aquifer interval was assessed using quarterly average water levels and triangulation with linear interpretation for two well groupings (MW-31-135/MW-33-150/MW-34-100 and MW-45-95/MW-34-100/MW-27-85) in the IM performance area. Figure 5-6 shows the two well groupings and the calculated average gradients for all four quarterly monitoring periods in 2013.

This analysis shows that strong landward gradients were achieved during the 2013 monitoring period and that there was minimal variation in the magnitude and direction of the landward gradients during each quarter. These gradients are not the same as those calculated between the gradient control well pairs (Table 5-3) because they are calculated net gradients within the plane formed by each three-well group. Stronger landward gradients were calculated using the three-well method than those measured for the northern well pair MW-31-135/MW-33-150 (Table 5-3) due to a more optimally aligned gradient direction.

5.2.3.2 Particle Track Analysis

For the 2006 performance evaluation, particle tracking was conducted to calculate the direction and distance that groundwater would likely flow using selected starting points in the floodplain under the dual well (TW-3D and PE-1) IM pumping system. During 2006 IM operations, TW-3D and PE-1 were pumping a combined annual average rate of 131.8 gpm. Completion of particle tracking analysis using 2013 data was not performed because the pumping locations have not changed, the combined pumping rates for 2013 are estimated to be essentially the same (129.7 gpm) as 2006, river elevations were similar, and the gradients for the lower interval were comparable for the 2006 and 2013 annual periods. The 2006 annual IM performance evaluation report (CH2M HILL, 2007) contains the particle tracking figure and the methods, input parameters, and data used for this analysis.

5.3 Evaluation of Groundwater Quality Trend

5.3.1 Cr(VI) Distribution and Trends

Figure 4-1 presents the Fourth Quarter 2013 Cr(VI) concentration results in floodplain wells in the upper, mid-depth, and lower intervals of the Alluvial Aquifer. The Cr(VI) contours presented on this figure incorporate data from the most comprehensive sampling event of the year.

Figure 5-7 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through December 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 December 2013. Sample results for the 2013 reporting period are presented in Table 3-1.

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 remained at these levels during the fourth quarter 2013 period. A review of Figure 5-7 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) concentration trends for the PMP wells sampled during the 2013 reporting period include:

- Concentrations at the MW-20 cluster (located near the TW-3D pumping well) indicate generally stable concentrations at the shallow well MW-20-070 (since 2010), decreasing concentrations at MW-20-100 (since May 2007), and variable concentrations at MW-20-130 (Figure C-3).
- As shown on Figure 5-7 and Figure C-6, well MW-34-100 has shown a seasonally fluctuating trend in Cr(VI) concentration over the past 5 to 6 years. However, since June 2006, concentrations at this well have shown a general downward trend. Landward gradients have been present at this location since IM pumping began; therefore, the seasonal fluctuations in concentration observed at MW-34-100 do not indicate movement of the plume toward the river.
- Deep well MW-36-100 Cr(VI) concentrations initially increased upon the startup of PE-01 pumping, began to decrease in 2007, and have remained less than 100 μg/L since late 2008, as shown on Figure 5-7 and Figure C-7.
- Deep well MW-39-100 concentrations steadily declined since the start of IM pumping, with the lowest concentration observed to date in December 2013, as presented on Figure C-8.
- Deep well MW-44-115 has shown a downward trend since July 2006, as presented on Figure 5-7 and Figure C-10. Well MW-44-125 has also shown an overall downward trend since November 2008, as presented on Figure 5-7 and Figure C-10.
- Concentrations in deep well MW-46-175 have shown a seasonally fluctuating, but overall downward, trend since 2007, as presented in Figure 5-7 and Figure C-11.
- Well TW-04, a deeper well, has shown a declining trend since March 2007, as presented in Figure C-19.

5.3.2 Groundwater Geochemistry in Interim Measures Extraction Area

5.3.2.1 Oxidation-reduction Potential Evaluation

Figure 5-8 shows the concentrations and distributions of Cr(VI), ORP, nitrate at Nitrogen, manganese, iron, and arsenic from the Fourth Quarter 2013 sampling event. Arsenic and manganese samples were collected to establish baseline conditions of in situ byproducts that may be produced when the groundwater remedy is implemented. Figure 5-9 shows these same results on Cross-section A, which runs west-to-east along the floodplain. The distribution of these redox indicator parameters shown on Figures 5-8 and 5-9 is generally consistent to previous years. Reducing conditions are prevalent in wells completed near the Colorado River—where there is a higher level of organic material in the fluvial sediments—than wells located further from the Colorado River that are completed in alluvial sediments with lower organic carbon content.

5.3.2.2 General Chemistry Evaluation

Table F-1 in Appendix F presents the results of the general chemistry and stable isotope analyses for 15 PMP monitoring wells and two river stations during sampling events from March 2005 through December 2013. In July 2008, DTSC approved modifications to the PMP IM chemical PMP (DTSC, 2008b). With those modifications, nine monitoring wells and one river station are now sampled for IM chemical performance monitoring.

Fifteen floodplain wells were sampled for chemical performance monitoring parameters over the period of March 2005 through January 2013. The majority of the field parameters in groundwater samples from these wells remained stable through the reporting period, as illustrated in Table 3-1 and Table D-4. Shallow-depth wells exhibit both increases and decreases in some of these same parameters over the reporting period, but in these cases, it is interpreted as natural variation because some values were similar to those measured in previous years.

5.3.2.3 Stable Isotope Evaluation

Analysis of the stable isotopes of oxygen ($\delta^{18}O$) and deuterium ($\delta^{2}H$) provide a method of tracking the mixing occurring in floodplain groundwater as a result of IM extraction.

Figure 5-10 shows the results of ($\delta^{18}O$) and ($\delta^{2}H$) in floodplain wells using data collected during the annual reporting period. The points that plot to the upper right in this plot are considered heavier in isotopic signature (that is, enriched in heavy isotopes), while the points that plot to the lower left are considered lighter in isotopic signature. In this plot, the lighter signatures are found in the river signature and some offsite fluvial wells samples, whereas the heaviest signatures are found in selected floodplain wells, which likely contain higher percentages of water that has flowed from the upland areas or has been affected by evaporation in the cooling towers.

The effects of IM pumping on the isotopic signature of floodplain wells have been plotted on Figures 5-11a through 5-11c. The percent river water signature was calculated by using composite statistics for ($\delta^{2}H$) isotope data from site river water samples (light fraction) and groundwater samples with greater than 3,000 µg/L Cr(VI) (heavy fraction; termed “industrial water”) between 2004 and 2013. The posted percentages each represent the sample’s calculated river water signature percentage, with 100 percent being essentially the same ($\delta^{2}H$) signature as river water and 0 percent being equal to the industrial water signature. It is evident that isotopic signature in most industrial signature wells has become more similar to river water since IM pumping began. This is a result of the continuous landward gradient created by IM pumping and the resultant mixing of industrial water with river-influenced groundwater. These changes are most likely due to lateral and downward movement of shallow floodplain water, which has an isotopic signature similar to river water.

5.4 Conclusions and Status of Interim Measures Operations

5.4.1 Performance Evaluation

As of March 2013, the IM has operated full time for 10 years and has been successful in meeting the IM objectives and performance criteria. This section summarizes the conclusions of IM operations and performance monitoring for the 2013 reporting period.

5.4.1.1 Attainment of Performance Standard

Throughout 2013, the IM extraction system (combined wells TW-3D and PE-1) operated at the target pumping rate of 135 gpm, excluding periods of planned and unplanned downtime. The operational run-time percentage for the extraction system was 96.0 percent during the 2013 reporting period. The average pumping rate for the IM extraction system, including downtime, during the annual period was 130.1 gpm. The results and conclusions of the 2013 performance evaluation include:

- A total of 68,362,245 gallons of groundwater was extracted and treated at the IM-3 system during the annual reporting period. The IM system removed approximately 374 pounds (170 kilograms) of chromium from the aquifer during the reporting period.
- The IM pumping rate was sufficient to exceed the minimum overall average landward gradient throughout the 2013 annual reporting period. The strong landward gradients were maintained even during the period of lower river stages in January 2013 and November 2013 through December 2013.
- The current gradient well pairs are adequate to define the capture of the plume while pumping from extraction wells TW-3D and PE-1, although the northern pair particularly underestimates the gradient because it is aligned at an angle to the true gradient.
- The annual average hydraulic gradient monitoring data showed that all floodplain monitoring wells where Cr(VI) was detected at greater than 20 μg/L were within the capture zone of the IM extraction system during the 2013 reporting period.

5.4.1.2 Cr(VI) Distribution and Trends

The key conclusions on Cr(VI) distribution and trends observed in the IM performance monitoring area during 2013 include:

- Overall, the groundwater Cr(VI) concentrations in the floodplain are stable or decreasing. The ongoing monitoring has shown marked decreases in Cr(VI) concentration in the floodplain areas where IM pumping exerts a strong influence on hydraulic gradients (for example, well clusters MW-36, MW-39, and MW-44).
- MW-34-100 has shown a seasonally fluctuating trend in Cr(VI) concentration over the past 6 to 7 years. However, since June 2006 concentrations at this well have shown a general downward trend. Landward gradients have been present at this location since IM pumping began; therefore, the seasonal fluctuations in concentration observed at MW-34-100 do not indicate any movement of the plume toward the river.
- The groundwater ORP, stable isotope, and river signature calculated from stable isotope data continue to confirm that continued IM extraction is drawing more oxidizing river-influenced groundwater into the performance monitoring area.

5.4.2 Status of Operations and Monitoring

Per DTSC direction, PG&E will continue to operate both TW-3D and PE-1 at a target combined pumping rate of 135 gpm, except for periods of planned and unplanned downtime. Treated groundwater will be discharged into the IM-3 injection wells in accordance with compliance requirements of the waste discharge applicable, relevant, and appropriate requirements, as documented in Attachment A to the Letter Agreement issued July 26, 2011 (California Regional Water Quality Control Board, 2011). Saline water generated as a byproduct of the reverse osmosis process will continue to be transported offsite for treatment and disposal.

PG&E will balance the pumping rates between TW-3D and PE-1 to maintain the target pumping rate and maintain appropriate hydraulic gradients across the Alluvial Aquifer. If, at any time, hydraulic data indicate that PE-1 pumping has the potential to draw higher concentrations of chromium away from the capture zone of TW-3D, PG&E will request authorization from DTSC to increase the pumping rate at TW-3D and decrease the rate at PE-1. TW-2D will continue to serve as a backup extraction well to TW-3D and PE-1.

Current USBR projections show that the river levels will increase during the next quarterly reporting period (January through March 2014) through April and decline from April into the winter. By April 2014, the average

monthly river elevations are projected to reach their maximum level of the year. The lowest river levels during the upcoming IM operations year are expected to occur in December 2014.

6.0 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. Monitoring results, operations, and performance monitoring data will be reported in the First Quarter 2014 quarterly monitoring report, which will be submitted by April 30, 2014.

6.1 Groundwater Monitoring Program

6.1.1 Quarterly Monitoring

As described in the July 23, 2010, DTSC sampling schedule approval (DTSC, 2010a), the first quarter monitoring event occurred February 10 through February 27, 2014. This sampling event was conducted at 56 GMP wells, including wells in the East Ravine area.

6.1.2 Monthly Monitoring

Monthly sampling of the two active extraction wells (TW-3D and PE-1) will continue to be performed during the first 2 weeks of each month. Results will be reported in the First Quarter 2014 monitoring report.

6.2 Surface Water Monitoring Program

The RMP low river event occurred January 13 and 14, 2014. The First Quarter 2013 surface water monitoring event was conducted March 12 and 13, 2014, at locations in the RMP monitoring network. Results will be reported in the First Quarter 2014 quarterly monitoring report.

6.3 Performance Monitoring Program

6.3.1 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 First Quarter 2014, 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.

6.3.2 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), and the MW-33 cluster will continue to be conducted via telemetry during First Quarter 2014. Downloads of the remainder of the transducers will occur during the first week of each month during First Quarter 2014.

7.0 Recommendations

This section presents the recommended modifications to the PMP and GMP.

7.1 Recommended Modifications to the Performance Monitoring Program

Sample results for all wells have generally remained below their respective trigger levels since they were established in August 2006 and approved in July 2008 (CH2M HILL, 2006; DTSC, 2008b), and most wells greater than the IM performance standard of 20 µg/L for Cr(VI) show stable or decreasing trends (see Appendix C). Therefore, no change in trigger levels is recommended at this time. Some wells in the PMP contingency plan do have recommended frequency changes, as described below.

7.2 Recommended Modifications to the Groundwater Monitoring Program Reporting Schedule

PG&E proposes a modified reporting schedule, as shown in Table 7-1. This schedule modification would add two weeks to the preparation and submittal of the third quarter report. Under the present schedule, third quarter sampling is shifted a month later in the year to September and October so that sensitive floodplain habitat is not disturbed until October. This, in turn, shifts the preparation for the third quarter report later so that submittal immediately follows the Thanksgiving holiday. Report submittal in the first half of December would reduce the holiday impact on report preparation and internal review that is ultimately due to the third quarter sampling schedule being protective of biological resources.

The current reporting schedule shown in Table 7-1 was adopted in 2010 to condense the time between field sampling events and data submittal for all four quarterly GMP sampling events. This proposed modification to only the third quarter reporting schedule is recommended to accommodate laboratory analysis, data management, and review as a result of both the later start of the sampling event, and the increased number of wells being sampled during each GMP event. For example, since the last schedule change in 2010, more than 30 additional East Ravine and Topock Compressor Station wells were added to the GMP monitoring program. This has resulted in increased sampling event duration and a larger number of analytical results to validate and present with in each quarterly report.

7.3 Recommended Modifications to Groundwater Monitoring Program Sampling Frequency and Analytical List

With the Fourth Quarter and Annual 2012 GMP Report, PG&E proposed a revised frequency and sampling plan for the GMP. That proposal underwent some preliminary discussion with DTSC, but agency review was not completed due to time constraints of the concurrent groundwater remedy design process. With the 2013 annual report, PG&E is revising those recommendations, with only minor changes based on: (1) review of the additional data collected over 2013 and (2) refinement of groundwater remedy monitoring needs during 2013.

PG&E and its contractors will review this proposal with DTSC during technical calls in Second Quarter 2014 before implementing the proposed plan for the third quarter GMP sampling event beginning September 2014. This review schedule during April and May should avoid conflict with remedy design efforts.

The current and proposed sampling plan is shown in Table 7-2. The limited revisions within Table 7-2 since the 2012 annual report recommendations are shown as underlined text.

Review of the GMP monitoring program to prepare these new recommendations considered the following factors, as shown in Table 7-2:

- Trends for COPC concentrations (decreasing, increasing, variable, or stable), based on historical data tables and the trend plots in Appendix C

- Data needs and timing for remedy design, including analyte sets such as annual water quality, redox indicators, and Title 22 or background metals
- Location of wells relative to the plume
- Role of current wells under the final remedy

An overarching consideration was optimizing the use of the upcoming monitoring interval until remedy startup. For this purpose, the biennial GMP sampling event schedule for Fourth Quarter 2015 would collect a comprehensive data set, serving as a key element of the last "baseline" data before remedy startup in 2016.

As of March 2014, the final groundwater remedy design is approaching 90 percent submittal, and the remedy is scheduled to start up in early 2016. Data cutoffs for the remedy design process represent a site milestone, following 10 years of interim measures groundwater extraction and almost 9 years of IM-3 operation at 120 to 130 gpm. Given the time frame of 2 years before start of the final remedy, sampling frequency modifications are proposed to focus on large biennial data sets, the data presented in this report from the 2013 biennial sampling event, and a pre-startup baseline data set from the next biennial event late in 2015. Monitoring between these two large events is focused on wells with variable data trends and wells in locations considered to be of greater interest or sensitivity.

Changes to sampling frequency proposals in Table 7-2 since it was first presented in 2013 are as follows:

- No change in sampling frequency is proposed for the five California slant wells at MW-52 and MW-53,
- No change in sampling frequency is proposed for the eight Arizona monitoring wells at MW-54, MW-55, and MW-56.
- No change in sampling frequency is proposed for the upland OW-3 well location.
- Change from quarterly to semiannual frequency is proposed for test well TW-1 located within the chromium plume at Topock Compressor Station.

The end point in time for this monitoring proposal is the remedy monitoring plan included in the basis of design documents (CH2M HILL, 2013e). At startup, remedy monitoring will supersede all current groundwater monitoring programs.

There are several exclusions from this review and proposed modification to the GMP sampling program. No changes are proposed to the annual water level snapshot data collection. The 17 wells sampled under the IM-3 injection area Compliance Monitoring Program (CMP) were excluded from these recommended sampling frequency modifications. The RMP was not considered in this review.

7.3.1 Groundwater Monitoring Program Sampling Frequency Modifications

Table 7-2 shows current and proposed sampling frequencies, including some considerations such as data trends and typical concentrations that guided the proposed modifications. Figure 1-2 shows the current GMP sampling frequencies, and Figure 7-1 shows the proposed GMP sampling frequencies.

The current sampling frequencies range from biennial to monthly. The following bullets describe the sampling frequencies and proposed modifications. Listed from low to high frequency, each lower-frequency event (for example, biennial or annual) includes all the wells contained in higher-frequency events (for example, semiannual, quarterly).

- Biennial sampling (Fourth Quarter 2015, sampling in November and December). Like the annual frequency, this event occurs during the winter low water level season for the Colorado River. The proposed modification is to move wells with stable or decreasing concentration trends to biennial frequency. This frequency affords large data sets late in the ongoing remedy design process and again shortly before remedy startup.
- Annual sampling (Fourth Quarter 2014, sampling in November and December). This sampling event includes manual measurements of water levels from wells in the shallow depth zone for the annual water-level

snapshot. This event is currently used for an annual water quality and general chemistry snapshot, which is proposed to become a biennial activity. Annual frequency wells are also sampled biennially.

- Semiannual sampling is conducted in the second quarter during April and May, first sampling the set of wells near floodplain vegetation in April to protect potential bird nesting habitat. Colorado River water levels are generally rising toward summer high levels at this event. The current semiannual frequency would be implemented in Second Quarter 2014, before review, approval, and implementation of the proposed modifications. Semiannual frequency wells are also sampled annually and biennially.
- Quarterly sampling is conducted in first quarter (February) and third quarter (September-October). The floodplain well locations close to potential nesting habitat are sampled later in the fall third quarter event. Quarterly frequency wells are also sampled semiannually, annually, and biennially.
- Monthly sampling is currently conducted year round for IM-3 extraction wells and during the winter low water-level season (November through February) for two monitoring wells (MW-34-100 and MW-46-175). Based on consistent trends, continued quarterly sampling is proposed for these two monitoring wells without the added monthly winter events. Monthly sampling would continue from extraction wells PE-1 and TW-3D.
- A new frequency is proposed for several wells in Bat Cave Wash and the East Ravine. The wells would be sampled at the proposed schedule (for example, quarterly, semiannually, etc.) but additionally, a sample would be collected at the next quarterly event following a rainfall event producing significant flow in the wash.

It is also proposed that the Fourth Quarter/Biennial 2015 event be tracked for planning with the remedy design process, this being the most comprehensive opportunity to fulfill additional data needs identified before startup.

7.3.2 Groundwater Monitoring Program Analytical Plan Modifications

Table 7-2 also shows the current and proposed analytical suites for each GMP well. The sets of analyses performed with the GMP evolved and expanded from 2004 to 2011. The following proposals are an effort to simplify the number of sample analysis suites. Current sampling and proposed changes are described below.

- Dissolved chromium, Cr(VI), and chromium would continue to be analyzed without modification. These are coded as “Cr” in Table 7-2.
- COPCs (consisting of molybdenum, selenium, and nitrate) and in situ reduction byproducts (BP) (consisting of arsenic and manganese) will also continue to be analyzed. No further sampling for fluoride is proposed with the COPC analyses. These are coded as “COPC” and “BP” in Table 7-2.
- Annual water quality analyses (AWQ) and the similar but larger suite of performance monitoring analyses (PMP) are both proposed to be replaced with biennial water quality analyses (BWQ).
- BWQ is a new biennial water quality suite intended to provide a comprehensive look at water chemistry in Fourth Quarter 2015. BWQ includes the former AWQ analyte list, adds alkalinity from the PMP list, and adds molybdenum and selenium metals analyses from the COPC list (nitrate is already included from the AWQ list). This approach allows BWQ to provide a site-wide COPC snapshot. For wells where the influence of river water is analyzed, $\delta^{18}O$ and $\delta^{2}H$ are included. The addition of ammonia to these general chemistry suites allows for chemical assessment of redox conditions (coded as “RDX” in Table 7-2)

Given the long-term metals data sets for Title 22 and background metals, and the ongoing COPC and BP analyses, no further Title 22 and background metals analyses are proposed over the interval before remedy startup. Under the current design monitoring plan, remedy monitoring with startup in 2016 will include COPCs and selected metals as a subset of Title 22 and background metals lists.

Some revisions were made to analytical recommendations in Table 7-2 compared to the proposal presented in 2013, based on remedy design and baseline data collection needs. These revisions consist of adding COPC and/or BP analyses to make sure COPC and BP are sampled from a set of upland wells at MW-09, MW-11, MW-41, OW-1,

OW-5, CW-1, and CW-2. These locations are near injection wells proposed with the groundwater remedy. The changes from the previous annual report are underlined on Table 7-2.

7.4 Recommendation for Site-wide Implementation of Micropurge Groundwater Sampling Method

This section presents the recommended modification to the groundwater sampling method employed for the PMP and GMP. Based on results from the field trial of alternative sampling methods that was performed 2012 and 2013 (summarized in Appendix H), it is proposed that micropurge minimal-drawdown purging methods be employed for groundwater sample collection instead of the currently used three-volume purge method. Appendix H includes a technical memorandum *Groundwater Analytical Results for Field Trail of Alternative Sampling Approaches*, presenting the methods and results from this technology trial, with tables and figures showing trial results and analysis. The trial results and this recommendation are discussed below, along with specific exceptions to the recommendation. A transition to micropurge minimal-drawdown sampling would offer a number of benefits to project sustainability, including reduced sampling footprint or presence at well sites, reduced purge water volume for conveyance to IM3 and disposal, and reduced emissions with less frequent on-site purge water disposal trips to IM3.

7.4.1 Field Technology Trial

The trial was conducted during quarterly GMP sampling events from Third Quarter 2012 through First Quarter 2013, following the approved plan *Topock – Proposed Technical Trial for Alternative Sampling Approaches at Selected Monitoring Wells* (CH2M HILL, 2012e). Three sampling approaches were compared:

- The current three-volume purge sampling method
- Micropurge sampling
- HydraSleeve™, a 'no-purge' sampling method

Eighteen wells were sampled by these three methods, with samples submitted for laboratory analyses of chromium, COPCs, byproducts, and general chemistry cations, anions and alkalinity. Table H-1 in Appendix H lists the wells used for the study along with information considered in their selection.

7.4.2 Trial Results

The detailed technical memorandum in Appendix H includes sets of figures presenting the trial data to illustrate comparability and differences found between the three sampling approaches tested. Table H-2 shows well by well laboratory results from the three sample collection methods. The figure sets display results for Cr(VI), molybdenum, nitrate as nitrogen, and selenium.

Figures H-1 through H-6C are three-panel maps that show Cr(VI) and molybdenum, nitrate, and selenium analyte results from each of the three quarterly events using the three different sampling methods. On each of these figures, the panels show the shallow, middle, and deep groundwater depth zones. These maps use the same color-coding by concentration that is used in Figures 3-1A through 3-1C and 3-2A through 3-2E discussed earlier in this report. The key information conveyed by Figures H-1 to H-6C is the general lack of significant differences in interpretation of nature and extent of contaminants from the three-volume-purge sample data and the results from the alternative sampling methods in the trial; this is further discussed in the technical memorandum. Figures H2-1 through H2-18 are a set of histograms that provide a visual presentation of the Cr(VI) results for each well and sampling method through the three-quarter trial.

Figures H-7A through H-12B are scatter or correlation plots with both of the two alternative sampling method results compared to three-volume-purge results for Cr(VI), molybdenum, nitrate and selenium, respectively. These plots also show a 1:1 correlation line, the best fit regression line and calculated r^2 correlation value, and dashed bands for the 95 percent confidence interval. These figures show close correlation between both of the alternative sampling methods and the three-volume-purge results, with somewhat less variability in micropurge results than seen in Hydrasleeve™ results.

7.4.3 Sampling Approach Recommendation

Based on the results presented in Appendix H, a change to micropurge groundwater sample collection is proposed to replace the currently used three-volume purge approach. This change is proposed for monitoring wells in alluvial materials, including all of the “floodplain” GMP monitoring wells east of National Trails Highway and “upland” monitoring wells north of the Topock Compressor Station. This recommendation includes the OW-1, OW-2, OW-3, and OW-5 observation wells of the CMP sampling program, subject to United States Department of the Interior and California Regional Water Quality Control Board approval as well.

The exception to the general agreement between results from the three sampling approaches was seen at MW-61-110, which was the only bedrock screened well included in the study. Accordingly, the recommended change to micropurge sampling does not include bedrock monitoring or former production wells with long open bores or the CW compliance wells under the CMP program, which have 50-foot screen lengths.

We are currently only recommending micropurge for alluvial/fluvial screened wells. All screened bedrock wells will remain with their current sampling approach and will require further evaluation before further recommendations can be made. Test wells excluded from this recommended change to micropurge sampling include: TW-1, TW-4, and TW-5, and CMP wells CW-01, CW-02, CW-03, and CW-04. Finally, extraction wells TW-2D, TW-2S, TW-3D, and PE-1 and production wells PM-03 and PM-04 would continue to be sampled from ports while the high-capacity pump in each of these wells is operating.

7.5 Schedule for Recommendations Review

PG&E proposes to use regular technical calls, and at least one separately scheduled call focused on this report, with DTSC and the United States Department of the Interior to discuss and review the recommendations presented with this report. PG&E requests that review of these recommendations be completed by June 2014.

8.0 References

Arizona Department of Environmental Quality (ADEQ). 2010. Email. "Re: Reminder – sampling frequency modification for Arizona wells proposed with 4Q2009 data submittal." April 23.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 2005a. Letter to PG&E. "Requirements for Groundwater and Surface Water Monitoring Program, Pacific Gas & Electric Company, Topock Compressor Station, Needles, California (EPA ID No. CAT080011729)." April 26.

_____. 2005b. Letter to PG&E. "Criteria for Evaluating Interim Measures Performance Requirements to Hydraulically Contain Chromium Plume in Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California (EPA ID No. CAT080011729)." February 14.

_____. 2005c. Letter. "Contingency Plan for Sentry Well Groundwater Monitoring." February 14.

_____. 2007a. Letter. "Approval of Updates and Modifications to the Interim Measures Performance Monitoring Program. Pacific Gas & Electric Company, Topock Compressor Station." October 12.

_____. 2007b. Letter. "Updates and Modifications to the PG&E's Topock Interim Measures Performance Monitoring Program. PG&E Topock Compressor Station, Needles, California." July 27.

_____. 2007c. Letter. "Conditional Approval of Updates and Modifications to the Groundwater and Surface Water Monitoring Program, Pacific Gas & Electric Company, Topock Compressor Station." September 28.

_____. 2008a. Letter. "Modifications to Hydraulic Data Collection for the Interim Measures Performance Monitoring Program at Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California." July 14.

_____. 2008b. Letter. "Modifications to Chemical Performance Monitoring and Contingency Plan for the Floodplain Interim Measures Performance Monitoring Program at Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California." July 17.

_____. 2009a. Email. "Re: Request for Combined Reporting of Topock GMP and PMP." May 26.

_____. 2009b. Letter. "Comments on January 27, 2009 Draft Corrective Measures Study/Feasibility Study (CMS/FS) Report for SWMU1/AOC1, (EPA ID NO. CAT080011729)." March 26.

_____. 2010a. Email. "Re: Topock GMP sampling event timing and reporting schedule." July 23.

_____. 2010b. Email. "Re: Topock GMP Monitoring Frequency Modification." March 3.

_____. 2010c. Letter. "Arizona Monitoring Well Sampling Frequency Modification. Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California." April 28.

_____. 2011. Email. "Re: Topock GMP COPC sampling plan: topic for weekly tech calls." November 18.

_____. 2013. Letter. "Repairing Wells in Accordance with California Well Standards at Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California (EPA ID NO. CAT080011729)." January 28.

California Regional Water Quality Control Board, Colorado River Basin Region (Water Board). 2011. Letter to DOI. "Enforcement of Applicable or Relevant and Appropriate Requirements for the Interim Measure 3 Facility – PG&E Topock Compressor Station Site." July 26.

CH2M HILL. 2005a. *Performance Monitoring Plan for Interim Measures in the Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*. April 15.

_____. 2005b. *Sampling and Analysis Field Procedures Topock Program Manual, Revision 1, Pacific Gas and Electric Company, Topock Project.* March 31.

_____. 2007. *Performance Monitoring Report for Fourth Quarter 2006 and Annual Performance Evaluation, February 2006 through January 2007, PG&E Topock Compressor Station, Needles, California*. April 6.

_____. 2008. *Groundwater Background Study, Steps 3 and 4: Final Report of Results, PG&E Topock Compressor Station, Needles, California*. July 23.

_____. 2009a. *Revised Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2—Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*. February 11.

_____. 2009b. *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*. June 29.

_____. 2009c. *Final Groundwater Corrective Measures Study/Feasibility Study Report for SWMU 1/AOC 1 and AOC 10, Appendix A, PG&E Topock Compressor Station, Needles, California*. December 16.

_____. 2009d. *Performance Monitoring Report for, First Quarter 2009, February through April, 2009*, *PG&E Topock Compressor Station, Needles, California*. May 29.

_____. 2009e. *Second Quarter 2009 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 28.

_____. 2009f. *Third Quarter 2009 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. November 30.

_____. 2010a. *Fourth Quarter 2009 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. March 15.

_____. 2010b. *First Quarter 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. May 28.

_____. 2010c *Second Quarter 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. November 30.

_____. 2010d. *Third Quarter 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 30.

_____. 2011a. *Fourth Quarter 2010 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. March 15.

_____. 2011b. *First Quarter 2011 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. April 29.

_____. 2011c. *Second Quarter 2011 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 15.

_____. 2011d. *Third Quarter 2011 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. November 30.

_____. 2012a. *Fourth Quarter 2011 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. March 15.

_____. 2012b. *First Quarter 2012 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. April 30.

_____. 2012c. *Second Quarter 2012 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 15.

_____. 2012d. *Topock – Proposed Technical Trial for Alternative Sampling Approaches at Selected Monitoring Wells (Technical Memorandum).* August 27.

_____. 2012e. *Third Quarter 2012 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. November 30.

_____. 2013a. *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*. March 15.

_____. 2013b. *First Quarter 2013 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. May 15.

_____. 2013c. Second *Quarter 2013 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 15.

_____. 2013d.*Third Quarter 2013 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. November 29.

_____. 2013e. *Basis of Design Report/Intermediate (60%) Design Submittal for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California*. April 5.

Fetter, C.W. 1994. *Applied Hydrogeology, Third Edition*. Published by Prentice-Hall Inc., New Jersey, USA.

Tables

Table 1-1

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

Program	First Quarter	Second Quarter	Third Quarter	Fourth 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, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-9	SA	05-Dec-12	259	257	2,800	-24	7.4
		09-Dec-13	240	236	2,600	31	7.5
MW-10	SA	10-Dec-12	484	461	2,700	12	7.7
		14-May-13	267	269	10,000	240	7.4
		12-Dec-13	380	367	2,500	-26	7.5
MW-12	SA	02-Oct-12	2,740	2,970	7,100	200	7.8
		27-Nov-12	2,310	2,630	6,700	100	8.0
		26-Feb-13	2,580	2,610 J	6,500	160	8.4
		26-Feb-13 FD	2,570	2,850 J	6,500	FD	FD
		09-May-13	2,440	2,620	6,300	210	8.2
		25-Sep-13	2,260	2,590	6,700	200	8.1
		10-Dec-13	2,440	2,350	7,000	-18	8.2
MW-13	SA	11-Dec-12	20.2	24.6	2,000	-8.9	7.6
		13-Nov-13	19.4	16.9	2,000	140	7.5
MW-14	SA	13-Dec-12	19.9	21.8	1,700	-18	7.6
		19-Dec-13	17.2	17.3	1,700	5.0	7.5
MW-15	SA	15-Nov-12	10.6	11.4	1,600	110	7.7
		11-Nov-13	10.7	10.3	1,400	280	7.7
MW-16	SA	08-Nov-12	9.7	10.0	1,300	-46	8.1
		24-Apr-13	10.6	10.4	1,100	200	8.0
		06-Nov-13	8.5	8.3	920	150	8.1
MW-17	SA	03-Dec-12	13.0	14.0	1,400	160	8.0
		24-Apr-13	12.9	11.8	1,500	220	7.9
		11-Nov-13	11.8	11.6	1,200	260	8.0
MW-18	SA	04-Dec-12	20.0	20.7	1,400	130	7.5
		11-Nov-13	18.6	17.5	1,200	230	7.6
MW-19	SA	04-Oct-12	250	241	2,200	220	7.1
		26-Nov-12	209	212	2,200	160	7.4
		12-Mar-13	202	197	2,100	200	7.2
		02-May-13	335	331	2,000	240	7.4
		02-May-13 FD	336	341	1,900	FD	FD
		05-Dec-13	522	487	2,100	190	7.6
MW-20-70	SA	04-Oct-12	3,280	3,030	2,300	210	7.4
		27-Nov-12	3,020	3,110	2,300	110	7.5

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-20-70	SA	12-Mar-13	3,160	3,310	2,200	220	7.4
		09-May-13	2,800	3,040	2,000	240	7.7
		11-Dec-13	2,140	2,520	1,900	16	7.6
MW-20-100	MA	04-Oct-12	3,700	3,590	2,900	220	7.0
		29-Nov-12	2,910	3,090	2,600	150	7.3
		13-Mar-13	3,170	3,290	2,600	160	7.1
		09-May-13	3,340	3,780	2,600	270	7.3
		11-Dec-13	2,140	2,080	2,500	23	7.2
MW-20-130	DA	09-Oct-12	9,610	11,000	12,000	250	7.1
		29-Nov-12	9,540	9,710	11,000	170	7.2
		29-Nov-12 FD	9,560	9,270	11,000	FD	FD
		14-Mar-13	9,870	9,690	12,000	240	7.3
		14-May-13	9,120	10,500	10,000	190	7.4
		17-Dec-13	9,370	9,620	11,000	-64	7.4
		17-Dec-13 FD	9,370	10,700	11,000	FD	FD
MW-21	SA	12-Sep-12	ND (1.0)	2.0	12,000	58	R
		13-Nov-12	2.3	3.1	10,000	9.0	7.0
		07-Feb-13	2.6	4.6	8,500	200	6.9
		24-Apr-13	1.5	1.9	11,000	210	7.1
		10-Sep-13	ND (1.0)	1.5	10,000	120	7.1
		05-Nov-13	1.5	2.8	8,900	190	5.7
MW-22	SA	10-Dec-12	ND (2.0)	ND (1.0)	32,000	-52	6.6
		15-May-13	ND (1.0)	ND (1.0)	13,000	-91	6.9
		14-Nov-13	ND (1.0)	ND (1.0)	20,000	-36	6.6
MW-23-060	BR	12-Sep-12	32.8	35.2	16,000	-46	R
		08-Nov-12	31.6	35.5	19,000	61	R
		18-Feb-13	33.7	34.8	17,000	63	10.0
		23-Apr-13	34.3	38.3	19,000	100	9.4
		17-Sep-13	36.9	38.4	15,000	120	9.4
		11-Nov-13	35.9	34.9	15,000	160	9.3
MW-23-080	BR	12-Sep-12	12.8	15.9	16,000	-110	R
		12-Sep-12 FD	14.2	15.2	16,000	FD	FD
		08-Nov-12	19.2	21.6	19,000	-80	R
		18-Feb-13	11.2	10.6	17,000	50	10.7
		23-Apr-13	14.0	15.0	20,000	63	10.3

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-23-080	BR	17-Sep-13	13.7	14.3	15,000	140	9.9
		11-Nov-13	11.0	11.2	15,000	81	10.2
MW-24BR	BR	26-Sep-12	ND (1.0)	ND (1.0)	14,000	-140	7.7
		13-Nov-12	ND (1.0)	ND (1.0)	14,000	-160	8.0
		14-Mar-13	ND (1.0)	ND (1.0)	14,000	-47	8.0
		07-May-13	ND (1.0)	ND (1.0)	14,000	-190	7.8
		10-Sep-13	ND (1.0)	ND (1.0)	14,000	-180	8.1
		03-Dec-13	ND (0.2)	ND (1.0)	14,000	-230	8.0
MW-25	SA	11-Dec-12	192	216	1,700	16	7.3
		09-Dec-13	191	188	1,600	-4	7.4
MW-26	SA	04-Oct-12	1,950	1,980	4,100	190	7.0
		27-Nov-12	1,800	1,820	4,000	110	7.2
		12-Mar-13	1,820	1,710	4,100	240	7.1
		07-May-13	1,790	1,870	3,900	240	7.3
		04-Dec-13	1,970	2,000	3,800	45	7.3
MW-27-20	SA	03-Dec-12	0.25	1.3	950	-33	7.3
		15-Apr-13	ND (0.2)	ND (1.0)	1,000	-70	7.4
		04-Nov-13	ND (0.2)	ND (1.0)	900	19	7.4
MW-27-60	MA	01-Oct-12	ND (0.2)	ND (1.0)	1,100	-140	7.8
		03-Dec-12	ND (0.2)	ND (1.0)	1,000	-61	7.8
		04-Feb-13	ND (0.2)	ND (1.0)	990	-66	7.6
		04-Feb-13 FD	ND (0.2)	ND (1.0)	1,000	FD	FD
		15-Apr-13	ND (0.2)	ND (1.0)	1,100	-96	7.6
		02-Oct-13	ND (0.2)	ND (1.0)	760	-86	7.4
		04-Nov-13	ND (0.2)	ND (1.0)	950	-78	7.6
MW-27-85	DA	01-Oct-12	ND (1.0)	ND (1.0)	12,000	-51	7.3
		03-Dec-12	ND (1.0)	ND (1.0)	11,000	28	7.4
		04-Feb-13	ND (1.0)	ND (1.0)	11,000	50	7.2
		15-Apr-13	ND (1.0)	ND (1.0)	13,000	-42	7.4
		15-Apr-13 FD	ND (1.0)	ND (1.0)	13,000	FD	FD
		02-Oct-13	ND (1.0)	ND (1.0)	9,000	-38	7.2
		04-Nov-13	ND (0.2)	ND (1.0)	9,800	-16	7.3
MW-28-25	SA	05-Dec-12	ND (0.2)	1.4	1,000	43	7.3
		18-Apr-13	ND (0.2)	ND (1.0)	1,000	58	7.4
		05-Nov-13	ND (0.2)	ND (1.0)	6,700	200	7.2

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-28-90	DA	10-Sep-12	ND (0.2)	ND (1.0)	7,400	-210	7.0
		05-Dec-12	ND (1.0)	ND (1.0)	7,200	-48	7.2
		05-Feb-13	ND (0.2)	ND (1.0)	7,000	-30	7.1
		18-Apr-13	ND (0.2)	ND (1.0)	7,400	-79	7.2
		11-Sep-13	ND (0.2)	ND (1.0)	6,600	-56	7.1
		05-Nov-13	ND (0.2)	ND (1.0)	6,700	190	7.3
MW-29	SA	05-Dec-12	ND (0.2)	ND (1.0)	2,800	-67	7.3
		05-Dec-12 FD	ND (0.2)	ND (1.0)	2,400	FD	FD
		18-Apr-13	ND (0.2)	ND (1.0)	2,100	-110	7.3
		05-Nov-13	ND (0.2)	ND (1.0)	1,800 J	-74	7.2
		05-Nov-13 FD	ND (0.2)	ND (1.0)	2,300 J	FD	FD
MW-30-30	SA	03-Dec-12	ND (1.0)	5.5	28,000	-83	7.5
		15-Apr-13	ND (0.2)	ND (1.0)	9,000	-150	7.7
		15-Apr-13 FD	ND (0.2)	ND (1.0)	8,800	FD	FD
		04-Nov-13	ND (0.2)	ND (1.0)	5,300	-190	7.8
MW-30-50	MA	03-Dec-12	ND (0.2)	ND (1.0)	1,100	-26	7.8
		04-Nov-13	ND (0.2)	ND (1.0)	1,100	-120	7.6
MW-31-60	SA	13-Nov-12	334	369	3,300	77	7.3
		07-May-13	275	271	3,600	130	7.5
		03-Dec-13	422	383	3,100	20	7.5
MW-31-135	DA	15-Nov-12	12.4	13.4	12,000	110	7.6
		07-Nov-13	11.5	11.3	12,000	-110	7.7
MW-32-20	SA	05-Dec-12	ND (2.0)	ND (1.0)	45,000	-92	6.7
		16-Dec-13	ND (1.0)	ND (1.0)	40,000	-100	6.7
MW-32-35	SA	05-Dec-12	ND (1.0)	ND (1.0)	15,000	-130	7.0
		17-Apr-13	ND (1.0)	ND (1.0)	16,000	-150	7.1
		17-Apr-13 FD	ND (1.0)	ND (1.0)	15,000	FD	FD
		06-Nov-13	ND (1.0)	ND (1.0)	12,000	-79	7.2
MW-33-40	SA	10-Sep-12	ND (0.2)	ND (1.0)	10,000	-2.5	7.6
		05-Dec-12	ND (1.0)	2.8	8,300	-100	8.0
		05-Dec-12 FD	ND (1.0)	2.5	8,100	FD	FD
		25-Feb-13	ND (0.2)	ND (1.0)	6,100	47	8.0
		22-Apr-13	ND (0.2)	ND (1.0)	7,000	82	8.1
		16-Sep-13	ND (1.0)	ND (1.0)	10,000	180	7.7

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-33-40	SA	03-Dec-13	ND (1.0)	ND (1.0)	9,600	110	7.9
MW-33-90	MA	24-Sep-12	16.5	17.2	10,000	170	7.1
		08-Nov-12	16.5	18.2	12,000	130	7.2
		14-Feb-13	17.8	17.9	8,700	180	7.3
		14-Feb-13 FD	16.2	18.3	8,800	FD	FD
		22-Apr-13	15.4	15.7	11,000	210	7.3
		16-Sep-13	13.6	13.6	8,800	230	7.4
		03-Dec-13	13.1	12.6	9,600	120	7.4
MW-33-150	DA	11-Sep-12	10.9	11.9	16,000	-61	7.4
		06-Dec-12	12.4	12.4	17,000	20	7.4
		05-Feb-13	11.5 J	12.5	16,000	100	7.4
		22-Apr-13	11.2	11.8	19,000	260	7.5
		16-Sep-13	10.6	10.9	15,000	160	7.4
		03-Dec-13	10.7	11.0	16,000	140	7.5
MW-33-210	DA	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
		23-Apr-13	10.2	10.6	23,000	200	7.3
		12-Sep-13	12.5	13.0	17,000	110	7.3
		03-Dec-13	12.5	13.2	18,000	140	7.4
		03-Dec-13 FD	12.9	13.0	18,000	FD	FD
MW-34-55	MA	12-Dec-12	ND (0.2)	ND (1.0)	980	-13	7.6
		20-Nov-13	ND (0.2)	ND (1.0)	780	-65	7.7
MW-34-80	DA	01-Oct-12	ND (0.2)	ND (1.0)	8,000	-31	7.4
		12-Dec-12	ND (0.2)	ND (1.0)	7,200	19	7.3
		12-Dec-12 FD	ND (0.2)	ND (1.0)	7,200	FD	FD
		05-Feb-13	ND (1.0)	ND (1.0)	7,000	120	7.3
		16-Apr-13	ND (0.2)	ND (1.0)	7,800	-12	7.2
		02-Oct-13	ND (1.0)	ND (1.0)	6,600	-37	7.4
		20-Nov-13	ND (1.0)	ND (1.0)	7,300	14	7.4
		20-Nov-13 FD	ND (1.0)	ND (1.0)	7,300	FD	FD
MW-34-100	DA	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

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-34-100	DA	12-Dec-12	228	263	---	61	7.7
		24-Jan-13	283	292	---	52	7.9
		26-Feb-13	76.8	71.9	17,000	110	7.5
		26-Feb-13 FD	77.1	71.2	17,000	FD	FD
		16-Apr-13	15.0	15.9	18,000	140	7.0
		16-Apr-13 FD	15.0	15.5	18,000	FD	FD
		02-Oct-13	82.6	79.5	15,000	80	7.6
		02-Oct-13 FD	81.5	84.5	15,000	FD	FD
		20-Nov-13	143	136	18,000	-120	7.7
		20-Nov-13 FD	137	141	18,000	FD	FD
		16-Dec-13	246	268	---	-130	7.6
MW-35-60	SA	10-Sep-12	22.7	24.5	7,600	80	8.1
		04-Dec-12	22.3	29.6	7,100	75	7.1
		19-Feb-13	24.3	25.3	6,500	140	7.8
		23-Apr-13	25.4	24.4	7,000	260	7.5
		10-Sep-13	21.9	21.2	7,000	200	7.2
		12-Nov-13	20.5	17.2	6,600	-11	7.4
MW-35-135	DA	04-Dec-12	30.6	37.7	10,000	61	7.6
		23-Apr-13	27.4	28.9	12,000	140	7.6
		12-Nov-13	29.9	27.5	9,200	58	7.8
MW-36-20	SA	04-Dec-12	ND (0.2)	ND (1.0)	6,000	-170	7.6
		04-Dec-12 FD	ND (0.2)	ND (1.0)	6,200	FD	FD
		11-Nov-13	ND (0.2)	ND (1.0)	5,500	-150	7.7
		11-Nov-13 FD	ND (0.2)	ND (1.0)	5,400	FD	FD
MW-36-40	SA	04-Dec-12	ND (0.2)	ND (1.0)	1,500	-170	7.7
		11-Nov-13	ND (0.2)	ND (1.0)	1,300	-280	7.8
MW-36-50	MA	04-Dec-12	ND (0.2)	ND (1.0)	1,100	-110	7.6
		11-Nov-13	ND (0.2)	ND (1.0)	920	-57	7.3
MW-36-70	MA	04-Dec-12	ND (0.2)	ND (1.0)	1,100	-110	7.9
		11-Nov-13	ND (0.2)	ND (1.0)	930	-17	7.9
MW-36-90	DA	04-Dec-12	ND (0.2)	ND (1.0)	1,200	-54	8.3
		15-May-13	ND (0.2)	ND (1.0)	980	210	8.3
		11-Nov-13	ND (0.2)	ND (1.0)	1,000	-90	8.3
MW-36-100	DA	10-Oct-12	68.5	72.0	9,300	-48	7.1

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-36-100	DA	08-Nov-12	62.7	72.8	10,000	-18	7.1
		11-Mar-13	58.7	58.3	8,600	23	7.2
		24-Apr-13	56.5	52.6	9,900	-9	7.2
		16-Dec-13	53.8	59.5	7,800	-140	7.2
MW-37S	MA	14-Nov-12	9.8	10.3	5,400	56	7.6
		06-Nov-13	9.8	9.3	5,000	140	7.7
MW-37D	DA	04-Dec-12	26.2	27.7	16,000	55	7.7
		30-Apr-13	108	120	15,000	170	7.5
		02-Dec-13	12.0	13.0	13,000	-180	7.7
MW-38S	SA	24-Sep-13	3.2	6.8	1,700	-170	7.6
		03-Dec-13	0.59	2.4	---	-240	7.9
MW-38D	DA	17-Sep-13	7.5	8.1	20,000	-79	8.1
		13-Nov-13	9.1	10.2	---	19	8.1
MW-39-40	SA	12-Nov-13	ND (0.2)	ND (1.0)	1,100	-150	8.0
MW-39-50	MA	03-Dec-12	ND (0.2)	ND (1.0)	1,300	120	7.9
		12-Nov-13	ND (0.2)	ND (1.0)	1,100	-34	7.8
MW-39-60	MA	03-Dec-12	ND (1.0)	ND (1.0)	1,500	32	8.0
		12-Nov-13	ND (0.2)	ND (1.0)	1,500	30	7.9
MW-39-70	MA	03-Dec-12	ND (0.2)	ND (1.0)	2,500	83	7.7
		12-Nov-13	ND (0.2)	ND (1.0)	1,800	200	7.6
MW-39-80	DA	03-Dec-12	ND (0.2)	ND (1.0)	6,700	44	7.2
		12-Nov-13	ND (0.2)	ND (1.0)	5,600	27	7.3
MW-39-100	DA	13-Dec-12	93.2	82.0	17,000	110	6.5
		04-Dec-13	52.2	53.9	14,000	110	6.7
		04-Dec-13 FD	52.2	51.4	14,000	FD	FD
MW-40S	SA	03-Dec-12	8.0	9.5	2,200	170	7.7
		11-Nov-13	8.2	8.1	1,300	270	7.7
MW-40D	DA	03-Dec-12	157	176	15,000	130	7.6
		01-May-13	134	137	14,000	250	7.4
		02-Dec-13	153	148	14,000	240	7.4
MW-41S	SA	03-Dec-12	17.7	19.1	5,000	120	7.8
		04-Nov-13	17.4	15.3	4,900	180	7.9
MW-41M	DA	05-Nov-12	9.9	13.4	16,000	-160	7.7

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-41M	DA	04-Nov-13	9.7	9.6	14,000	210	7.7
MW-41D	DA	05-Nov-12	3.3	4.4	22,000	-180	7.8
		23-Apr-13	2.9	3.0	26,000	210	7.6
		04-Nov-13	3.8	4.3	20,000	250	7.6
MW-42-30	SA	06-Dec-12	ND (0.2)	ND (1.0)	4,400	-150	7.9
		05-Nov-13	ND (0.2)	ND (1.0)	2,600	-160	7.8
MW-42-55	MA	11-Sep-12	ND (0.2)	1.7	2,600	-130	7.8
		11-Sep-12 FD	ND (0.2)	1.6	2,600	FD	FD
		06-Dec-12	ND (0.2)	1.4	2,300	-57	7.9
		04-Feb-13	ND (0.2)	1.4	2,600	-83	7.8
		16-Apr-13	ND (0.2)	1.2	2,500	-97	7.9
		11-Sep-13	ND (0.2)	2.8	1,700	-110	8.0
		05-Nov-13	ND (0.2)	2.3	2,600	-150	7.9
MW-42-65	MA	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
		17-Apr-13	ND (0.2)	ND (1.0)	8,000	-36	7.3
		11-Sep-13	ND (0.2)	ND (1.0)	6,800	-28	7.2
		05-Nov-13	ND (0.2)	ND (1.0)	7,100	-34	7.3
MW-43-25	SA	10-Dec-12	ND (0.2)	ND (1.0)	1,200	-120	7.4
		17-Apr-13	ND (0.2)	ND (1.0)	1,400	-160	7.5
		06-Nov-13	ND (0.2)	ND (1.0)	1,100	-120	7.3
MW-43-75	DA	10-Dec-12	ND (1.0)	ND (1.0)	12,000	-81	7.3
		06-Nov-13	ND (1.0)	ND (1.0)	9,700	-110	7.1
MW-43-90	DA	10-Dec-12	ND (1.0)	ND (1.0)	17,000	-36	6.9
		17-Apr-13	ND (1.0)	ND (1.0)	18,000	-80	6.9
		06-Nov-13	ND (0.2)	ND (1.0)	16,000	-80	6.9
MW-44-70	MA	06-Dec-12	ND (0.2)	ND (1.0)	2,100	-69	7.6
		22-Apr-13	ND (0.2)	ND (1.0)	2,400	-86	7.5
		02-Dec-13	ND (0.2)	ND (1.0)	2,000	-97	7.7
MW-44-115	DA	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

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-44-115	DA	24-Apr-13	64.5	65.4	13,000	180	7.9
		12-Sep-13	47.1	46.0	10,000	190	7.4
		02-Dec-13	39.5	43.1	10,000	-190	8.0
MW-44-125	DA	13-Sep-12	ND (1.0)	5.3	12,000	-190	7.9
		13-Sep-12 FD	ND (1.0)	4.0	12,000	FD	FD
		06-Nov-12	ND (1.0)	6.4	12,000	-170	7.9
		06-Nov-12 FD	ND (1.0)	5.9	10,000	FD	FD
		13-Feb-13	4.2	8.2	12,000	-130	7.9
		13-Feb-13 FD	3.5	8.4	12,000	FD	FD
		18-Apr-13	ND (1.0)	5.3	9,400	-160	7.7
		18-Apr-13 FD	ND (1.0)	5.3	9,700	FD	FD
		12-Sep-13	ND (1.0)	4.9	8,600	-160	7.6
		12-Sep-13 FD	ND (0.2)	4.7	8,600	FD	FD
		02-Dec-13	ND (0.2)	4.1	10,000	-160	7.7
		02-Dec-13 FD	ND (0.2)	4.8	11,000	FD	FD
MW-45-095a	DA	13-Dec-12	20.2	20.4	9,000	100	7.3
		02-Dec-13	13.7	14.2	8,400	-58	7.6
MW-46-175	DA	26-Sep-12	46.7	52.6	18,000	---	---
		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
		24-Apr-13	26.4	26.3	23,000	57	8.1
		11-Sep-13	29.5	29.6	17,000	130	8.0
		20-Nov-13	34.2	33.8	19,000	220	8.4
		16-Dec-13	50.0	52.5	---	-180	8.3
MW-46-205	DA	12-Dec-12	ND (4.9)	5.1	22,000	4.1	8.4
		24-Apr-13	5.6	5.4	28,000	63	8.2
		20-Nov-13	6.0	5.1	23,000	210	8.4
MW-47-55	SA	24-Sep-12	20.7	21.4	4,800	350	7.5
		07-Nov-12	28.8	29.6	5,100	160	7.3
		11-Mar-13	16.7	16.4	4,300	200	7.2
		24-Apr-13	16.4	14.3	5,200	220	7.5
		12-Nov-13	17.2	16.4	4,500	160	7.6
MW-47-115	DA	25-Sep-12	20.0	23.2	14,000	93	7.4

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-47-115	DA	07-Nov-12	17.3	19.2	16,000	120	7.4
		27-Feb-13	21.0	22.8	13,000	120	7.3
		24-Apr-13	23.7	21.1	16,000	240	7.5
		12-Nov-13	17.4	14.3	12,000	170	7.6
MW-48	BR	13-Sep-12	ND (1.0)	ND (1.0)	18,000	81	R
		07-Nov-12	ND (1.0)	ND (1.0)	20,000	-120	7.6
		07-Feb-13	ND (1.0)	ND (1.0)	15,000	200	6.9
		25-Apr-13	ND (1.0)	ND (1.0)	23,000	250	7.2
		11-Sep-13	ND (1.0)	ND (1.0)	16,000	24	7.4
		06-Nov-13	ND (1.0)	ND (1.0)	17,000	140	7.8
MW-49-135	DA	11-Dec-12	1.4	29.3	14,000	59	7.9
		06-Nov-13	1.3	2.0	12,000	24	7.6
MW-49-275	DA	11-Dec-12	ND (1.0)	1.6	26,000	45	8.2
		06-Nov-13	2.0	2.9	24,000	100	7.8
MW-49-365	DA	11-Dec-12	ND (2.0)	ND (1.0)	39,000	17	8.1
		07-Nov-13	ND (0.2)	ND (1.0)	40,000	-150	7.8
MW-50-095	MA	19-Sep-12	13.7	14.9	5,300	60	7.7
		05-Nov-12	12.9	12.5	5,400	220	7.6
		14-Feb-13	12.4	13.7	4,600	150	7.5
		24-Apr-13	13.6	12.4	5,800	230	7.6
		24-Apr-13 FD	13.4	12.3	5,700	FD	FD
		06-Nov-13	12.3	11.5	4,800	140	7.9
MW-50-200	DA	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
		14-May-13	7,630	8,670	19,000	210	7.6
		26-Sep-13	7,060	6,760	19,000	160	7.6
		17-Dec-13	6,600	7,110	20,000	-32	7.6
MW-51	MA	09-Oct-12	4,630	5,100	11,000	---	---
		28-Nov-12	4,480	4,370	10,000	130	7.3
		14-Mar-13	4,740	4,950	11,000	180	7.2
		13-May-13	4,170	4,950	9,300	210	7.4
		11-Dec-13	4,520 J	4,550	9,800	13	7.4

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-52S	MA	05-Dec-12	ND (1.0)	ND (1.0)	9,200	-120	6.9
		16-May-13	ND (0.2)	ND (1.0)	8,400	-120	6.9
		13-Nov-13	ND (0.2)	ND (1.0)	7,800	-100	6.8
MW-52M	DA	05-Dec-12	ND (1.0)	ND (1.0)	16,000	-140	7.5
		16-May-13	ND (1.0)	ND (1.0)	14,000	-140	7.6
		13-Nov-13	ND (1.0)	ND (1.0)	15,000	-140	7.5
		13-Nov-13 FD	ND (1.0)	ND (1.0)	13,000	FD	FD
MW-52D	DA	05-Dec-12	ND (1.0)	ND (1.0)	22,000	-180	7.9
		16-May-13	ND (1.0)	ND (1.0)	20,000	-190	8.0
		13-Nov-13	ND (1.0)	ND (1.0)	20,000	-150	7.6
MW-53M	DA	05-Dec-12	ND (1.0)	ND (1.0)	19,000	-200	8.2
		05-Dec-12 FD	ND (1.0)	ND (1.0)	20,000	FD	FD
		16-May-13	ND (1.0)	ND (1.0)	19,000	-180	8.1
		13-Nov-13	ND (1.0)	ND (1.0)	16,000	-190	8.0
MW-53D	DA	06-Dec-12	ND (2.0)	ND (1.0)	25,000	-200	8.2
		16-May-13	ND (1.0)	ND (1.0)	24,000	-220	8.3
		13-Nov-13	ND (1.0)	ND (1.0)	22,000	-180	8.1
MW-54-85	DA	12-Dec-12	ND (1.0)	ND (1.0)	10,100	-140	7.5
		25-Apr-13	ND (0.2) J	1.3	9,170	-90	7.6
		21-Nov-13	ND (1.0)	ND (1.0)	9,750	12	7.6
MW-54-140	DA	12-Dec-12	ND (1.0)	ND (1.0)	12,700	-66	7.7
		25-Apr-13	ND (0.2) J	ND (1.0)	11,800	-26	7.7
		21-Nov-13	ND (1.0)	ND (1.0)	12,100	15	7.7
MW-54-195	DA	12-Dec-12	ND (1.0)	ND (1.0)	19,200	-180	8.2
		25-Apr-13	ND (1.0) J	ND (1.0)	18,300	56	8.1
		25-Apr-13 FD	ND (1.0) J	ND (1.0)	18,200	FD	FD
		21-Nov-13	ND (1.0)	ND (1.0)	18,000	-110	8.1
MW-55-45	MA	12-Dec-12	ND (0.2)	ND (1.0)	1,510	-190	7.6
		21-Nov-13	ND (0.2)	ND (1.0)	1,450	30	7.8
MW-55-120	DA	12-Dec-12	7.1	6.8	8,840	-56	7.9
		12-Dec-12 FD	7.0	6.9	8,800	FD	FD
		21-Nov-13	7.2	7.6	8,220	-2	7.9
		21-Nov-13 FD	7.3	7.6	8,280	FD	FD
MW-56S	SA	06-Dec-12	ND (0.2)	ND (1.0)	5,380	-120	7.1

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-56S	SA	15-May-13	ND (0.2) J	1.4	6,000	-130	7.0
		14-Nov-13	ND (0.2)	2.6	6,160	-110	7.0
MW-56M	DA	06-Dec-12	ND (1.0)	ND (1.0)	14,500	-120	7.1
		15-May-13	ND (1.0) J	1.1 J	13,800	-120	7.1
		14-Nov-13	ND (1.0)	ND (1.0)	18,700	-110	7.3
MW-56D	DA	06-Dec-12	ND (2.0)	ND (1.0)	21,400	-150	7.5
		15-May-13	ND (1.0) J	ND (1.0)	19,800	-150	7.7
		14-Nov-13	ND (1.0)	1.6 J	13,700	-130	7.7
MW-57-070	BR	12-Sep-12	609	614	2,300	9.2	7.1
		13-Dec-12	724	799	2,100	130	7.0
		13-Dec-12 FD	752	851	2,100	FD	FD
		20-Feb-13	272	338	2,100	190	7.1
		20-Feb-13 FD	268	376	2,100	FD	FD
		11-Mar-13	594	562	2,200	150	7.1
		06-May-13	611	696	2,100	260	7.1
		23-Sep-13	554	561	2,000	210	7.2
		12-Dec-13	461	512	2,200	-36	7.2
MW-57-185	BR	11-Sep-12	7.8	9.1	18,000	-50	R
		08-Nov-12	9.5	10.7	21,000	-130	8.7
		06-Feb-13	10.4	11.4	17,000	170	8.3
		23-Apr-13	10.2	9.8	23,000	150	9.0
		10-Sep-13	10.1	10.1	18,000	150	8.0
		07-Nov-13	9.5	9.4	19,000	-300	8.3
		07-Nov-13 FD	9.7	9.4	19,000	FD	FD
MW-58BR	BR	28-Feb-13	ND (1.0)	ND (1.0)	7,300	5.0	7.6
		30-Apr-13	ND (1.0)	ND (1.0)	8,400	-61	7.5
		19-Sep-13	0.73	ND (1.0)	8,400	110	7.6
		17-Dec-13	1.1	1.5	8,600	-170	7.5
MW-58BR-UPR-160	BR	03-Oct-12	ND (1.0)	ND (1.0)	10,000	-120	7.0
MW-58BR-LWR-160	BR	04-Oct-12	2.3	10.2	9,400	-91	8.0
MW-59-100	SA	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
		13-May-13	4,110	4,150	8,800	150	6.8

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-59-100	SA	25-Sep-13	4,180	4,120	9,800	320	6.8
		10-Dec-13	3,860	3,960	9,100	28	6.9
MW-60-125	BR	20-Sep-12	848	846	9,600	63	7.6
		06-Dec-12	867	804	8,700	-76	7.5
		20-Feb-13	1,020	1,000	8,400	140	7.3
		06-May-13	988	959	8,600	210	7.4
		24-Sep-13	1,120	1,050	8,600	110	7.3
		24-Sep-13 FD	1,100	1,020	8,400	FD	FD
		04-Dec-13	1,100	1,070	8,100	34	7.3
MW-60BR-245	BR	19-Sep-12	89.7	97.2	18,000	-140	8.6
		05-Dec-12	61.4	59.2	17,000	-8	8.7
		14-Mar-13	90.6	125	16,000	120	8.0
		14-Mar-13 FD	93.9	110	16,000	FD	FD
		07-May-13	46.6	49.7	18,000	-310	8.2
		17-Sep-13	ND (1.0)	2.6	16,000	-140	8.3
		04-Dec-13	ND (1.0)	ND (1.0)	16,000	-220	8.1
MW-61-110	BR	27-Sep-12	656	714	17,000	5.0	7.1
		27-Sep-12 FD	661	738	17,000	FD	FD
		27-Nov-12	666	709	15,000	12	7.2
		27-Nov-12 FD	678	716	15,000	FD	FD
		25-Feb-13	637	682 J	15,000	16	7.3
		02-May-13	518	574	14,000	76	7.4
		23-Sep-13	576	616	14,000	60	7.4
		05-Dec-13	565	563	14,000	76	7.4
		05-Dec-13 FD	601	581	15,000	FD	FD
MW-62-065	BR	12-Sep-12	588	627	6,400	-28	7.3
		10-Dec-12	505	543	6,200	46	7.4
		19-Feb-13	404	406	5,400	61	7.8
		25-Apr-13	589	607	7,300	130	7.4
		23-Sep-13	500	518	5,800	180	7.4
		11-Dec-13	471	476	5,800	-6	7.4
MW-62-110	BR	13-Sep-12	894	923	9,200	130	7.4
		11-Dec-12	904	944	9,000	130	6.6
		26-Feb-13	1,050	969	8,400	-51	7.8
		08-May-13	733	782	7,800	170	7.1

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-62-110	BR	18-Sep-13	808	857	8,100	220	7.3
		13-Nov-13	910	1,040	7,600	190	7.5
MW-62-190	BR	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
		08-May-13	ND (1.0)	ND (1.0)	1,600	-30	7.5
		18-Sep-13	ND (1.0)	ND (1.0)	16,000	-3	7.6
		13-Nov-13	ND (1.0)	ND (1.0)	15,000	0.0	7.7
MW-63-065	BR	10-Sep-12	1.5	2.3	7,600	96	8.0
		07-Nov-12	1.2	2.0	8,800	23	7.3
		06-Feb-13	1.2	1.5	6,300	190	7.0
		25-Apr-13	1.3	1.5	8,100	140	7.1
		09-Sep-13	1.9	1.8	7,000	110	7.2
		04-Dec-13	1.6	1.9	6,800	120	7.1
MW-64BR	BR	01-Mar-13	ND (1.0)	ND (1.0)	12,000	-19	7.2
		01-May-13	ND (1.0)	ND (1.0)	12,000	48	7.3
		17-Sep-13	ND (1.0)	ND (1.0)	13,000	40	7.4
		16-Dec-13	ND (1.0)	ND (1.0)	13,000	18	7.4
MW-64BR-UPR-150	BR	08-Oct-12	ND (1.0)	ND (1.0)	12,000	-140	8.0
MW-64BR-LWR-150	BR	10-Oct-12	ND (1.0)	1.0	14,000	-180	7.9
MW-65-160	SA	18-Sep-12	75.7	79.6	4,300	-76	7.2
		04-Dec-12	78.5	85.1	4,100	-9.7	7.3
		19-Feb-13	78.8	77.1	4,000	120	7.8
		01-May-13	111	112	3,600	230	7.3
		19-Sep-13	113	115	3,800	270	7.3
		02-Dec-13	96.8	102	3,700	240	7.5
MW-65-225	DA	18-Sep-12	528	570	12,000	-69	7.0
		05-Dec-12	634	637	9,400	-16	7.4
		19-Feb-13	630	627	10,000	45	7.6
		02-May-13	534	549	10,000	250	7.2
		02-May-13 FD	548	572	10,000	FD	FD
		23-Sep-13	583	613	9,800	150	7.2
		23-Sep-13 FD	579	580	9,600	FD	FD
		02-Dec-13	551	580	10,000	-59	7.2

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-66-165	SA	17-Sep-12	653	665	4,500	11	7.2
		06-Dec-12	622	583	4,300	46	7.3
		20-Feb-13	636	613	4,300	110	7.2
		02-May-13	737	695	4,100	230	7.1
		23-Sep-13	631	694	4,200	200	7.3
		03-Dec-13	595	622	4,200	8.0	7.2
MW-66-230	DA	17-Sep-12	6,200	6,040	19,000	-89	8.0
		10-Dec-12	6,190	5,910	19,000	-34	8.0
		21-Feb-13	6,510	6,400	18,000	150	7.9
		13-May-13	6,520	7,280	17,000	220	7.9
		25-Sep-13	5,120	6,030	17,000	300	7.9
		12-Dec-13	6,630 J	6,850	19,000	-33	7.1
MW-66BR-270	BR	02-Oct-12	ND (1.0)	ND (1.0)	18,000	-97	10.6
		20-Dec-12	ND (1.0)	ND (1.0)	19,000	42	9.8
		12-Mar-13	ND (1.0)	ND (1.0)	18,000	-210	9.7
		18-Jun-13	ND (1.0)	ND (1.0)	17,000	-170	10.3
		23-Sep-13	ND (1.0)	ND (1.0)	16,000	-230	9.6
		17-Dec-13	ND (1.0)	ND (1.0)	18,000	56	9.9
MW-67-185	SA	20-Sep-12	2,370	2,320	4,700	40	7.4
		06-Dec-12	2,300	2,270	4,400	-56	7.4
		21-Feb-13	2,190	2,100	4,300	140	7.4
		21-Feb-13 FD	2,180	2,110	4,200	FD	FD
		09-May-13	2,400	2,550	4,500	290	7.2
		25-Sep-13	2,280	2,220	5,000	200	7.2
		04-Dec-13	2,180	2,260	5,100	17	7.2
MW-67-225	MA	20-Sep-12	3,200	3,420	8,000	310	7.2
		10-Dec-12	3,210	3,110	7,500	-30	7.5
		21-Feb-13	3,310	3,110	7,000	140	7.4
		09-May-13	3,140	3,280	6,800	150	7.4
		25-Sep-13	3,100	2,920	6,800	310	7.5
		09-Dec-13	3,070	3,010	7,000	43	7.4
MW-67-260	DA	20-Sep-12	2,130	2,160	18,000	-140	8.5
		06-Dec-12	2,020	1,930	18,000	-100	8.3
		21-Feb-13	2,130	2,060	17,000	170	8.1
		09-May-13	2,120	2,220	16,000	120	8.1

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-67-260	DA	09-May-13	FD	2,140	2,250	16,000	FD	FD
		25-Sep-13		2,040	1,980	16,000	120	8.1
		25-Sep-13	FD	2,050	1,920	16,000	FD	FD
		09-Dec-13		1,980	1,820	17,000	-97	8.0
MW-68-180	SA	20-Sep-12		16,400	16,900	4,100	370	7.3
		11-Dec-12		20,200	21,800	4,400	45	7.4
		11-Dec-12	FD	20,400	21,700	4,400	FD	FD
		21-Feb-13		17,300	15,600	3,700	140	7.4
		13-May-13		5,010	5,590	2,800	64	6.7
		26-Sep-13		19,200	20,700	3,800	200	7.2
		12-Dec-13		21,100	25,600	4,200	32	7.4
		12-Dec-13	FD	20,900	23,900	4,200	FD	FD
MW-68-240	DA	20-Sep-12		2,000	1,980	17,000	R	7.5
		06-Dec-12		1,990	1,870	16,000	-110	7.5
		20-Feb-13		1,970	2,020	15,000	140	7.2
		08-May-13		2,050	2,160	14,000	66	7.3
		24-Sep-13		2,120	1,920	15,000	160	7.4
		04-Dec-13		1,960	2,110	15,000	-79	7.3
MW-68BR-280	BR	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
		08-May-13		ND (1.0)	ND (1.0)	19,000	-62	8.5
		18-Sep-13		ND (1.0)	ND (1.0)	19,000	-79	8.4
		18-Dec-13		ND (1.0)	ND (1.0)	20,000	-170	8.6
MW-69-195	BR	19-Sep-12		789	840	3,900	76	7.1
		05-Dec-12		849	869	3,800	-47	7.3
		20-Feb-13		909	852	3,500	130	7.1
		06-May-13		919	868	3,600	230	6.9
		24-Sep-13		938	963	3,500	120	7.1
		03-Dec-13		932	952	3,500	-25	6.9
MW-70-105	BR	12-Sep-12		80.8	85.6	3,300	-150	7.9
		04-Dec-12		65.1	71.1	3,500	18	8.0
		19-Feb-13		93.2	91.7	3,300	-130	8.4
		25-Apr-13		198	201	3,800	37	7.8
		23-Sep-13		122	123	3,300	35	7.8

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-70-105	BR	04-Dec-13	163	164	3,400	11	7.8
MW-70BR-225	BR	18-Sep-12	2,410	2,500	14,000	42	7.2
		13-Dec-12	1,980	1,980	14,000	-39	7.4
		26-Feb-13	1,960	1,880	13,000	140	7.7
		07-May-13	2,000	2,070	13,000	170	7.3
		24-Sep-13	2,170	2,040	13,000	100	7.4
		10-Dec-13	1,950	1,910	13,000	-9	7.3
MW-71-035	SA	19-Sep-12	ND (0.2)	ND (1.0)	7,500	120	7.1
		08-Nov-12	ND (0.2)	ND (1.0)	9,300	190	7.4
		07-Feb-13	0.78	ND (1.0)	6,800	230	7.1
		30-Apr-13	0.44	ND (1.0)	7,800	220	7.3
		10-Sep-13	ND (1.0)	ND (1.0)	7,900	120	7.3
		11-Dec-13	0.47	ND (1.0)	8,000	98	7.3
MW-72-080	BR	19-Sep-12	151	158	15,000	37	7.7
		05-Dec-12	150	150	16,000	89	7.8
		19-Feb-13	122	119	16,000	-46	8.2
		25-Apr-13	116	124	20,000	130	7.7
		19-Sep-13	139	141	15,000	110	7.8
		19-Sep-13 FD	138	140	15,000	FD	FD
		04-Dec-13	137	136	15,000	110	7.7
MW-72BR-200	BR	13-Sep-12	3.9	4.5	15,000	-200	8.7
		13-Sep-12 FD	3.8	4.3	15,000	FD	FD
		14-Nov-12	6.4	7.3	16,000	-99	8.3
		07-Feb-13	7.9	8.2	12,000	35	8.3
		29-Apr-13	4.9	5.7	16,000	86	8.2
		19-Sep-13	5.7	6.2	15,000	-11	8.2
		05-Nov-13	5.4	5.6	16,000	19	8.3
		05-Nov-13 FD	5.6	5.8	16,000	FD	FD
MW-73-080	BR	13-Sep-12	37.3	39.3	11,000	-15	7.3
		05-Dec-12	35.6	36.2	11,000	47	7.2
		19-Feb-13	25.1	25.8	8,800	40	9.0
		01-May-13	31.8	32.8	9,200	270	7.4
		11-Sep-13	31.6	30.9	9,700	300	7.2
		05-Dec-13	32.3	34.9	10,000	120	7.4
MW-74-240	BR	27-Sep-12	0.28	ND (1.0)	1,200	-210	9.6

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-74-240	BR	20-Dec-12	ND (0.2)	ND (1.0)	1,100	-12	9.0
		20-Dec-12 FD	ND (0.2)	ND (1.0)	1,100	FD	FD
		01-Mar-13	ND (0.2)	ND (1.0)	890	-41	9.1
		02-May-13	ND (0.2)	ND (1.0)	810	-32	8.7
		18-Sep-13	ND (0.2)	ND (1.0)	780	19	8.9
		05-Dec-13	ND (0.2)	ND (1.0)	710	-44	8.8
OW-3S	SA	13-Nov-12	26.8	23.5	1,500	65	7.6
		13-Nov-13	22.3	22.5	1,400	160	7.7
OW-3M	MA	13-Nov-12	16.5	15.2	5,600	17	7.8
		13-Nov-13	15.0	14.0	5,400	130	7.9
OW-3D	DA	13-Nov-12	9.5	10.8	8,600	12	7.7
		05-Nov-13	8.6	8.3	9,000	49	7.9
PE-1	DA	04-Sep-12	6.8	8.8	4,770	---	---
		02-Oct-12	6.3	7.0	4,700	---	---
		06-Nov-12	6.9	8.0	4,760	---	---
		04-Dec-12	7.0	7.3	4,760	---	---
		02-Jan-13	8.1	8.0	4,490	---	---
		05-Feb-13	7.7	8.4	4,490	---	---
		05-Mar-13	6.5	6.6	4,410	---	---
		01-Apr-13	5.6	5.6	4,540	---	---
		01-May-13	5.0	5.8	4,540	---	---
		04-Jun-13	5.1	5.6	4,350	---	---
		02-Jul-13	4.7	5.3	4,130	---	---
		06-Aug-13	5.0	5.7	4,200	---	---
		03-Sep-13	5.1	5.4	4,330	---	---
		01-Oct-13	5.2	5.1	4,160	---	---
		05-Nov-13	5.2 J	5.0	4,160 J	---	---
		03-Dec-13	5.5	6.0	3,950	---	---
PGE-7BR	BR	11-Dec-12	ND (1.0)	ND (1.0)	18,000	-230	7.7
		10-Dec-13	ND (1.0)	ND (1.0)	16,000	-170	7.1
PGE-8	BR	07-Nov-12	ND (1.0)	1.6	23,000	-300	8.4
		18-Dec-13	ND (1.0)	ND (1.0)	18,000	-300	8.1
Park Moabi-3	MA	08-Nov-12	7.2	8.3 UF	1,600	-13	7.8
		19-Dec-13	4.1	7.9 UF	1,200	-61	7.7

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, September 2012 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
Park Moabi-4	MA	08-Nov-12	21.3	23.0 UF	2,200	430	7.8
		19-Dec-13	12.6	18.0 UF	2,000	-64	7.5
TW-1	SA-MA-DA	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
		14-May-13	2,830	3,160	6,500	320	7.1
		26-Sep-13	2,770	2,600	6,900	160	7.1
		17-Dec-13	2,770	2,880	7,300	-91	7.2
TW-2S	SA-MA	13-Dec-12	478	516	2,400	-27	7.6
		19-Dec-13	545	492	5,400	-40	7.7
TW-2D	DA	13-Dec-12	192	228	9,000	-33	7.1
		19-Dec-13	162	156	8,000	-38	7.3
TW-3D	DA	04-Sep-12	788	931	8,260	---	---
		02-Oct-12	1,000	975	8,250	---	---
		06-Nov-12	953	891	8,300	---	---
		04-Dec-12	893	879	8,470	---	---
		02-Jan-13	897	925	8,000	---	---
		05-Feb-13	1,020	950	8,260	---	---
		05-Mar-13	867	898	8,150	---	---
		01-Apr-13	836	766	8,110	---	---
		01-May-13	746	881	8,040	---	---
		04-Jun-13	846	847	7,630	---	---
		02-Jul-13	934	828	7,400	---	---
		06-Aug-13	816	892	7,530	---	---
		03-Sep-13	728	832	7,770	---	---
		01-Oct-13	846	720	7,620	---	---
		05-Nov-13	816 J	817	7,550 J	---	---
		03-Dec-13	934	832	7,410	---	---
TW-4	DA	15-Nov-12	7.7	9.1	22,000	120	7.5
		12-Nov-13	7.4	6.5	19,000	130	7.6
TW-5	DA	15-Nov-12	13.5	15.6	16,000	160	7.4
		06-Nov-13	10.3	11.3	13,000	160	7.8

Refer to table footnotes for data qualifier explanation.

Notes:

(---) = data not collected, available, rejected, or field instrument malfunction.
FD = field duplicate sample.
J = concentration or reporting limit (RL) estimated by laboratory or data validation.
mV = millivolts.
ND = not detected at listed RL.
ORP = oxidation-reduction potential.
R = result exceeded analytical criteria for precision and accuracy; should not be used for project decision making.
RL = reporting limit.
UF = unfiltered
µg/L = micrograms per liter.
µS/cm = microSiemens per centimeter.

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

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

Monitoring wells MW-11, MW-24A, and MW-24B 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, 2013) 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).

ARCADIS. 2013. 2013 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test. October 11.

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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-9	SA	09-Dec-13	---	---	2.0	4.5	ND (0.5)	9.84
MW-10	SA	14-May-13	---	4.30	32.0	6.4	---	11.7
		12-Dec-13	4.5	4.80	46.0	5.1	ND (0.5)	10.8
MW-12	SA	26-Feb-13	46.5	---	8.8	14.6	ND (0.5)	12.5
		26-Feb-13 FD	45.9	---	11.2	14.0	ND (0.5)	12.7
		09-May-13	33.0	---	10.0	12.0	---	13.2 J
		25-Sep-13	40.0	---	12.0	14.0	---	12.2
		10-Dec-13	38.0	---	13.0	13.0	ND (0.5)	12.7
MW-13	SA	13-Nov-13	1.9	---	---	---	ND (0.5)	4.26
MW-14	SA	19-Dec-13	---	---	---	---	ND (0.5)	4.24
MW-15	SA	11-Nov-13	---	---	---	---	ND (0.5)	5.15
MW-16	SA	24-Apr-13	9.7	---	12.0	1.9	ND (0.5)	---
		06-Nov-13	9.1	---	12.0	1.5	ND (0.5)	3.30
MW-17	SA	24-Apr-13	1.6	---	15.0	10.0	ND (0.5)	---
		11-Nov-13	1.3	---	17.0	7.8	ND (0.5)	4.80
MW-18	SA	11-Nov-13	---	---	---	---	ND (0.5)	4.44
MW-19	SA	12-Mar-13	1.0	---	4.9	ND (5.0)	ND (0.5)	13.6
		05-Dec-13	---	---	---	---	ND (0.5)	4.78
MW-20-70	SA	12-Mar-13	2.4	---	35.9	6.5	ND (0.5)	8.60
		09-May-13	---	---	36.0	5.4	---	10.1 J
		11-Dec-13	---	---	42.0	4.7	ND (0.5)	8.05
MW-20-100	MA	13-Mar-13	2.0	---	3.8	6.5	ND (0.5)	6.27
		09-May-13	---	---	3.3	6.8	---	14.0 J
		11-Dec-13	---	---	4.1	4.9	ND (0.5)	9.50
MW-20-130	DA	14-Mar-13	5.2	---	35.6	21.8	ND (0.5)	6.32
		14-May-13	4.6	---	41.0	24.0	ND (0.5)	13.0
		17-Dec-13	4.9	---	41.0	25.0	ND (0.5)	12.4
		17-Dec-13 FD	4.9	---	41.0	24.0	ND (0.5)	12.9
MW-21	SA	24-Apr-13	---	---	64.0	20.0	---	2.67
		05-Nov-13	---	---	73.0	40.0	ND (0.5)	3.55
MW-22	SA	15-May-13	13.0	---	38.0	0.57	2200	---
		14-Nov-13	14.0	---	34.0	ND (2.5)	5900	0.0316
MW-23-060	BR	18-Feb-13	5.5	---	---	---	ND (0.5)	---
		23-Apr-13	4.3	---	---	---	ND (0.5)	---
		17-Sep-13	4.0	---	---	---	ND (2.5)	---
		11-Nov-13	3.0	---	---	---	ND (0.5)	5.66

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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-23-080	BR	18-Feb-13	3.1	---	---	---	ND (0.5)	---
		23-Apr-13	3.6	---	---	---	ND (0.5)	---
		17-Sep-13	2.4	---	---	---	ND (0.5)	---
		11-Nov-13	3.0	---	---	---	ND (0.5)	6.68
MW-24BR	BR	03-Dec-13	---	---	---	---	160	ND (0.01)
MW-25	SA	09-Dec-13	1.2	---	---	---	ND (0.5)	6.99
MW-26	SA	12-Mar-13	1.7	---	26.8	42.8	ND (0.5)	9.51
		07-May-13	2.2	---	24.0	43.0	ND (0.5)	17.7 J
		04-Dec-13	1.8	---	29.0	43.0	ND (0.5)	18.0
MW-27-20	SA	15-Apr-13	1.6	---	4.8	ND (0.5)	96.0	ND (0.5)
		04-Nov-13	1.3	---	5.5	ND (0.5)	95.0	ND (0.01)
MW-27-60	MA	04-Feb-13	7.2	0.81	3.9	ND (0.5)	130	ND (0.01)
		04-Feb-13 FD	7.3	0.79	3.8	ND (0.5)	130	ND (0.01)
		15-Apr-13	6.8	0.59	3.7	ND (0.5)	140	ND (0.5)
		02-Oct-13	6.4	0.56	4.0	ND (0.5)	190	ND (0.01)
		04-Nov-13	6.3	0.62	4.0	ND (0.5)	190	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)
		15-Apr-13	1.3	2.80	19.0	ND (0.5)	85.0	---
		15-Apr-13 FD	1.4	ND (2.5)	19.0	ND (0.5)	86.0	---
		02-Oct-13	1.4	2.70	22.0	ND (0.5)	23.0	ND (0.01)
		04-Nov-13	1.3	4.10	22.0	ND (0.5)	17.0	ND (0.01)
MW-28-25	SA	18-Apr-13	1.7	---	4.4	ND (0.5)	25.0	ND (0.5)
		05-Nov-13	1.0	---	4.7	ND (0.5)	1.5	ND (0.01)
MW-28-90	DA	05-Feb-13	1.6	ND (5.0)	19.0	ND (0.5)	120	ND (0.01)
		18-Apr-13	1.7	3.10	21.0	ND (0.5)	120	ND (0.5)
		11-Sep-13	1.7	3.80	21.0	ND (0.5)	110	1.35
		05-Nov-13	1.5	2.90	19.0	ND (0.5)	85.0	0.0146
MW-29	SA	18-Apr-13	4.1	1.10	9.1	1.1	250	ND (0.5)
		05-Nov-13	6.4	---	12.0	0.89	210	0.0138
		05-Nov-13 FD	6.1	---	12.0	0.77	220	0.02
MW-30-30	SA	15-Apr-13	---	---	26.0	ND (0.5)	---	ND (0.5)
		15-Apr-13 FD	---	---	25.0	ND (0.5)	---	ND (0.5)
		04-Nov-13	0.84	---	20.0	ND (0.5)	21.0	0.0174
MW-30-50	MA	04-Nov-13	2.7	---	5.0	ND (0.5)	110	ND (0.01)
MW-31-60	SA	03-Dec-13	1.2	---	---	---	ND (0.5)	3.53
MW-31-135	DA	07-Nov-13	3.4	---	28.0	ND (2.5)	ND (0.5)	0.866

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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-32-20	SA	16-Dec-13	3.6	---	---	---	310	0.0427
MW-32-35	SA	17-Apr-13	27.0	---	---	---	1300	---
		17-Apr-13 FD	26.0	---	---	---	1300	---
		06-Nov-13	23.0	---	---	---	1100	0.0482
MW-33-40	SA	25-Feb-13	14.0	12.0	160	ND (0.5)	ND (0.5)	0.0291
		22-Apr-13	15.0	10.0	150	ND (2.5)	ND (0.5) J	ND (0.5)
		16-Sep-13	11.0	15.0	290	1.0	ND (0.5)	0.232
		03-Dec-13	12.0	12.0	250	ND (0.5)	ND (0.5)	0.127
MW-33-90	MA	14-Feb-13	1.4	5.70	16.5	ND (5.0)	2.2	1.62
		14-Feb-13 FD	1.6	5.10	16.3	ND (5.0)	2.2	1.72
		22-Apr-13	1.7	4.60	15.0	0.56	ND (0.5)	1.53
		16-Sep-13	1.4	5.50	17.0	ND (0.5)	ND (0.5)	1.40
		03-Dec-13	1.3	4.20	18.0	0.53	ND (0.5)	1.46
MW-33-150	DA	05-Feb-13	1.8	ND (5.0)	38.0	ND (2.5)	ND (0.5)	1.60
		22-Apr-13	2.2	5.70	35.0	ND (2.5)	2.3	1.51
		16-Sep-13	1.8	ND (2.5)	37.0	ND (2.5)	ND (2.5)	1.48
		03-Dec-13	1.7	4.90	37.0	ND (2.5)	ND (0.5)	1.48
MW-33-210	DA	05-Feb-13	1.1	ND (5.0)	16.0	ND (2.5)	ND (0.5)	1.72
		23-Apr-13	1.6	5.60	15.0	ND (2.5)	9.1	1.47
		12-Sep-13	1.2	ND (2.0)	18.0	ND (2.5)	ND (2.5)	0.0123
		03-Dec-13	1.1	4.70	17.0	ND (2.5)	ND (0.5)	1.60
		03-Dec-13 FD	1.2	4.90	17.0	ND (2.5)	ND (0.5)	1.62
MW-34-55	MA	20-Nov-13	2.6	---	4.9	ND (0.5)	67.0	ND (0.01)
MW-34-80	DA	05-Feb-13	1.3	---	---	---	---	---
		16-Apr-13	1.3	---	---	---	4.5	---
		02-Oct-13	1.3	---	---	---	---	---
		20-Nov-13	1.3	---	---	---	ND (0.5)	ND (0.01)
		20-Nov-13 FD	1.3	---	---	---	ND (0.5)	ND (0.01)
MW-34-100	DA	24-Jan-13	1.7	---	---	---	---	---
		26-Feb-13	1.6	---	---	---	---	---
		26-Feb-13 FD	1.5	---	---	---	---	---
		16-Apr-13	1.3	---	32.0	ND (2.5)	15.0	ND (0.5)
		16-Apr-13 FD	1.3	---	31.0	ND (0.5)	15.0	ND (0.5)
		02-Oct-13	1.2	---	---	---	---	---
		02-Oct-13 FD	1.3	---	---	---	---	---
		20-Nov-13	1.5	---	53.0	ND (0.5)	ND (0.5)	0.422
		20-Nov-13 FD	1.4	---	52.0	ND (0.5)	ND (0.5)	0.419

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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-34-100	DA	16-Dec-13	2.2	---	---	---	---	---
MW-35-60	SA	19-Feb-13	1.0	---	8.7	0.89	ND (0.5)	2.04
		23-Apr-13	1.4	---	8.5	ND (2.5)	ND (0.5)	11.4
		10-Sep-13	0.93	---	8.7	0.8	ND (0.5)	1.51
		12-Nov-13	0.91	---	8.4	0.74	ND (0.5)	2.04
MW-35-135	DA	12-Nov-13	0.85	---	25.0	1.1	ND (0.5)	2.67
MW-36-20	SA	11-Nov-13	1.5 J	---	---	---	84.0 J	0.0134
		11-Nov-13 FD	1.2 J	---	---	---	240 J	0.0142
MW-36-40	SA	11-Nov-13	4.7	---	8.8	ND (0.5)	150	ND (0.01)
MW-36-50	MA	11-Nov-13	3.6	---	---	---	190	ND (0.01)
MW-36-70	MA	11-Nov-13	3.5	---	---	---	120	ND (0.01)
MW-36-90	DA	15-May-13	17.0	---	---	---	---	---
		11-Nov-13	20.0	---	---	---	2.1	ND (0.01)
MW-36-100	DA	11-Mar-13	7.3	---	30.3	ND (5.0)	59.6	0.0789
		24-Apr-13	7.8	---	33.0	ND (2.5)	15.0	ND (0.5)
		16-Dec-13	7.1	---	27.0	ND (2.5)	2.9	0.084
MW-37D	DA	30-Apr-13	---	---	45.0	ND (2.5)	---	ND (0.5)
		02-Dec-13	---	---	46.0	ND (0.5)	ND (0.5)	0.182
MW-37S	MA	06-Nov-13	1.6	---	---	---	ND (0.5)	1.29
MW-38D	DA	17-Sep-13	6.5	---	83.0	ND (2.5)	560	0.0693
		13-Nov-13	6.6	---	86.0	ND (2.5)	250	0.056
MW-38S	SA	24-Sep-13	13.0	---	42.0	ND (0.5)	190	0.317
		03-Dec-13	13.0	---	45.0	ND (0.5)	180	0.138
MW-39-40	SA	12-Nov-13	17.0	---	---	---	---	---
MW-39-50	MA	12-Nov-13	3.5	---	6.1	ND (0.5)	65.0	ND (0.01)
MW-39-60	MA	12-Nov-13	5.2	---	11.0	ND (0.5)	27.0	ND (0.01)
MW-39-70	MA	12-Nov-13	---	---	---	---	ND (0.5)	ND (0.01)
MW-39-80	DA	12-Nov-13	---	---	---	---	ND (0.5)	ND (0.01)
MW-39-100	DA	04-Dec-13	2.2	---	6.4	ND (2.5)	ND (0.5)	ND (0.01)
		04-Dec-13 FD	2.0	---	6.4	ND (2.5)	ND (0.5)	ND (0.01)
MW-40D	DA	01-May-13	4.4	---	50.0	2.0	ND (0.5)	3.16
		02-Dec-13	4.3	---	51.0	1.7	ND (0.5)	3.10
MW-40S	SA	11-Nov-13	1.5	---	11.0	2.2	ND (0.5)	4.19
MW-41D	DA	04-Nov-13	2.1	---	---	---	58.0	0.549
MW-41M	DA	04-Nov-13	1.8	---	---	---	ND (0.5)	0.675
MW-41S	SA	04-Nov-13	1.7	---	16.0	0.61	ND (0.5)	1.25

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

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

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-42-30	SA	05-Nov-13	3.1	---	22.0	ND (0.5)	---	0.0125
MW-42-55	MA	04-Feb-13	12.0	---	---	---	---	---
		16-Apr-13	11.0	---	---	---	---	---
		11-Sep-13	11.0	---	---	---	---	---
		05-Nov-13	11.0	---	---	---	23.0	ND (0.01)
MW-42-65	MA	04-Feb-13	2.3	---	---	---	1300	---
		04-Feb-13 FD	2.4	---	---	---	1300	---
		17-Apr-13	2.5	---	---	---	860	---
		11-Sep-13	2.6	---	---	---	910	---
		05-Nov-13	2.2	---	---	---	840	ND (0.01)
MW-43-25	SA	17-Apr-13	19.0	---	---	---	270	---
		06-Nov-13	19.0	---	---	---	250	0.0407
MW-43-75	DA	06-Nov-13	12.0	---	---	---	640	0.0342
MW-43-90	DA	17-Apr-13	3.2	---	---	---	870	---
		06-Nov-13	3.1	---	---	---	820	0.0202
MW-44-70	MA	22-Apr-13	4.0	---	---	---	87.0	---
		02-Dec-13	4.1	---	---	---	91.0	ND (0.01)
MW-44-115	DA	26-Feb-13	5.9	---	69.1	ND (5.0)	4.2	0.374
		24-Apr-13	6.3	---	73.0	ND (2.5)	ND (0.5)	ND (0.5)
		12-Sep-13	6.0	---	82.0	ND (2.5)	ND (0.5)	1.11
		02-Dec-13	5.4	---	82.0	ND (0.5)	ND (0.5)	0.22
MW-44-125	DA	13-Feb-13	4.1	---	126	ND (5.0)	368	0.259 J
		13-Feb-13 FD	3.9	---	134	ND (5.0)	406	0.441 J
		18-Apr-13	3.2	---	130	ND (0.5)	480	ND (0.5)
		18-Apr-13 FD	3.3	---	130	ND (0.5)	480	ND (0.5)
		12-Sep-13	3.6	---	120	ND (2.5)	530	4.86 J
		12-Sep-13 FD	3.1	---	120	ND (0.5)	550	1.97 J
		02-Dec-13	3.1	---	140	ND (0.5)	480	0.249
		02-Dec-13 FD	3.3	---	120	ND (0.5)	420	0.249
MW-45-095a	DA	02-Dec-13	3.2	---	---	---	ND (0.5)	0.0362
MW-46-175	DA	25-Feb-13	2.4	---	179	ND (5.0)	8.9	1.08
		24-Apr-13	---	---	150	ND (2.5)	---	1.12
		11-Sep-13	---	---	170	ND (2.5)	---	1.90
		20-Nov-13	---	---	190	0.67	ND (0.5)	1.02
MW-46-205	DA	20-Nov-13	---	---	---	---	ND (0.5)	1.02
MW-47-55	SA	11-Mar-13	1.2	---	8.5	ND (5.0)	ND (0.5)	1.62
		12-Nov-13	1.2	---	---	---	ND (0.5)	1.71

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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-47-115	DA	27-Feb-13	2.3	---	17.1	ND (5.0)	1.6	2.32
		12-Nov-13	---	---	---	---	ND (0.5) J	2.21
MW-48	BR	06-Nov-13	---	---	---	---	ND (0.5)	0.0702
MW-49-135	DA	06-Nov-13	1.9	---	---	---	260	0.498
MW-49-275	DA	06-Nov-13	---	---	---	---	170	0.88
MW-49-365	DA	07-Nov-13	---	---	---	---	ND (2.5)	0.0202
MW-50-095	MA	14-Feb-13	2.7	---	16.2	ND (5.0)	ND (0.5)	1.58
		06-Nov-13	---	---	---	---	ND (0.5)	1.53
MW-50-200	DA	27-Feb-13	4.1	---	38.4	5.3	ND (0.5)	5.94
		17-Dec-13	---	---	---	---	ND (2.5)	4.97
MW-51	MA	14-Mar-13	4.1	---	38.3	14.1	ND (0.5)	9.31
		13-May-13	3.6	---	41.0	17.0	ND (0.5)	11.8
		11-Dec-13	3.8	---	42.0	15.0	ND (0.5)	11.1
MW-52D	DA	16-May-13	3.2	---	---	---	94.0	---
		13-Nov-13	3.8	---	---	---	78.0	ND (0.01)
MW-52M	DA	16-May-13	1.3	---	---	---	---	---
		13-Nov-13	1.9	---	---	---	34.0	ND (0.01)
		13-Nov-13 FD	1.9	---	---	---	35.0	ND (0.01)
MW-52S	MA	16-May-13	0.21	---	---	---	---	---
		13-Nov-13	0.23	---	---	---	2100	0.0381
MW-53D	DA	16-May-13	2.8	---	---	---	1500	---
		13-Nov-13	3.1	---	---	---	1300	ND (0.01)
MW-53M	DA	16-May-13	0.8	---	---	---	290	---
		13-Nov-13	0.95	---	---	---	250	ND (0.01)
MW-54-85	DA	25-Apr-13	2.6	---	---	---	49.4	---
		21-Nov-13	3.4	---	---	---	831	0.225
MW-54-140	DA	25-Apr-13	1.4 J	---	---	---	4.7 J	---
		21-Nov-13	2.1	---	---	---	142	0.874
MW-54-195	DA	25-Apr-13	ND (0.2)	---	---	---	13.7 J	---
		25-Apr-13 FD	ND (0.2)	---	---	---	47.7 J	---
		21-Nov-13	ND (0.2)	---	---	---	539	ND (0.01)
MW-55-45	MA	21-Nov-13	---	---	---	---	1090	0.0637
MW-55-120	DA	21-Nov-13	---	---	---	---	10.7	1.41
		21-Nov-13 FD	---	---	---	---	10.6	1.41
MW-56D	DA	14-Nov-13	---	---	---	---	764 J	0.0225
MW-56M	DA	14-Nov-13	---	---	---	---	669	0.0117

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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-56S	SA	14-Nov-13	---	---	---	---	1240	0.0524
MW-57-070	BR	12-Dec-13	1.5	---	2.4	2.8	ND (0.5)	6.83
MW-57-185	BR	06-Feb-13	13.0	---	77.0	ND (0.5)	270	0.0119
		23-Apr-13	13.0	---	79.0	ND (2.5)	190	ND (0.5)
		10-Sep-13	15.0	---	89.0	ND (2.5)	280	0.206
		07-Nov-13	14.0	---	81.0	ND (12)	250	ND (0.01)
		07-Nov-13 FD	14.0	---	85.0	ND (2.5)	220	ND (0.01)
MW-58BR	BR	28-Feb-13	1.1	---	---	---	---	---
		30-Apr-13	1.4	---	---	---	---	---
		19-Sep-13	1.0	---	---	---	---	---
		17-Dec-13	0.97	---	---	---	660	0.299
MW-59-100	SA	27-Feb-13	2.6	---	3.8	ND (5.0)	ND (0.5)	4.02
		13-May-13	1.9	---	5.3	3.9	ND (0.5)	3.95
		25-Sep-13	2.5	---	6.0	3.8	ND (2.5)	3.38
		10-Dec-13	2.1	---	4.8	3.9	ND (0.5)	3.89
MW-60-125	BR	20-Feb-13	1.6	---	19.0 J	6.1	ND (0.5)	4.26
		06-May-13	2.0	---	14.0	5.0	ND (0.5)	4.46 J
		24-Sep-13	1.4	---	17.0	6.2	ND (0.5)	4.21
		24-Sep-13 FD	1.4	---	16.0	5.8	ND (0.5)	4.31
		04-Dec-13	1.4	---	18.0	6.4	ND (0.5)	4.57
MW-60BR-245	BR	14-Mar-13	7.5	---	46.0	1.7	ND (0.5)	0.203
		14-Mar-13 FD	7.1	---	47.0	1.8	ND (0.5)	0.218
		07-May-13	7.7	---	51.0	1.9	ND (0.5)	ND (0.5) J
		17-Sep-13	6.4	---	55.0	3.0	ND (2.5)	0.207
		04-Dec-13	5.9	---	58.0	ND (2.5)	ND (0.5)	0.153
MW-61-110	BR	25-Feb-13	3.4	---	24.0	ND (5.0)	133	0.999
		02-May-13	3.3	---	23.0	0.88	110	0.753
		23-Sep-13	3.3	---	22.0	1.4	84.0	0.868
		05-Dec-13	3.4	---	22.0	ND (12)	58.0	0.897
		05-Dec-13 FD	3.6	---	23.0	ND (12)	53.0	0.893
MW-62-065	BR	11-Dec-13	1.2	---	14.0	3.2	ND (0.5)	3.93
MW-62-110	BR	26-Feb-13	10.0	---	47.0	3.0	83.0	4.26
		08-May-13	8.5	---	40.0	2.4	66.0	3.56 J
		18-Sep-13	8.2	---	41.0	2.9	80.0	3.38
		13-Nov-13	6.6	---	46.0	3.0	59.0	3.98
MW-62-190	BR	26-Feb-13	5.9	---	81.0	ND (2.5)	620	ND (0.01)
		08-May-13	4.1	---	68.0	ND (2.5)	510	ND (0.5) J

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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-62-190	BR	18-Sep-13	5.0	---	71.0	ND (2.5)	590	0.0192
		13-Nov-13	4.6	---	79.0	ND (2.5)	520	0.0106
MW-63-065	BR	06-Feb-13	1.6	---	22.0	0.81	3.4	1.07
		25-Apr-13	1.9	---	19.0	ND (2.5)	ND (0.5)	0.831
		09-Sep-13	1.5	---	18.0	1.1	ND (0.5) J	0.246
		04-Dec-13	1.5	---	19.0	ND (2.5)	ND (0.5)	1.23
MW-64BR	BR	01-Mar-13	2.9	---	---	---	---	---
		01-May-13	3.4	---	---	---	---	---
		17-Sep-13	3.5	---	---	---	---	---
		16-Dec-13	2.9	---	---	---	740	1.15
MW-65-160	SA	19-Feb-13	0.83	---	28.0	7.7	26.0	10.8
		01-May-13	1.1	---	23.0	7.3	16.0	12.1
		19-Sep-13	0.85	---	24.0	7.7	5.0	11.2
		02-Dec-13	0.73	---	29.0	7.3	ND (0.5)	11.5
MW-65-225	DA	19-Feb-13	2.4	---	33.0	7.2	5.8	9.82
		02-May-13	2.5	---	36.0	6.9	ND (0.5)	9.77
		02-May-13 FD	2.6	---	36.0	6.5	ND (0.5)	9.61
		23-Sep-13	2.4	---	35.0	6.7	ND (0.5)	8.85
		23-Sep-13 FD	2.4	---	34.0	7.2	ND (0.5)	8.74
		02-Dec-13	2.3	---	36.0	5.9	ND (0.5)	8.89
MW-66-165	SA	20-Feb-13	1.3	---	6.7	39.0	ND (0.5)	39.1
		02-May-13	1.6	---	5.6	37.0	ND (0.5)	37.9
		23-Sep-13	1.2	---	5.5	34.0	ND (0.5)	31.8
		03-Dec-13	1.1	---	5.9	32.0	ND (0.5)	34.0
MW-66-230	DA	21-Feb-13	6.6	---	87.0	11.0	ND (2.5)	14.1
		13-May-13	5.6	---	77.0	12.0	ND (0.5)	14.7
		25-Sep-13	8.1	---	89.0	ND (12)	ND (2.5)	14.7
		12-Dec-13	7.7	---	76.0	10.0	ND (0.5)	14.9
MW-66BR-270	BR	12-Mar-13	0.32	---	21.0	ND (0.5)	ND (0.5)	ND (0.01)
		18-Jun-13	0.24	---	29.0	0.52	ND (0.5)	---
		23-Sep-13	ND (0.5)	---	17.0	ND (2.5)	ND (0.5)	0.114
		17-Dec-13	ND (0.5)	---	16.0	ND (12)	ND (2.5)	0.0148
MW-67-185	SA	21-Feb-13	1.7	---	17.0	110	ND (0.5)	19.0
		21-Feb-13 FD	1.6	---	17.0	110	ND (0.5)	22.5
		09-May-13	1.9	---	9.2	140	ND (0.5)	29.5 J
		25-Sep-13	1.7	---	9.7	170	ND (0.5)	31.8
		04-Dec-13	1.5	---	8.9	180	ND (0.5)	35.3

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

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

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-67-225	MA	21-Feb-13	3.2	---	36.0	75.0	ND (0.5)	23.1
		09-May-13	2.8	---	29.0	59.0	ND (0.5)	22.4 J
		25-Sep-13	3.3	---	36.0	69.0	3.2	20.9
		09-Dec-13	2.9	---	33.0	63.0	ND (0.5)	21.5
MW-67-260	DA	21-Feb-13	11.0	---	85.0	1.6	88.0	1.49
		09-May-13	11.0	---	76.0	1.2	43.0	1.40 J
		09-May-13 FD	11.0	---	78.0	ND (2.5)	41.0	1.39 J
		25-Sep-13	12.0	---	80.0	ND (12)	80.0	1.36
		25-Sep-13 FD	12.0	---	84.0	ND (12)	84.0	1.34
		09-Dec-13	11.0	---	74.0	1.2	33.0	1.29
MW-68-180	SA	21-Feb-13	2.5	---	47.0	14.0	ND (0.5)	27.3
		13-May-13	2.5	---	38.0	10.0	ND (0.5)	12.2
		26-Sep-13	2.7	---	45.0	15.0	3.6	26.3
		12-Dec-13	2.5	---	47.0	15.0	ND (0.5)	27.8
		12-Dec-13 FD	2.4	---	45.0	15.0	ND (0.5)	28.0
MW-68-240	DA	20-Feb-13	1.9	---	22.0	4.6	82.0	4.58
		08-May-13	1.9	---	20.0	3.6	ND (0.5)	4.83 J
		24-Sep-13	2.0	---	20.0	4.9	ND (0.5)	4.43
		04-Dec-13	2.0	---	21.0	4.3	ND (0.5)	4.61
MW-68BR-280	BR	18-Feb-13	2.3	---	88.0	ND (2.5)	180	ND (0.01)
		08-May-13	1.6	---	71.0	ND (0.5)	94.0	ND (0.5) J
		18-Sep-13	2.0	---	79.0	ND (2.5)	130	0.0101
		18-Dec-13	1.4	---	73.0	ND (12)	74.0	ND (0.01)
MW-69-195	BR	20-Feb-13	2.2	---	65.0	13.0	ND (0.5)	22.4
		06-May-13	2.6	---	53.0	11.0	ND (0.5)	16.7 J
		24-Sep-13	2.4	---	71.0	11.0	ND (0.5)	17.8
		03-Dec-13	2.2	---	79.0	11.0	ND (0.5)	18.3
MW-70-105	BR	19-Feb-13	5.8	---	110	2.6	210	2.55
		25-Apr-13	5.9	---	81.0	3.8	170	4.50
		23-Sep-13	5.2	---	94.0	3.1	190	3.17
		04-Dec-13	5.1	---	93.0	3.6	160	3.91
MW-70BR-225	BR	26-Feb-13	1.9	---	19.0	2.6	ND (2.5)	4.13
		07-May-13	3.1	---	16.0	2.9	ND (0.5)	4.25 J
		24-Sep-13	1.9	---	17.0	ND (2.5)	ND (2.5)	3.83
		10-Dec-13	1.8	---	18.0	2.5	ND (0.5)	3.76
MW-71-035	SA	07-Feb-13	1.5	---	59.0	2.2	51.0	1.63
		30-Apr-13	1.8	---	60.0	2.6	27.0	1.82

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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-71-035	SA	10-Sep-13	1.3	---	63.0	1.9	5.6	0.247
		11-Dec-13	1.3	---	58.0	2.4	9.4	2.27
MW-72-080	BR	19-Feb-13	11.0	---	73.0	ND (2.5)	81.0	1.15
		25-Apr-13	12.0	---	73.0	ND (2.5)	ND (2.5)	1.21
		19-Sep-13	11.0	---	74.0	ND (2.5)	ND (0.5)	1.35
		19-Sep-13 FD	12.0	---	73.0	ND (2.5)	ND (0.5)	1.35
		04-Dec-13	10.0	---	71.0	ND (2.5)	ND (0.5)	1.35
MW-72BR-200	BR	07-Feb-13	14.0	---	65.0	ND (0.5)	9.1	0.141
		29-Apr-13	14.0	---	74.0	ND (0.5)	ND (0.5)	ND (0.5)
		19-Sep-13	16.0	---	77.0	ND (2.5)	ND (0.5)	0.109
		05-Nov-13	14.0	---	78.0	ND (0.5)	ND (0.5)	0.105
		05-Nov-13 FD	13.0	---	80.0	ND (0.5)	ND (0.5)	0.106
MW-73-080	BR	19-Feb-13	2.1	---	23.0	4.0	ND (0.5)	4.01
		01-May-13	1.6	---	20.0	4.8	ND (0.5)	5.96
		11-Sep-13	1.4	---	22.0	4.8	ND (0.5)	ND (0.01)
		05-Dec-13	1.3	---	21.0	ND (12)	ND (2.5)	4.75
MW-74-240	BR	01-Mar-13	8.8	---	68.0	1.7	ND (0.5)	0.159
		02-May-13	11.0	---	78.0	1.8	ND (0.5)	0.854
		18-Sep-13	13.0	---	77.0	0.75	ND (0.5)	0.558
		05-Dec-13	14.0	---	68.0	2.0	3.0	0.815
OW-3D	DA	05-Nov-13	2.3	---	24.0	ND (0.5)	ND (0.5)	0.724
OW-3M	MA	13-Nov-13	---	---	---	---	ND (0.5)	1.01
OW-3S	SA	13-Nov-13	---	---	---	---	ND (0.5)	3.81
PE-1	DA	05-Nov-13	---	---	---	---	49.2	ND (0.5) J
		03-Dec-13	---	---	---	---	56.3	0.50 J
PGE-7BR	BR	10-Dec-13	---	---	---	---	8200	0.162
PGE-8	BR	18-Dec-13	---	---	100	ND (12)	480	0.0219
Park Moabi-3	MA	19-Dec-13	---	---	---	---	ND (0.5)	3.24
Park Moabi-4	MA	19-Dec-13	---	---	---	---	ND (0.5)	2.28
TW-1	SA-MA-DA	21-Feb-13	---	---	15.0	21.0	---	24.9
		14-May-13	---	---	13.0	19.0	---	15.8
		26-Sep-13	---	---	15.0	19.0	---	21.0
		17-Dec-13	---	---	14.0	18.0	ND (2.5) J	7.87
TW-2D	DA	19-Dec-13	---	---	---	---	ND (0.5)	1.08
TW-2S	SA-MA	19-Dec-13	---	---	---	---	ND (0.5)	2.73
TW-3D	DA	05-Nov-13	---	---	---	---	6.2	3.61 J

TABLE 3-2a

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2013 through December 2013

Fourth Quarter 2013 and Annual 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)
TW-3D	DA	03-Dec-13	---	---	---	---	7.5	3.68 J
TW-4	DA	12-Nov-13	---	---	---	---	ND (0.5)	1.33
TW-5	DA	06-Nov-13	---	---	---	---	ND (0.5)	1.00

Notes:

(---) = data not collected, available, rejected, or field instrument malfunction.
COPC = contaminants of potential concern.
FD = field duplicate sample.
J = concentration or reporting limit estimated by laboratory or data validation.
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
µg/L = micrograms per liter.

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

The background study upper tolerance limit (UTL) for arsenic is 24.3 µg/L.
The USEPA and California maximum contaminant level (MCL) for arsenic is 10 µg/L.
The background study UTL for molybdenum is 36.3 µg/L.
There is no USEPA or California MCL for molybdenum.
The background study UTL for selenium is 10.3 µg/L.
The USEPA and California MCL for selenium is 50.0 µg/L.
The secondary USEPA and California MCL for manganese is 50 ug/L.
The background study UTL for nitrate as nitrogen is 5.03 mg/L.
The USEPA and California MCL for nitrate as nitrogen is 10 mg/L.
The background study UTL for fluoride is 7.1 mg/L.
The USEPA MCL for fluoride is 4 mg/L, and the California MCL for fluoride is 2 mg/L.

Wells are assigned to separate aquifer zones for results reporting:
SA = shallow interval of Alluvial Aquifer.
MA = mid-depth interval of Alluvial Aquifer.
DA = deep interval of Alluvial Aquifer.
PA = perched aquifer (unsaturated zone).
BR = well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock).

TABLE 3-2b

Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Statistics, Fourth Quarter 2013

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

Analyte	Units	Number of Wells Sampled	Number of Detects	Minimum Detect	Maximum Detect	Background Study UTL	Number Exceeding UTL	CA MCL	Number Exceeding MCL
Alluvial Aquifer									
Arsenic, dissolved	µg/L	81	80	0.23	38	24.3	1	10	11
Fluoride	mg/L	8	8	0.62	12	NE	---	NE	---
Manganese, dissolved	µg/L	113	50	1.5	5900	50	37	50	37
Molybdenum, dissolved	µg/L	57	57	2	250	36.3	19	NE	---
Nitrate (as nitrogen)	mg/L	114	90	0.0117	35.3	5.03	18	10	11
Selenium, dissolved	µg/L	57	31	0.53	180	10.3	10	50	2
Bedrock									
Arsenic, dissolved	µg/L	22	21	0.97	14	24.3	0	10	3
Manganese, dissolved	µg/L	26	12	3	8200	50	11	50	11
Molybdenum, dissolved	µg/L	19	19	2.4	100	36.3	11	NE	---
Nitrate (as nitrogen)	mg/L	26	23	0.0106	18.3	5.03	4	10	1
Selenium, dissolved	µg/L	19	8	2	11	10.3	1	50	0
Total									
Arsenic, dissolved	µg/L	103	102	0.23	38	24.3	1	10	14
Fluoride	mg/L	8	8	0.62	12	NE	---	NE	---
Manganese, dissolved	µg/L	139	63	1.5	8200	50	48	50	48
Molybdenum, dissolved	µg/L	76	76	2	250	36.3	30	NE	---
Nitrate (as nitrogen)	mg/L	140	114	0.0106	35.3	5.03	22	10	12
Selenium, dissolved	µg/L	76	39	0.53	180	10.3	11	50	2

Notes:

(---) = not applicable
CA MCL = California maximum contaminant level.
COPC = contaminants of potential concern.
mg/L = milligrams per liter.
µg/L = micrograms per liter.
UTL = background study upper tolerance limit.

The background study UTL was developed for alluvial wells only.

TABLE 3-3
Title 22 Metals Results, January 2013 through December 2013
Fourth Quarter 2013 and Annual 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[a]	15	2	NE	100	50	100[a]	2	NE	5,000[a]
Well ID	**Sample Date**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Cobalt**	**Chromium**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
MW-10	12/12/2013	ND (0.5)	4.5	42.0	ND (0.5)	ND (0.5)	ND (0.5)	367	ND (1.0)	ND (1.0)	ND (0.2)	46.0	ND (1.0)	5.1	ND (0.5)	ND (0.5)	24.0	ND (10)
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)
	05/09/2013	ND (0.5)	33.0	52.0	ND (1.0)	ND (3.0)	ND (3.0)	2,620	ND (1.0)	ND (10)	ND (0.2)	10.0	ND (5.0)	12.0	ND (3.0)	ND (0.5)	11.0	ND (10)
	09/25/2013	ND (2.5)	40.0	62.0	ND (1.0) J	ND (3.0)	ND (3.0)	2,590	ND (5.0)	ND (10)	ND (0.2)	12.0	ND (5.0)	14.0	ND (3.0)	ND (2.5)	19.0	ND (10)
	12/10/2013	ND (0.5)	38.0	57.0	ND (2.5)	ND (0.5)	ND (0.5)	2,350	ND (1.0)	ND (1.0)	ND (0.2)	13.0	ND (1.0)	13.0	ND (0.5)	ND (0.5)	18.0	ND (10)
MW-22	05/15/2013	ND (0.5)	13.0	75.0	ND (2.0)	ND (6.0) J	ND (6.0)	ND (1.0)	ND (10)	ND (20)	ND (0.2)	38.0	ND (10)	0.57	ND (6.0)	ND (0.5)	ND (6.0)	ND (20)
	11/14/2013	ND (2.5)	14.0	66.0	ND (12)	ND (2.5)	2.8	ND (1.0)	ND (5.0)	ND (25)	ND (0.2)	34.0	ND (5.0)	ND (2.5)	ND (2.5)	ND (12)	ND (1.0)	ND (50)

Notes:
[a] = Secondary USEPA MCL.
FD = field duplicate sample.
J = concentration or reporting limit estimated by laboratory or data validation.
MCL = maximum contaminant level.
ND = not detected at listed reporting limit.
NE = not established.
USEPA = United States Environmental Protection Agency.
µg/L = micrograms per liter.

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

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

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

Metals analyzed by Methods SW6010B or SW6020A or SW7470A.

TABLE 3-4
Surface Water Sampling Results, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-BNS-D	01/08/2013	ND (0.2)	ND (1.0)	855	8.3 J
C-BNS-D	03/04/2013	ND (0.2)	ND (1.0)	874	8.2 J
C-BNS-D	05/20/2013	ND (0.2)	ND (1.0)	827	8.3 J
C-BNS-D	07/15/2013	ND (0.2)	ND (1.0)	807	8.1 J
C-BNS-D	11/20/2013	ND (0.2)	ND (1.0)	830	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-S	05/21/2013	ND (0.2)	ND (1.0)	834	8.3 J
C-CON-S	07/16/2013	ND (0.2)	ND (1.0)	826	8.3 J
C-CON-S	11/21/2013	ND (0.2)	ND (1.0)	834	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-CON-D	05/21/2013	ND (0.2)	ND (1.0)	836	8.3 J
C-CON-D	07/16/2013	ND (0.2)	ND (1.0)	825	8.3 J
C-CON-D	11/21/2013	ND (0.2)	ND (1.0)	851	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-S	05/20/2013	ND (0.2)	ND (1.0)	830	8.1 J
C-I-3-S	07/15/2013	ND (0.2)	ND (1.0)	794	8.2 J
C-I-3-S	11/20/2013	ND (0.2)	ND (1.0)	827	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-I-3-D	05/20/2013	ND (0.2)	ND (1.0)	830	8.3 J
C-I-3-D	07/15/2013	ND (0.2)	ND (1.0)	790	8.2 J
C-I-3-D	11/20/2013	ND (0.2)	ND (1.0)	826	8.3 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-S	05/20/2013	ND (0.2)	ND (1.0)	960	8.3 J
C-MAR-S	07/15/2013	ND (0.2)	ND (1.0)	858	8.0 J
C-MAR-S	11/21/2013	ND (0.2)	ND (1.0)	875	8.0 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-MAR-D	05/20/2013	ND (0.2)	ND (1.0)	954	7.6 J
C-MAR-D	07/15/2013	ND (0.2)	ND (1.0)	859	8.0 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-S	05/21/2013	ND (0.2)	ND (1.0)	827	8.3 J

TABLE 3-4
Surface Water Sampling Results, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-NR1-S	07/16/2013	ND (0.2)	ND (1.0)	819	8.3 J
C-NR1-S	11/21/2013	ND (0.2)	ND (1.0)	837	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-NR1-D	05/21/2013	ND (0.2)	ND (1.0)	834	8.3 J
C-NR1-D	07/16/2013	ND (0.2)	ND (1.0)	820	8.3 J
C-NR1-D	11/21/2013	ND (0.2)	ND (1.0)	834	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-S	05/21/2013	ND (0.2)	ND (1.0)	835	8.2 J
C-NR3-S	07/16/2013	ND (0.2)	ND (1.0)	828	8.3 J
C-NR3-S	11/21/2013	ND (0.2)	ND (1.0)	837	8.3 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-NR3-D	05/21/2013	ND (0.2)	ND (1.0)	826	8.3 J
C-NR3-D	07/16/2013	ND (0.2)	ND (1.0)	827	8.3 J
C-NR3-D	11/21/2013	ND (0.2)	ND (1.0)	839	8.3 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-S	05/21/2013	ND (0.2)	ND (1.0)	835	8.1 J
C-NR4-S	07/16/2013	ND (0.2)	ND (1.0)	832	8.2 J
C-NR4-S	11/21/2013	ND (0.2)	ND (1.0)	846	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-NR4-D	05/21/2013	ND (0.2)	ND (1.0)	836	8.2 J
C-NR4-D	07/16/2013	ND (0.2)	ND (1.0)	832	8.1 J
C-NR4-D	11/21/2013	ND (0.2)	ND (1.0)	839	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-S	05/20/2013	ND (0.2)	ND (1.0)	834	7.6 J
C-R22a-S	07/15/2013	ND (0.2)	ND (1.0)	786	8.3 J
C-R22a-S	11/20/2013	ND (0.2)	ND (1.0)	828	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-R22a-D	05/20/2013	ND (0.2)	ND (1.0)	838	8.2 J
C-R22a-D	07/15/2013	ND (0.2)	ND (1.0)	790	8.3 J
C-R22a-D	11/20/2013	ND (0.2)	ND (1.0)	827	8.2 J

TABLE 3-4
Surface Water Sampling Results, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-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-S	05/20/2013	ND (0.2)	ND (1.0)	832	8.3 J
C-R27-S	07/15/2013	ND (0.2)	ND (1.0)	790	8.2 J
C-R27-S	11/20/2013	ND (0.2)	ND (1.0)	827	8.1 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-R27-D	05/20/2013	ND (0.2)	ND (1.0)	832	8.2 J
C-R27-D	07/15/2013	ND (0.2)	ND (1.0)	795	8.2 J
C-R27-D	11/20/2013	ND (0.2)	ND (1.0)	835	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
C-TAZ-S	05/20/2013	ND (0.2)	ND (1.0)	824	8.2 J
C-TAZ-S	07/15/2013	ND (0.2) J	ND (1.0)	797	8.1 J
C-TAZ-S	11/20/2013	ND (0.2)	ND (1.0)	829	8.3 J
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
C-TAZ-D	05/20/2013	ND (0.2)	ND (1.0)	833	8.3 J
C-TAZ-D	07/15/2013	ND (0.2)	ND (1.0)	807	8.2 J
C-TAZ-D	11/20/2013	ND (0.2)	ND (1.0)	817	8.3 J
Shoreline Samples					
R-19	01/09/2013	ND (0.2)	ND (1.0)	862	8.4 J
R-19	03/05/2013	ND (0.2)	ND (1.0)	873	8.3 J
R-19	05/21/2013	ND (0.2)	ND (1.0)	835	8.3 J
R-19	07/16/2013	ND (0.2)	ND (1.0)	825	8.3 J
R-19	11/21/2013	ND (0.2)	ND (1.0)	848	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
R-28	05/21/2013	ND (0.2)	ND (1.0)	836	8.2 J
R-28	07/16/2013	ND (0.2)	ND (1.0)	819	8.3 J
R-28	11/21/2013	ND (0.2)	ND (1.0)	846	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
R63	05/20/2013	ND (0.2)	ND (1.0)	858	8.1 J
R63	11/20/2013	ND (0.2)	ND (1.0)	828	8.3 J
R63	07/15/2013	ND (0.2)	ND (1.0)	795	8.3 J
RRB	01/09/2013	ND (0.2)	ND (1.0)	906	8.2 J

TABLE 3-4
Surface Water Sampling Results, January 2013 through December 2013
Fourth Quarter 2013 and Annual 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
Shoreline Samples					
RRB	03/05/2013	ND (0.2)	ND (1.0)	876	8.2 J
RRB	05/21/2013	ND (0.2)	ND (1.0)	844	8.2 J
RRB	07/16/2013	ND (0.2)	ND (1.0)	823	8.2 J
RRB	11/21/2013	ND (0.2)	ND (1.0)	876	8.0 J
Other Surface Water Monitoring Locations					
SW1	01/09/2013	ND (0.2)	ND (1.0)	1060	7.7 J
SW1	03/05/2013	ND (0.2)	ND (1.0)	920	7.5 J
SW1	05/20/2013	ND (0.2)	ND (1.0)	867	7.4 J
SW1	07/15/2013	ND (0.2)	ND (1.0)	835	7.8 J
SW1	11/20/2013	ND (0.2)	ND (1.0)	838	7.6 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
SW2	05/20/2013	ND (0.2)	ND (1.0)	853	7.5 J
SW2	07/15/2013	ND (0.2)	ND (1.0)	840	7.9 J
SW2	11/20/2013	ND (0.2)	ND (1.0)	850	7.4 J

Notes:

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

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

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

pH is reported to two significant figures.

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

Location	Sample Date	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, total as CaCO3 mg/L	Arsenic, dissolved µg/L	Barium, dissolved µg/L	Iron, Total µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Molybdenum, dissolved µg/L	Nitrate as Nitrogen mg/L	Nitrate/Nitrite as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations														
C-BNS-D	01/08/2013	123	ND (5.0)	123	2.5	---	26.3	ND (20.0)	0.71	4.4	ND (0.5)	---	ND (5.0)	ND (10.0)
C-BNS-D	03/04/2013	125	ND (5.0)	125	2.2	---	24.0	ND (20.0)	0.68	4.2	ND (0.5)	---	ND (5.0)	ND (10.0)
C-BNS-D	05/20/2013	129	ND (5.0)	129	2.6	---	ND (20.0)	ND (20.0)	0.88	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
C-BNS-D	07/15/2013	123	ND (5.0)	123	2.7	---	ND (20.0)	ND (20.0)	0.8	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-BNS-D	11/20/2013	125	ND (5.0)	125	2.5	92.7	34.9	ND (20.0)	1.5	3.5	---	0.3	ND (5.0)	ND (4.0)
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-S	05/21/2013	135	ND (5.0)	135	2.4	---	ND (20.0)	ND (20.0)	0.74	4.1	---	ND (0.5)	ND (5.0)	ND (10.0)
C-CON-S	07/16/2013	130	ND (5.0)	130	2.7	---	ND (20.0)	ND (20.0)	0.63	4.5	---	ND (0.5)	ND (5.0)	ND (25.0)
C-CON-S	11/21/2013	132	ND (5.0)	132	2.8	99.5	23.5	ND (20.0)	1.3	3.8	---	0.3	ND (5.0)	ND (4.0)
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-CON-D	05/21/2013	132	ND (5.0)	132	2.5	---	ND (20.0)	ND (20.0)	0.68	4.2	---	ND (0.5)	ND (5.0)	ND (10.0)
C-CON-D	07/16/2013	130	ND (5.0)	130	2.6	---	23.5	ND (20.0)	0.68	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-CON-D	11/21/2013	131	ND (5.0)	131	3.0	99.7	41.7	ND (20.0)	1.3	3.9	---	0.3	ND (5.0)	ND (4.0)
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-S	05/20/2013	123	ND (5.0)	123	2.5	---	ND (20.0)	ND (20.0)	0.74	3.9	---	ND (0.5)	ND (5.0)	ND (10.0)
C-I-3-S	07/15/2013	108	ND (5.0)	108	2.8	---	33.0	ND (20.0)	0.76	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-I-3-S	11/20/2013	129	ND (5.0)	129	2.4	88.5	ND (20.0)	ND (20.0)	0.88	3.3	---	0.31	ND (5.0)	ND (4.0)
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-I-3-D	05/20/2013	125	ND (5.0)	125	2.5	---	ND (20.0)	ND (20.0)	0.73	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
C-I-3-D	07/15/2013	115	ND (5.0)	115	2.7	---	37.6	ND (20.0)	0.78	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-I-3-D	11/20/2013	127	ND (5.0)	127	2.6	90.3	29.5	ND (20.0)	0.86	3.5	---	0.29	ND (5.0)	ND (4.0)
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-S	05/20/2013	164	ND (5.0)	164	2.6	---	772	210	44.1	4.2	---	ND (0.5)	ND (5.0)	23.2
C-MAR-S	07/15/2013	136	ND (5.0)	136	3.1	---	861	ND (20.0)	20.5	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-MAR-S	11/21/2013	139	ND (5.0)	139	2.7	101	1390	24.2	56.3	3.8	---	0.29	ND (5.0)	48.8
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-MAR-D	05/20/2013	159	ND (5.0)	159	2.4	---	824	ND (20.0)	42.6	4.2	---	ND (0.5)	ND (5.0)	28.8
C-MAR-D	07/15/2013	131	ND (5.0)	131	3.0	---	746	22.2	19.2	4.2	---	ND (0.5)	ND (5.0)	ND (25.0)
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-S	05/21/2013	131	ND (5.0)	131	2.5	---	22.5	ND (20.0)	0.76	4.4	---	ND (0.5)	ND (5.0)	ND (10.0)
C-NR1-S	07/16/2013	124	ND (5.0)	124	2.8	---	ND (20.0)	ND (20.0)	0.7	4.1	---	ND (0.5)	ND (5.0)	ND (25.0)
C-NR1-S	11/21/2013	133	ND (5.0)	133	2.8	96.7	ND (20.0)	ND (20.0)	1.3	3.7	---	0.31	ND (5.0)	ND (4.0)
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-NR1-D	05/21/2013	132	ND (5.0)	132	2.4	---	26.1	ND (20.0)	0.64	4.2	---	ND (0.5)	ND (5.0)	ND (10.0)

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

Location	Sample Date	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, total as CaCO3 mg/L	Arsenic, dissolved µg/L	Barium, dissolved µg/L	Iron, Total µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Molybdenum, dissolved µg/L	Nitrate as Nitrogen mg/L	Nitrate/Nitrite as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations														
C-NR1-D	07/16/2013	110	ND (5.0)	110	2.6	---	24.4	ND (20.0)	0.67	4.1	---	ND (0.5)	ND (5.0)	ND (25.0)
C-NR1-D	11/21/2013	134	ND (5.0)	134	2.9	97.4	38.5	ND (20.0)	1.4	3.7	---	0.3	ND (5.0)	ND (4.0)
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-S	05/21/2013	129	ND (5.0)	129	2.4	---	ND (20.0)	ND (20.0)	0.8	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-S	07/16/2013	131	ND (5.0)	131	2.7	---	ND (20.0)	ND (20.0)	0.66	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-NR3-S	11/21/2013	132	ND (5.0)	132	2.7	92.9	22.5	ND (20.0)	1.4	3.6	---	0.29	ND (5.0)	ND (4.0)
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-NR3-D	05/21/2013	127	ND (5.0)	127	2.6	---	ND (20.0)	ND (20.0)	0.7	4.2	---	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-D	07/16/2013	126	ND (5.0)	126	2.7	---	ND (20.0)	ND (20.0)	0.66	4.1	---	ND (0.5)	ND (5.0)	ND (25.0)
C-NR3-D	11/21/2013	130	ND (5.0)	130	2.8	99.3	43.3	ND (20.0)	1.3	3.8	---	0.3	ND (5.0)	ND (4.0)
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-S	05/21/2013	123	ND (5.0)	123	2.5	---	ND (20.0)	ND (20.0)	0.74	4.1	---	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-S	07/16/2013	122	ND (5.0)	122	2.7	---	ND (20.0)	ND (20.0)	0.65	4.1	---	ND (0.5)	ND (5.0)	ND (25.0)
C-NR4-S	11/21/2013	132	ND (5.0)	132	2.5	93.0	21.7	ND (20.0)	0.93	3.5	---	0.32	ND (5.0)	ND (4.0)
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-NR4-D	05/21/2013	127	ND (5.0)	127	2.4	---	ND (20.0)	ND (20.0)	0.67	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-D	07/16/2013	125	ND (5.0)	125	2.7	---	ND (20.0)	ND (20.0)	0.65	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-NR4-D	11/21/2013	130	ND (5.0)	130	2.6	94.4	24.9	ND (20.0)	1.1	3.7	---	0.3	ND (5.0)	ND (4.0)
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-S	05/20/2013	126	ND (5.0)	126	2.4	---	26.1	ND (20.0)	1.2	3.9	---	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-S	07/15/2013	125	ND (5.0)	125	2.8	---	ND (20.0)	ND (20.0)	1.3	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-R22a-S	11/20/2013	131	ND (5.0)	131	2.5	93.8	76.4	ND (20.0)	4.5	3.5	---	0.29	ND (5.0)	ND (4.0)
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-R22a-D	05/20/2013	126	ND (5.0)	126	2.6	---	27.5	ND (20.0)	1.2	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-D	07/15/2013	127	ND (5.0)	127	2.6	---	ND (20.0)	ND (20.0)	0.96	3.5	---	ND (0.5)	ND (5.0)	ND (25.0)
C-R22a-D	11/20/2013	128	ND (5.0)	128	2.4	91.2	47.7	ND (20.0)	3.9	3.5	---	0.29	ND (5.0)	ND (4.0)
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-S	05/20/2013	130	ND (5.0)	130	2.6	---	25.8	ND (20.0)	1.0	3.8	---	ND (0.5)	ND (5.0)	ND (10.0)
C-R27-S	07/15/2013	130	ND (5.0)	130	2.8	---	ND (20.0)	ND (20.0)	0.88	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-R27-S	11/20/2013	130	ND (5.0)	130	2.6	91.7	42.2	ND (20.0)	3.5	3.5	---	0.29	ND (5.0)	ND (4.0)
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-R27-D	05/20/2013	130	ND (5.0)	130	2.6	---	26.4	ND (20.0)	1.2	3.9	---	ND (0.5)	ND (5.0)	ND (10.0)
C-R27-D	07/15/2013	130	ND (5.0)	130	2.8	---	ND (20.0)	ND (20.0)	0.78	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-R27-D	11/20/2013	127	ND (5.0)	127	2.5	92.1	55.5	ND (20.0)	3.8	3.5	---	0.28	ND (5.0)	ND (4.0)

TABLE 3-5

COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, January 2013 through December 2013

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

Location	Sample Date	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, total as CaCO3 mg/L	Arsenic, dissolved µg/L	Barium, dissolved µg/L	Iron, Total µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Molybdenum, dissolved µg/L	Nitrate as Nitrogen mg/L	Nitrate/Nitrite as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations														
C-TAZ-S	01/08/2013	113	ND (5.0)	113	2.5	---	24.2	ND (20.0)	1.0	4.2	ND (0.5)	---	ND (5.0)	ND (10.0)
C-TAZ-S	03/04/2013	118	ND (5.0)	118	2.2	---	22.3	ND (20.0)	0.51	4.1	ND (0.5)	---	ND (5.0)	ND (10.0)
C-TAZ-S	05/20/2013	118	ND (5.0)	118	2.4	---	ND (20.0)	ND (20.0)	0.84	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
C-TAZ-S	07/15/2013	126	ND (5.0)	126	2.8	---	20.8	ND (20.0)	0.97	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-TAZ-S	11/20/2013	128	ND (5.0)	128	2.5	89.8	30.0	21.0	1.6	3.4	---	0.29	ND (5.0)	ND (4.0)
C-TAZ-D	01/08/2013	124	ND (5.0)	124	2.4	---	23.3	ND (20.0)	0.84	4.0	ND (0.5)	---	ND (5.0)	ND (10.0)
C-TAZ-D	03/04/2013	121	ND (5.0)	121	2.3	---	29.0	ND (20.0)	ND (0.5)	4.2	ND (0.5)	---	ND (5.0)	ND (10.0)
C-TAZ-D	05/20/2013	126	ND (5.0)	126	2.4	---	ND (20.0)	ND (20.0)	0.75	3.7	---	ND (0.5)	ND (5.0)	ND (10.0)
C-TAZ-D	07/15/2013	130	ND (5.0)	130	2.7	---	24.7	ND (20.0)	0.67	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
C-TAZ-D	11/20/2013	129	ND (5.0)	129	2.5	89.8	21.8	ND (20.0)	1.4	3.4	---	0.29	ND (5.0)	ND (4.0)
Shoreline Samples														
R-19	01/09/2013	125	ND (5.0)	125	2.4	---	ND (20.0)	ND (20.0)	1.2	3.9	ND (0.5)	---	ND (5.0)	ND (10.0)
R-19	03/05/2013	121	ND (5.0)	121	2.3	---	ND (20.0)	ND (20.0)	0.64	4.2	ND (0.5)	---	ND (5.0)	ND (10.0)
R-19	05/21/2013	126	ND (5.0)	126	2.5	---	20.2	ND (20.0)	0.95	3.9	---	ND (0.5)	ND (5.0)	ND (10.0)
R-19	07/16/2013	123	ND (5.0)	123	2.7	---	ND (20.0)	ND (20.0)	0.78	4.1	---	ND (0.5)	ND (5.0)	ND (25.0)
R-19	11/21/2013	128	ND (5.0)	128	2.7	96.3	57.7	ND (20.0)	3.7	3.6	---	0.3	ND (5.0)	ND (4.0)
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)
R-28	05/21/2013	127	ND (5.0)	127	2.3	---	ND (20.0)	ND (20.0)	0.91	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
R-28	07/16/2013	124	ND (5.0)	124	2.9	---	ND (20.0)	ND (20.0)	0.81	3.9	---	ND (0.5)	ND (5.0)	ND (25.0)
R-28	11/21/2013	131	ND (5.0)	131	2.7	94.0	69.3	ND (20.0)	3.5	3.6	---	0.29	ND (5.0)	ND (4.0)
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)
R63	05/20/2013	119	ND (5.0)	119	2.6	---	106	ND (20.0)	5.6	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
R63	11/20/2013	130	ND (5.0)	130	2.5	90.8	110	ND (20.0)	7.0	3.4	---	0.28	ND (5.0)	4.4
R63	07/15/2013	135	ND (5.0)	135	2.7	---	31.1	ND (20.0)	1.6	4.0	---	ND (0.5)	ND (5.0)	ND (25.0)
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)
RRB	05/21/2013	114	ND (5.0)	114	2.5	---	38.3	ND (20.0)	5.2	4.0	---	ND (0.5)	ND (5.0)	ND (10.0)
RRB	07/16/2013	130	ND (5.0)	130	3.0	---	60.1	ND (20.0)	4.4	3.9	---	ND (0.5)	ND (5.0)	ND (25.0)
RRB	11/21/2013	165	ND (5.0)	165	2.5	173	504	ND (20.0)	354	3.1	---	0.17	ND (5.0)	41.3

Notes:
CaCO3 = calcium carbonate.
COPC = contaminants of potential concern (molybdenum, selenium, and nitrate).
J = concentration or reporting limit estimated by laboratory or data validation.
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
TSS = total suspended solids.
µg/L = micrograms per liter.

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

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

TABLE 4-1

Pumping Rate and Extracted Volume for IM System, Fourth Quarter and Annual 2013

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

PG&E Topock Compressor Station, Needles, California

Extraction Well ID	November 2013		December 2013		Fourth Quarter 2013		Annual 2013	
	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)
TW-02S	0.00	0	0.03	1,321	0.01	1,321	0.0	1,321
TW-02D	0.00	0	0.29	12,799	0.14	12,799	0.06	33,005
TW-03D	103.30	4,462,492	107.27	4,788,600	105.28	9,251,091	NA [b]	NA [b]
PE-01	26.30	1,131,956	26.62	1,188,261	26.41	2,320,216	NA [b]	NA [b]
TOTAL	**129.5**	**5,594,447**	**134.2**	**5,990,980**	**131.9**	**11,585,427**	**130.1 [b]**	**68,362,245 [b]**

Chromium Removed This Quarter (kg)	44.5
Chromium Removed This Year (kg)	170
Chromium Removed This Quarter (kg)	3540
Chromium Removed This Quarter (lb)	98.1
Chromium Removed This Year (lb)	374
Chromium Removed Project to Date (lb)	7800

Notes:

gal = gallons.
GMP = Groundwater Monitoring Program.
gpm = gallons per minute.
kg = kilograms.
lb = pounds.
NA = not available.

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

[b] In August 2013, a series of lightning strikes at the IM-3 treatment facility caused significant damage to electrical components. On August 18, 2013, the lightning strikes caused the flow meters at TW-3D and PE-01 to fail. The extraction pumps continued to operate following the lightning strikes without operable flow meters because replacement flow meters were not readily available. The flow meter at PE-01 was replaced on August 29, 2013, and the flow meter in TW-3D was replaced on September 4, 2013. Flow meter data for PE-01 were unavailable between August 18 and August 28, 2013, and flow meter data for TW-03D were unavailable from August 18, 2013 through September 4, 2013. Therefore, the total volume extracted and combined pumping rates in August and September were estimated by combining the flow totals from the flow meters when they were operable and data from the IM-3 treatment plant facility when flow meter data were unavailable.

Chromium removed includes the period of October 1, 2013 through December 31, 2013. On July 23, 2010, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from October 1, 2013 through December 31, 2013. Chromium removed totals for this reporting period only include periods in which the flow meters were operating correctly (see footnote b).

Chromium removed project to date includes all Cr treatment, including IM-3 and previous IM-2 operation.

TABLE 4-2

Average Hydraulic Gradients Measured at Well Pairs, Fourth Quarter 2013

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

Well Pair[a]	**Reporting Period**	**Mean Landward**[b] **Hydraulic Gradient (feet/foot)**	**Days in**[c] **Monthly Average**
	November	0.0047	NA
Overall Average	December	0.0057	NA
Northern Gradient Pair	November	0.0021	30 / 30
MW-31-135 / MW-33-150	December	0.0020	31 / 31
Central Gradient Pair	November	0.0087	30 / 30
MW-45-95 / MW-34-100	December	0.0112	31 / 31
Southern Gradient Pair	November	0.0035	30 / 30
MW-45-95 / MW-27-85	December	0.0038	31 / 31

Notes:

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

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

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

	Davis Dam Release			Colorado River Elevation at I-3		
Month	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft amsl)	Actual (ft amsl)	Difference (feet)
January 2011	7,700	8,172	-472	453.1	453.34	0.2
February 2011	11,000	10,547	453	454.2	454.38	0.2
March 2011	15,900	15,875	25	455.9	456.22	0.3
April 2011	17,900	17,595	305	456.9	457.02	0.2
May 2011	16,400	15,437	963	456.6	456.40	-0.2
June 2011	16,100	16,024	76	456.5	456.75	0.2
July 2011	15,500	15,333	167	456.3	456.30	0.1
August 2011	13,300	13,368	-68	455.4	455.67	0.3
September 2011	12,700	12,052	648	455.2	455.25	0.1
October 2011	9,200	9,934	-734	453.9	454.30	0.4
November 2011	8,600	7,838	762	453.7	453.61	-0.1
December 2011	6,600	6,262	338	452.6	452.49	-0.1
January 2012	9,800	10,378	-578	453.7	453.99	0.3
Febraury 2012	12,300	12,614	-314	454.8	455.25	0.4
March 2012	14,800	15,134	-334	455.8	455.88	0.1
April 2012	18,300	18,330	-30	457.1	457.33	0.2
May 2012	15,900	15,938	-38	456.4	456.63	0.2
June 2012	15,900	15,996	-96	456.4	456.59	0.2
July 2012	14,500	13,087	1,413	456.0	455.72	-0.3
August 2012	12,200	12,104	96	455.2	455.45	0.3
September 2012	13,000	12,147	853	455.2	455.31	0.1
October 2012	8,400	9,037	-637	453.6	453.95	0.3
November 2012	8,500	8,390	110	453.6	NA	NA
December 2012	6,300	6,427	-127	452.6	452.17	-0.4
January 2013	8,300	8,299	1	453.2	453.28	0.04
February 2013	10,600	10,972	-372	454.3	454.63	0.4
March 2013	15,200	15,545	-345	456.0	456.29	0.3
April 2013	17,600	17,090	510	456.9	456.74	-0.1
May 2013	15,800	15,592	208	456.4	456.44	0.0
June 2013	15,700	15,588	112	456.5	456.47	0.0
July 2013	14,400	13,165	1,235	456.0	455.79	-0.2
August 2013	13,100	12,185	915	455.4	455.43	0.0
September 2013	11,700	11,446	254	454.8	455.02	0.2
October 2013	12,300	12,497	-197	454.9	455.09	0.2
November 2013	9,700	8,918	782	454.0	453.98	0.0
December 2013	6,400	7,636	-1,236	452.4	452.81	0.4
January 2014	8,300			452.8		

NOTES:
cfs = cubic feet per second; ft amsl = feet above mean sea level.
NA = Data unavailable during this time period.

Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon January 2014 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 USBR 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, 2013a)

TABLE 5-1
Summary of Pumping Rate and Extracted Volume for 2013 Reporting Period
Fourth Quarter 2013 and Annual Interim Measures Performance
Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Reporting Period	Target Pump Rate (gpm)	Actual Monthly Pump Rate (gpm)	Individual Extraction Well Operations				Total Volume (gallons)
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	
Jan-13	135	131.7	0	0	4,696,435	1,183,120	5,879,555
Feb-13	135	131.4	0	0	4,229,713	1,068,417	5,298,130
Mar-13	135	134.8	0	0	4,800,946	1,217,768	6,018,714
Apr-13	135	117.9	0	20,206	4,043,244	1,027,918	5,091,368
May-13	135	134.4	0	0	4,775,700	1,225,247	6,000,947
Jun-13	135	131.9	0	0	4,540,111	1,159,847	5,699,957
Jul-13	135	129.3	0	0	4,581,709	1,189,977	5,771,686
Aug-13	135	118.7 [a]	0	0	NA [a]	NA [a]	5,300,000 [a]
Sep-13	135	132.7 [a]	0	0	NA [a]	NA [a]	5,700,000 [a]
Oct-13	135	134.8	0	0	4,792,370	1,224,089	6,016,459
Nov-13	135	129.5	0	0	4,462,492	1,131,956	5,594,447
Dec-13	135	134.2	1,321	12,799	4,788,600	1,188,261	5,990,980
Totals for 2013 Annual Period		130.1 [a]	1,321	33,005			68,362,245 [a]

Notes:
gpm: gallons per minute
The target pumping rate of 135 gpm, excluding periods of planned and unplanned downtime, was maintained by pumping from extraction wells TW-3D and PE-1 during the 2013 reporting period.
Extraction well TW-2D was only used for interim service or to support field operations.
[a] In August 2013, a series of lightning strikes at the IM-3 treatment facility caused significant damage to electrical components. On August 18, 2013, the lightning strikes caused the flow meters at TW-3D and PE-01 to fail. The extraction pumps continued to operate following the lightning strikes without operable flow meters because replacement flow meters were not readily available. The flow meter at PE-01 was replaced on August 29, 2013, and the flow meter in TW-3D was replaced on September 4, 2013. Flow meter data for PE-01 were unavailable between August 18 and August 28, 2013, and flow meter data for TW-03D were unavailable from August 18, 2013 through September 4, 2013. Therefore, the total volume extracted and combined pumping rates in August and September were estimated by combining the flow totals from the flow meters when they were operable and data from the IM-3 treatment plant facility when flow meter data were unavailable.

TABLE 5-2
Analytical Results for Extraction Wells, January 2013 through December 2013
Fourth Quarter 2013 and Annual 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)	pH
TW-3D	02-Jan-13	925 LF	897	5,070	7.26 J
	05-Feb-13	950 LF	1,020	5,120	7.22 J
	05-Mar-13	898 LF	867	5,290	7.25 J
	01-Apr-13	766 LF	836	5,140	7.24 J
	01-May-13	881 LF	746	4,990	7.18 J
	04-Jun-13	847 LF	846	5,030	7.22 J
	02-Jul-13	828 LF	934	4,920	7.54 J
	06-Aug-13	892 LF	816	4,560	7.51 J
	03-Sep-13	832 LF	728	4,630	7.54 J
	01-Oct-13	720 LF	846	5,010	7.51 J
	05-Nov-13	817 LF	816 J	4,990 J	7.74 J
	03-Dec-13	832 LF	934	4,860	7.44 J
PE-1	02-Jan-13	8.00 LF	8.10	2,760	7.59 J
	05-Feb-13	8.40 LF	7.70	2,660	7.52 J
	05-Mar-13	6.60 LF	6.50	2,820	7.53 J
	01-Apr-13	5.60 LF	5.60	2,780	7.52 J
	01-May-13	5.80 LF	5.00	2,760	7.43 J
	04-Jun-13	5.60 LF	5.10	2,650	7.47 J
	02-Jul-13	5.30 LF	4.70	2,620	7.45 J
	06-Aug-13	5.70 LF	5.00	2,700	7.52 J
	03-Sep-13	5.40 LF	5.10	2,700	7.63 J
	01-Oct-13	5.10 LF	5.20	2,600	7.59 J
	05-Nov-13	5.00 LF	5.20 J	2,580 J	7.72 J
	03-Dec-13	6.00 LF	5.50	2,560	7.52 J

Notes:

J = concentration or reporting limit estimated by laboratory or data validation.
LF = lab filtered.
mg/L = milligrams per liter.
µg/L = micrograms per liter.

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

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

TABLE 5-3
Calculated Hydraulic Gradients for Well Pairs by Month for 2013 Reporting Period
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

	Mean Landward Hydraulic Gradient (ft/ft)[a]			
Reporting Period 2013	Overall Average[b]	Northern Gradient Pair[c] MW-31-135 / MW-33-150	Central Gradient Pair MW-45-95 / MW-34-100	Southern Gradient Pair MW-45-95 / MW-27-85
January	0.0055	0.0022	0.0104	0.0038
February	0.0059	0.0023	0.0115	0.0039
March	0.0064	0.0025	0.0124	0.0044
April	0.0042	0.0021	0.0076	0.0029
May	0.0057	0.0023	0.0107	0.0040
June	0.0055	0.0023	0.0102	0.0039
July	0.0052	0.0021	0.0098	0.0037
August	0.0039	0.0018	0.0072	0.0027
September	0.0049	0.0021	0.0090	0.0037
October	0.0050	0.0025	0.0088	0.0037
November	0.0047	0.0021	0.0087	0.0035
December	0.0057	0.0020	0.0112	0.0038

Notes:

[a] For Interim measures pumping, the target landward gradient for the selected well pairs is 0.001 ft/ft

[b] Overall average gradients are calculated using all available data.

[c] Refer to Figure 1-4 for location of well pairs and Tables E-1 and E-2 for number of days in reporting period.

ft/ft = feet/foot

TABLE 7-1
Proposed Schedule Changes for GMP-PMP Reporting
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Period	Sampling Event	Approximate Number of Wells	GMP Sample Date	Current IM-3 Sample Date	Current Reporting Period	Current Report Date	Proposed IM-3 Sample Date[c]	Proposed Revised Reporting Date	Months from End of GMP Sample Date to Report
First Period	Quarterly	58	Early February to early March	End of February	January through March	30-Apr	No Change	No Change	
Second Period	Semiannually	98	April to mid May[a]	End of May	April through June	15-Aug	No Change	No Change	
Third Period	Quarterly	58	Late September to mid October[b]	End of September	July through October	30-Nov	No Change	15-Dec	2
Fourth Period	Annually/Biennially	139	Early to mid December	End of December	November through December	15-Mar	No Change	No Change	

Notes:

[a] Sampling of wells in SWFL nesting area will be conducted in the last week of April.

[b] Sampling of wells in SWFL nesting area will be conducted in the first week of October.

SWFL nesting season is May through September. Efforts are made to minimize activities in the floodplain during this time.

No GMP sampling events occur between the May semiannual event (potenital nesting area sampled during the last week of April) and the September quarterly event (potential nesting area sampled during the first week of October). One RMP quarterly river sampling event takes place in July during this time period.

[c] In 2009, the GMP reporting periods (January through March, etc.) shifted to match the PMP reporting periods (February through April, etc.) when the reporting for the two programs was combined. Proposed IM-3 sample date is based on proposed revised reporting date

To minimize the time between GMP sample date and report submittal date, the timing for the last IM-3 sample (collected at end of month) included for each reporting period was changed.

GMP = Groundwater Monitoring Program.
IM-3 = Interim Measures Number 3.
PMP = Performance Monitoring Program.
RMP = Surface Water Monitoring Program.
SWFL = Southwest Willow Flycatcher

TABLE 7-2

Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications

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

Well ID	Current Frequency	Proposed Frequency	Current Analytes	Proposed Analytes	Location vs. Plume	Remedy Role	Trends	Typical [Cr(VI)] ug/L (approx)	Comments
MW-09	Annual	**Annual; BCW flow**	Cr, COPC, AWQ	Cr, COPC, BP, BWQ	BCW in plume		Cr sta	300	
MW-10	Semi-annual	**Annual; BCW flow**	Cr, COPC, F, T22, AWQ	Cr, COPC, BWQ	BCW in plume		Cr sta; COPC var	450	
MW-11	Annual	**Annual; BCW flow**	Cr, COPC, AWQ	Cr, COPC, BP, BWQ	BCW in plume		Cr dec	180	ISPT
MW-12	Quarterly	**Semi-annual**	Cr, COPC, T22, AWQ	Cr, COPC, BWQ	TCS in plume	TCS loop	Cr var	2,500	
MW-13	Annual	NC	Cr, BP, AWQ	Cr, BP, BWQ	E of BCW, edge plume	IR Loop - Mon	Cr sta	21	
MW-14	Annual	NC	Cr, AWQ	Cr, COPC, BP, BWQ	W of BCW, outside plume	IR Loop - DR	Cr dec	20	
MW-15	Biennial	NC	Cr, AWQ	Cr, BWQ	W of BCW, outside plume			11	
MW-16	Semi-annual	**Biennial**	Cr, BKG, AWQ	Cr, BWQ	W of BCW, outside plume		Cr sta	10	
MW-17	Semi-annual	**Biennial**	Cr, BKG, AWQ	Cr, BWQ	W of BCW, outside plume		Cr sta	14	
MW-18	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	W of BCW, outside plume		Cr sta	21	
MW-19	Annual	NC	Cr, AWQ	Cr, BWQ	NTH, in plume		Cr var; COPC sta	250	
MW-20-070	Semi-annual	**Annual**	Cr, COPC, AWQ, PMP	Cr, COPC, BWQ+OD	NTH, in plume	NTH IRZ DR	Cr sta	3,200	
MW-20-100	Semi-annual	**Annual**	Cr, COPC, AWQ, PMP	Cr, COPC, BWQ+OD	NTH, in plume	NTH IRZ DR	Cr dec; COPC sta	3,400	
MW-20-130	Semi-annual	**Annual**	Cr, COPC, BP, AWQ, PMP	Cr, COPC, BP, BWQ+OD	NTH, in plume	NTH IRZ DR	Cr sta; COPC var	10,000	
MW-21	Quarterly	**Semi-annual**	Cr, COPC, AWQ	Cr, COPC, BWQ	NTH, outside plume	NTH IRZ DR	Cr sta	2 to ND	IMCP
MW-22	Semi-annual	**Biennial**	Cr, BP,T22	Cr, BP, BWQ+OD		NTH IRZ DG, RE	Cr sta	ND	well not typical of FP or upland
MW-23-060	Quarterly	**Semi-annual**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	NE of TCS outside plume	TCS loop	Cr sta; COPC var	30	
MW-23-080	Quarterly	**Semi-annual**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	NE of TCS outside plume	TCS loop	Cr var; COPC var	16	
MW-24A	Semi-annual	NC	Cr, ISPT	NC	N of TCS in plume		Cr dec	ND	ISPT
MW-24B	Semi-annual	NC	Cr, ISPT	NC	N of TCS in plume		Cr dec	1,500	ISPT
MW-24BR	Quarterly	**Annual**	Cr, AWQ	Cr, COPC, BP, BWQ	N of TCS outside plume		Cr sta	ND	
MW-25	Annual	**Biennial**	Cr, BP, AWQ, PMP	Cr, COPC, BP, BWQ	N of TCS in plume		Cr dec; COPC inc	250	
MW-26	Semi-annual	NC	Cr, COPC, BP, AWQ, PMP	Cr, COPC, BP, BWQ+OD, rdx	NTH in plume	NTH IRZ DR	Cr sta; COPC var	1,800	
MW-27-020	Annual	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	FP outside plume	NTH IRZ RE	Cr sta	1 to ND	
MW-27-060	Annual	NC	Cr, COPC, F, BP, AWQ, rdx	Cr, COPC, BP, F, BWQ, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	
MW-27-085	Quarterly	**Semi-annual**	Cr, COPC, F, BP, AWQ, rdx	Cr, COPC, BP, F, BWQ, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	IMCP
MW-28-025	Semi-annual	**Annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	
MW-28-090	Quarterly	**Semi-annual**	Cr, COPC, F, BP, AWQ, rdx	Cr, COPC, BP, F, BWQ, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	IMCP
MW-29	Semi-annual	NC	Cr, COPC, AWQ, BP, As, rdx	Cr, COPC, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-30-030	Semi-annual	**Annual**	Cr, COPC, AWQ, As	Cr, COPC, BP, BWQ	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-30-050	Annual	**Biennial**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-31-60	Semi-annual	NC	Cr, BP, AWQ, PMP, rdx	Cr, BP, BWQ+OD, rdx	FP in plume		Cr var	350	
MW-31-135	Annual	**Biennial**	Cr, COPC, BP, AWQ, rdx	Cr, BP, BWQ+OD, rdx	FP in plume		Cr dec	13	IM3 CZ
MW-32-020	Annual	**Biennial**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-32-035	Semi-annual	**Annual**	Cr, BP, AWQ, PMP, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-33-040	Quarterly	**Semi-annual**	Cr, COPC, F, BP, AWQ, rdx	Cr, COPC, BP, F, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta; COPC var	ND	IMCP
MW-33-090	Quarterly	**Semi-annual**	Cr, COPC, F, BP, AWQ, OD, rdx	Cr, COPC, BP, F, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr var	17	IMCP
MW-33-150	Quarterly	**Semi-annual**	Cr, COPC, F, BP, AWQ, OD, rdx	Cr, COPC, BP, F, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	12	IMCP
MW-33-210	Quarterly	**Annual**	Cr, COPC, F, BP, AWQ, OD, rdx	Cr, COPC, BP, F, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	12	IMCP
MW-34-055	Annual	NC	Cr, COPC, BP, AWQ, PMP, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	
MW-34-080	Quarterly	**Semi-annual**	Cr, BP, AWQ, PMP, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	IMCP
MW-34-100	Quarterly + M	**Quarterly**	Cr, COPC, BP, AWQ, PMP, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ RE	Cr dec	200	IMCP
MW-35-060	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ	Cr sta	25	
MW-35-135	Semi-annual	NC	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ	Cr sta	31	
MW-36-020	Annual	**Biennial**	Cr, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-36-040	Annual	**Biennial**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-36-050	Annual	**Biennial**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-36-070	Annual	**Biennial**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-36-090	Semi-annual	**Annual**	Cr, AWQ, OD, As, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	

TABLE 7-2

Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications

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

Well ID	Current Frequency	Proposed Frequency	Current Analytes	Proposed Analytes	Location vs. Plume	Remedy Role	Trends	Typical [Cr(VI)] ug/L (approx)	Comments
MW-36-100	Semi-annual	**Annual**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec	67	
MW-37D	Annual	NC	Cr, COPC, AWQ	Cr, COPC, BWQ	BCW outside plume	IRL DG	Cr dec	40	
MW-37S	Annual	NC	Cr, BP, AWQ	Cr, BP, BWQ	BCW in plume	IRL DG	Cr sta	10	
MW-38D	Annual	NC	Cr, COPC, BP, AWQ, ISPT	Cr, COPC, BP, BWQ, ISPT	BCW outside plume		Cr sta		ISPT; 2 consecutive Q events also performed after 2013 repair
MW-38S	Annual	NC	Cr, COPC, BP, AWQ, ISPT	Cr, COPC, BP, BWQ, ISPT	BCW outside plume		Cr sta		ISPT; 2 consecutive Q events also performed after 2013 repair
MW-39-040	Biennial	NC	Cr, As	Cr, BP	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-39-050	Annual	**Biennial**	Cr, COPC, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-39-060	Annual	**Biennial**	Cr, COPC, BP, AWQ, rdx	Cr, COCP+BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-39-070	Annual	**Biennial**	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-39-080	Annual	**Biennial**	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-39-100	Annual	NC	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec	110	
MW-40D	Annual	NC	Cr, COPC, BP, AWQ	Cr, COPC, BP, BWQ	W of BCW in plume		Cr inc; COPC sta	160	
MW-40S	Annual	NC	Cr, COPC, BP	Cr, COPC, BP	BCW outside plume		Cr sta	8	
MW-41D	Semi-annual	**Annual**	Cr, BP, AWQ	Cr, COPC, BP, BWQ	BCW outside plume	IRL DG	Cr sta	3	
MW-41M	Annual	NC	Cr, BP, AWQ	Cr, COPC, BP, BWQ	BCW outside plume	IRL DG	Cr sta	10	
MW-41S	Annual	NC	Cr, COPC, BP, AWQ	Cr, COPC, BP, BWQ	BCW outside plume	IRL DG	Cr sta	19	
MW-42-030	Biennial	NC	Cr, COPC, OD, As	Cr, COPC, BP, OD	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-42-055	Quarterly	NC	Cr, AWQ, OD, As, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-42-065	Quarterly	**Semi-annual**	Cr, BP, AWQ, OD, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-43-025	Annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-43-075	Annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-43-090	Annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-44-070	Semi-annual	**Biennial**	Cr, BP, AWQ, OD, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-44-115	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec; COPC var	100	IMCP
MW-44-125	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec; COPC var	ND	IMCP
MW-46-175	Quarterly + M	**Quarterly**	Cr, COPC, AWQ, OD, rdx	Cr, COPC, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec; COPC var	80	IMCP
MW-46-205	Semi-annual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx	FP in plume	NTH IRZ DG, RE	Cr sta	5 to ND	IMCP
MW-47-055	Semi-annual	NC	Cr, BP, AWQ, OD, rdx	Cr, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DR	Cr var	25	IMCP
MW-47-115	Semi-annual	NC	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP in plume	NTH IRZ DR	Cr sta	20	IMCP
MW-48	Quarterly	**Semi-annual**	Cr, AWQ	Cr, BWQ	N of TCS outside plume	TCS loop	Cr dec	ND	
MW-49-135	Annual	NC	Cr, BP, AWQ, OD, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	1.5 to ND	
MW-49-275	Annual	**Biennial**	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	
MW-49-365	Annual	**Biennial**	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	
MW-50-095	Semi-annual	**Annual**	Cr, AWQ, rdx	Cr, BWQ, rdx	NTH outside plume		Cr dec	14	
MW-50-200	Quarterly	**Semi-annual**	Cr, AWQ, rdx	Cr, BWQ, rdx	NTH in plume		Cr dec	8,000	
MW-51	Semi-annual	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	NTH in plume	NTH IRZ DR	Cr sta	4,700	
MW-52S	Semi-annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-52M	Semi-annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-52D	Semi-annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-53M	Semi-annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-53D	Semi-annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
OW-3S	Annual	NC	Cr, AWQ	Cr, BWQ	W of BCW, outside plume	FWI	Cr inc	27	
OW-3M	Annual	NC	Cr, AWQ	Cr, BWQ	W of BCW, outside plume	FWI	Cr sta	17	
OW-3D	Annual	NC	Cr, COPC, BP, AWQ	Cr, BWQ	W of BCW, outside plume	FWI	Cr sta-inc	10	
PGE-7BR	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	TCS outside plume		Cr sta	ND	ND Cr
PGE-8	Annual	**Biennial**	Cr, COPC, AWQ	Cr, COPC, BWQ	TCS outside plume		Cr dec	ND	
TEST WELLS									
PE-1	Monthly	NC	Cr, AWQ	Cr, BWQ	FP in plume		Cr dec	7	

TABLE 7-2

Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications

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

Well ID	Current Frequency	Proposed Frequency	Current Analytes	Proposed Analytes	Location vs. Plume	Remedy Role	Trends	Typical [Cr(VI)] ug/L (approx)	Comments
TW-1	Quarterly	**Semi-annual**	Cr, COPC, AWQ	Cr, COPC, BWQ	TCS in plume		Cr dec	3,000	in plume
TW-2S	Annual	**Biennial**	Cr, AWQ	Cr, COPC, BWQ	FP in plume		Cr dec	500	
TW-2D	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	FP in plume		Cr dec	200	
TW-3D	Monthly	NC	Cr, AWQ	Cr, BWQ	FP in plume		Cr sta	900	
TW-4	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	FP in plume		Cr dec	9	
TW-5	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	NTH in plume		Cr sta	14	
PARK MOABI									
PM-03	Annual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx			Cr sta	7	water supply well
PM-04	Annual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx			Cr sta	20	water supply well
ARIZONA									
MW-54-085	Semi-annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	outside plume		Cr sta	ND	
MW-54-140	Semi-annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	outside plume		Cr sta	ND	
MW-54-195	Semi-annual	NC	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	outside plume		Cr sta	ND	
MW-55-045	Annual	NC	Cr, AWQ	Cr, BWQ	outside plume		Cr sta	ND	
MW-55-120	Annual	NC	Cr, AWQ	Cr, BWQ	outside plume		Cr sta	7	
MW-56S	Semi-annual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx	FP outside plume		Cr sta	ND	same freq CA slant wells
MW-56M	Semi-annual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx	FP outside plume		Cr sta	ND	same freq CA slant wells
MW-56D	Semi-annual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx	FP outside plume		Cr sta	ND	same freq CA slant wells
EAST RAVINE - TOPOCK COMPRESSOR STATION									
MW-57-050	dry	NC	Cr, AWQ	Cr, BWQ			--	--	
MW-57-070	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	in ER in plume		Cr var	700	inside plume, lacks strong trend
MW-57-185	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	in ER in plume	TCS - TWB/ER	Cr inc	8	inside plume, lacks strong trend
MW-58-065	dry	NC	Cr, AWQ, As	Cr, BWQ		TCS - ER	--	--	
MW-58BR	Quarterly	**Semi-annual**	Cr, AWQ, As	Cr, COPC, BP, BWQ, rdx	in ER in plume	TCS - ER	Cr var; COPC var	2	semiannual frequency after 4Q 2013 event (4 quarterly samples in new configuration)
MW-59-100	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	N of ER, in plume	TCS - TWB	Cr dec	4,400	inside plume, decreasing trend
MW-60-125	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	S of ER, in plume	TCS - WL	Cr var; COPC var	880	in plume, near edge, upland
MW-60BR-245	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	S of ER, in plume		Cr dec	75	near plume edge, upland
MW-61-110	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	S of ER, in plume	TCS - ER	Cr sta	650	inside plume
MW-62-065	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	N of ER, in plume	TCS - ER	Cr sta	500	close to river
MW-62-110	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	N of ER, in plume	TCS - ER	Cr inc	900	close to river, Cr trend
MW-62-190	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	N of ER, in plume		Cr sta	ND	ND and stable
MW-63-065	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	near ER mouth at river, sentry at plume edge	TCS - ER	Cr sta	1.5	sentry location at plume edge near river
MW-64BR	Quarterly	**Semi-annual**	Cr, AWQ, As	Cr, COPC, BP, BWQ, rdx	S of ER, edge of plume, inland from river		Cr dec	6	semiannual frequency after 4Q 2013 event (4 quarterly samples in new configuration)
MW-65-160	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	SW TCS, in plume	TCS - WL	Cr inc	70	near plume edge
MW-65-225	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	SW TCS, in plume	TCS - WL	Cr inc	500	near plume edge
MW-66-165	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	W TCS, in plume	TCS - DR	Cr sta	650	inside plume, stable trend
MW-66-230	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	W TCS, in plume	TCS - DR	Cr inc	6,000	inside plume
MW-66BR-270	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	W TCS, in plume	TCS - WL	Cr sta	ND	inside plume, stable trend
MW-67-185	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	N TCS, inside plume	TCS - DG, TWB	Cr inc	2,300	inside plume
MW-67-225	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	N TCS, inside plume	TCS - DG, TWB	Cr sta	3,200	inside plume, stable trend
MW-67-260	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	N TCS, inside plume	TCS - DG, TWB	Cr sta	2,100	inside plume
MW-68-180	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	TCS, inside plume	TCS - TWB	Cr var; COPC var	20,000	variable trend - at least 4 more Q
MW-68-240	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	TCS, inside plume	TCS - TWB	Cr inc	2,000	inside plume, stable trend
MW-68BR-280	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	TCS, inside plume		Cr sta; COPC sta	ND	inside plume, stable trend
MW-69-195	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	S TCS, inside plume	TCS - WL	Cr inc; COPC inc	800	increasing trends

TABLE 7-2

Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications

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

Well ID	Current Frequency	Proposed Frequency	Current Analytes	Proposed Analytes	Location vs. Plume	Remedy Role	Trends	Typical [Cr(VI)] ug/L (approx)	Comments
MW-70-105	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	W ER, in plume	TCS - ER	Cr inc	75	inland from river, lower [Cr]
MW-70BR-225	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	W ER, in plume		Cr dec	2,200	inland from river, dec trend [Cr]
MW-71-035	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	NW of TCS, N of ER, plume edge	NTH IRZ DR	Cr sta	ND	plume edge but inland from river, stable ND trend
MW-72-080	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	SE of ER, in plume	TCS - ER	Cr inc; COPC var	150	near plume edge, near river
MW-72BR-200	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	SE of ER, in plume		Cr var	5	near plume edge, near river
MW-73-080	Quarterly	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	SE of ER, plume edge	TCS - ER	Cr sta	36	sentry location at plume edge near river
MW-74-240	Quarterly	**Semi-annual**	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	TCS - outside plume		Cr sta	ND	Stable

TABLE 7-2

Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications

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

Well ID	Current Frequency	Proposed Frequency	Current Analytes	Proposed Analytes	Location vs. Plume	Remedy Role	Trends	Typical [Cr(VI)] ug/L (approx)	Comments

Notes:

Frequency -
- Quarterly + M — quarterly, with additional monthly sampling during Colorado River low water level interval from November through February
- ER or BCW flow — to be sampled in the next quarterly event following a runoff event with flow in the well location wash (East Ravine or Bat Cave Wash)
- NC — No Change in frequency proposed
- ___ — Underline indicates a change in this table from the 2012 Annual Report frequency recommendation

Trends -
- sta — stable
- inc — increasing
- dec — decreasing
- var — variable — Trend descriptions based on Appendix C plots and historical data review

Analytes -

Cr	current & new	hexavalent and dissolved total Chromium, Cr(VI) and Cr.	
COPC, F	current & new	Additional contaminants of potential concern derived from risk assessment: Mo, Se, and Nitrate. At a small number of wells, Fluoride (F) is added.	
BP	current & new	In-situ reduction possible by-products: As and Mn	
PMP	current & new	Performance monitoring suite:	cations (Ca, Mg, Na, Fe, Mn, B), TDS, anions (bromide, chloride, sulfate, nitrate), alkalinity, stable isotopes (see "OD").
OD	current & new	oxygen and deuterium stable isotopes	
AWQ	current	annual water quality snapshot:	cations (Ca, Mg, Na, Fe, Mn), anions (chloride, sulfate, nitrate), alkalinity
		new biennial water quality suite, for collection with the 3Q/4Q 2013 & 4Q 2015	cations (Ca, Mg, Na, Fe, Mn, B), TDS, anions (bromide, chloride, sulfate), alkalinity, and COPC metals (Mo, Se). **BWQ+OD**
BWQ	new	GMP events:	indicates biennial stable isotope analyses are added.
BKG	current	Background Study metals list	Al, Sb, As, Ba, Be, B, Ca, Cd, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn
T22	current	Title 22 metals list	Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, V, Zn
As	current	Arsenic	
rdx	current & new	additional redox indicator	Ammonia added to AWQ, PMP or BWQ allows for chemical evaluation of redox conditions.

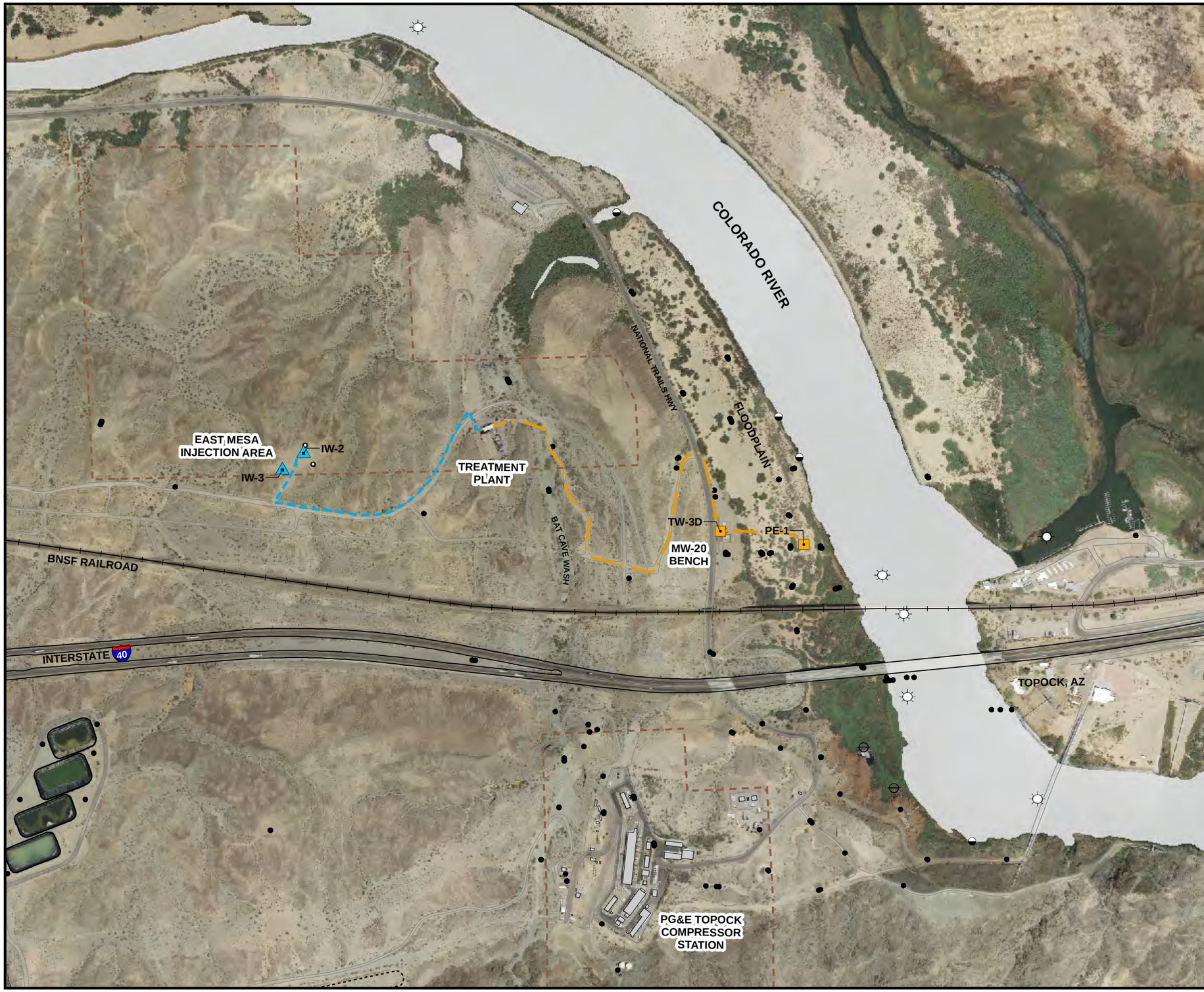
Compliance Monitoring Program (CMP) monitoring wells with added COPC and BP sampling proposed: OW-1S, OW-1M, OW-1D; OW-5S, OW-5M, OW-5D; CW-01D, CW-01M; CW-2D, CW-02M

Location vs. Plume -
- BCW, ER, TCS — Bat Cave Wash, East Ravine, Topock Compressor Station
- FP, NTH — Floodplain (area east of NTH along Colorado River) and NTH or National Trails Highway
- N, E, S, W — north, east, south or west relative to location (e.g. E of BCW)

Remedy Role -
- DR, DG, RE — dose-response monitoring, or down gradient monitoring, or riverbank extraction monitoring
- NTH IRZ — National Trails Highway in-situ reduction zone
- IRL — Inner Recirculation Loop
- TCS — Topock Compressor Station Loop, including Transwestern Bench (TWB) and East Ravine (ER) Extraction remedy monitoring
- FWI — Freshwater injection monitoring well
- WL — Water level monitoring

Comments -
- IMCP — This well is part of the IM chemical performance monitoring plan and has an assigned Cr(VI) trigger level.
- IM3 CZ — This well is located within the IM3 capture zone

Figures



VICINITY MAP

LEGEND

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

Notes:

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

N

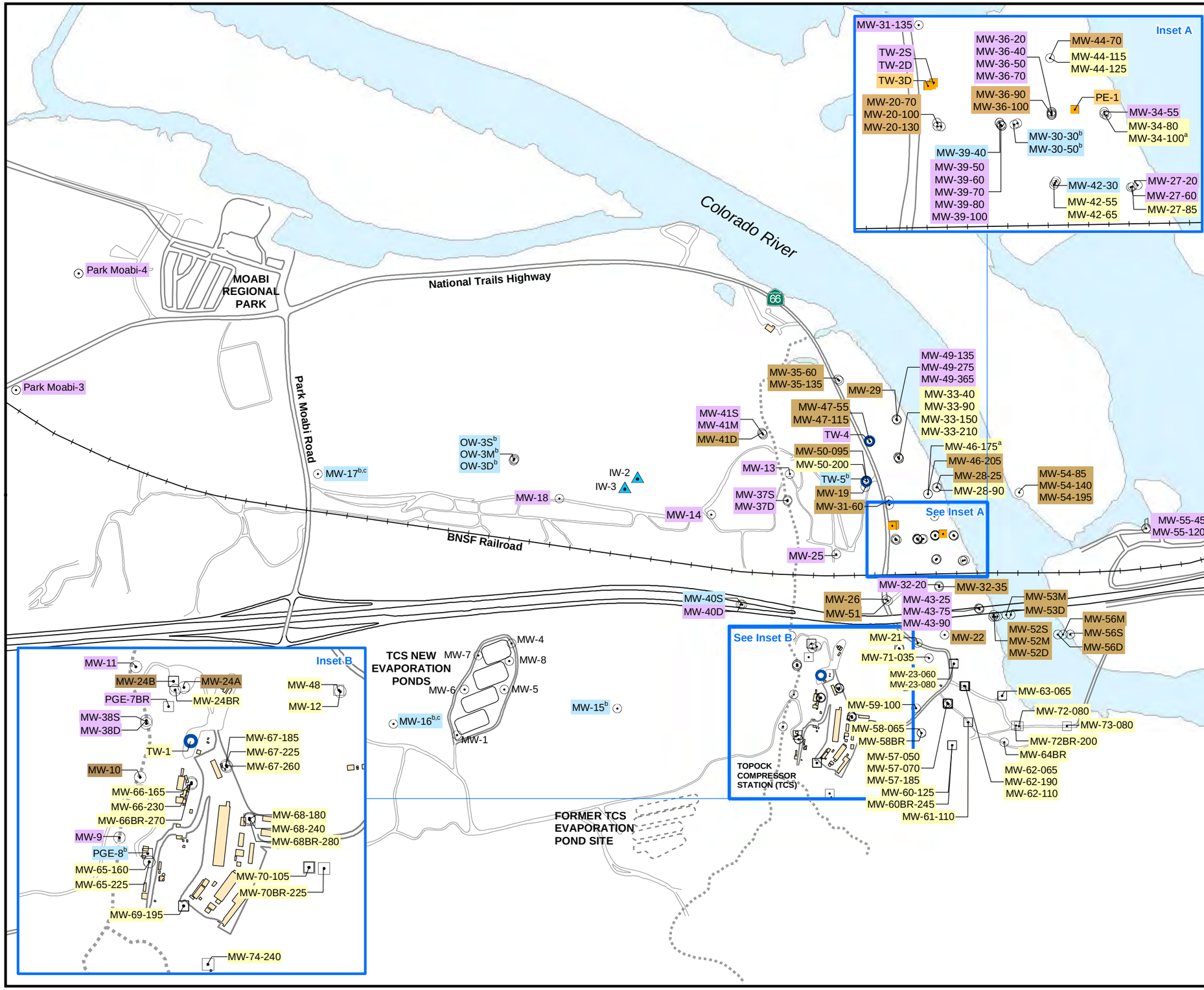
0 600 1,200 Feet

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

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

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE1-1_IM3_GMP_LOCS_2013Q4.MXD ECLARK1 2/10/2014 8:38:27 AM



LEGEND

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

Sampling Frequency for Groundwater Monitoring Program (GMP)

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

Notes:

[a] Monthly sampling November through February, otherwise quarterly.

[b] These wells required to be sampled biennially, will be sampled annually for the water quality snapshot.

[c] Background metals collected semiannually.

N

0 500 1,000 Feet

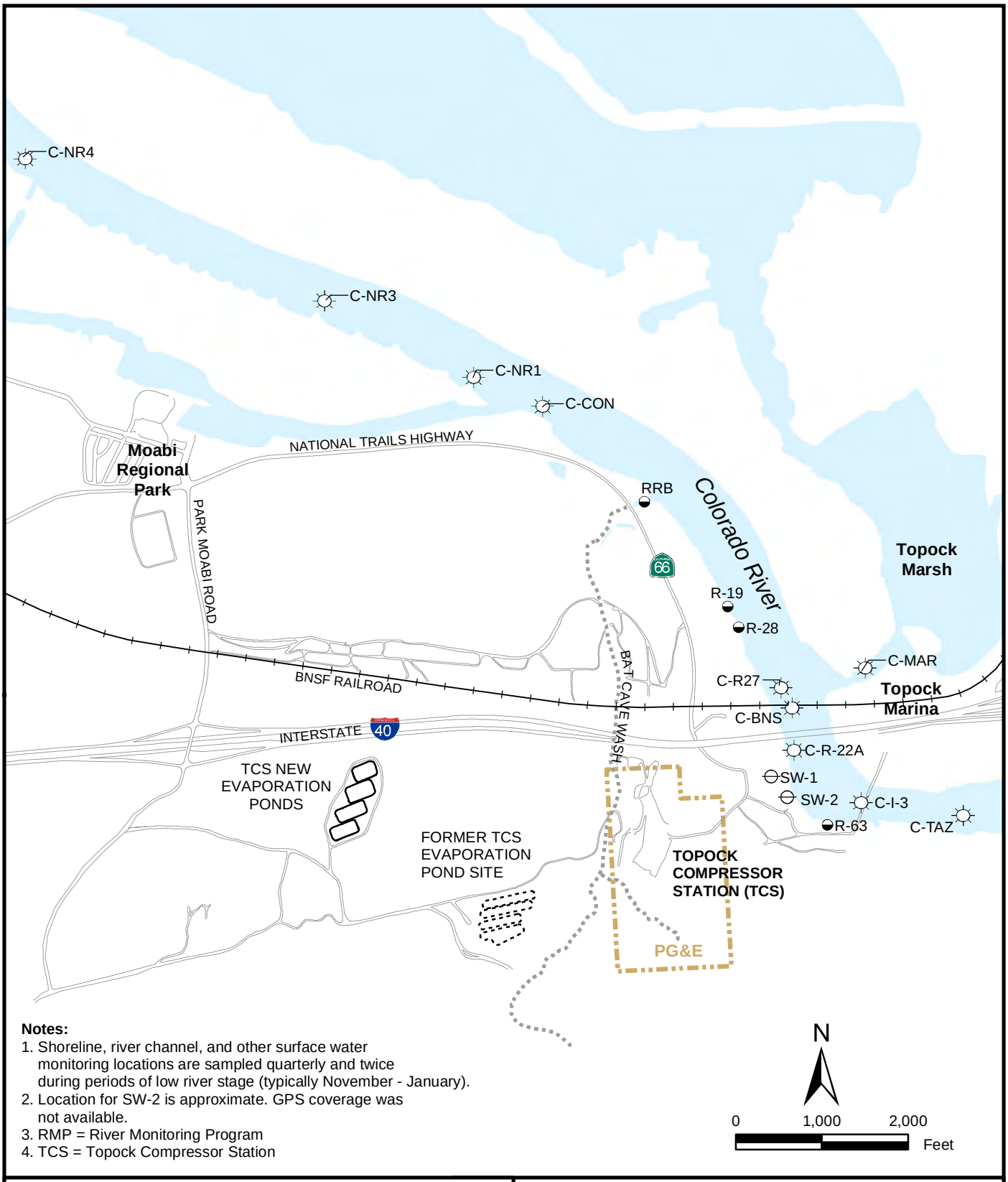
California State Plane NAD83 Zone 5 US Feet

FIGURE 1-2
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR GMP

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

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE1-2_GMP_SAMPLING_FREQUENCY.MXD ECLARK1 2/10/2014 8:41:35 AM



Notes:

1. Shoreline, river channel, and other surface water monitoring locations are sampled quarterly and twice during periods of low river stage (typically November - January).
2. Location for SW-2 is approximate. GPS coverage was not available.
3. RMP = River Monitoring Program
4. TCS = Topock Compressor Station

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

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

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE1-3_GMP_RIVER_SWLOCS_2013Q4.MXD ECLARK1 2/27/2014 11:12:40 AM

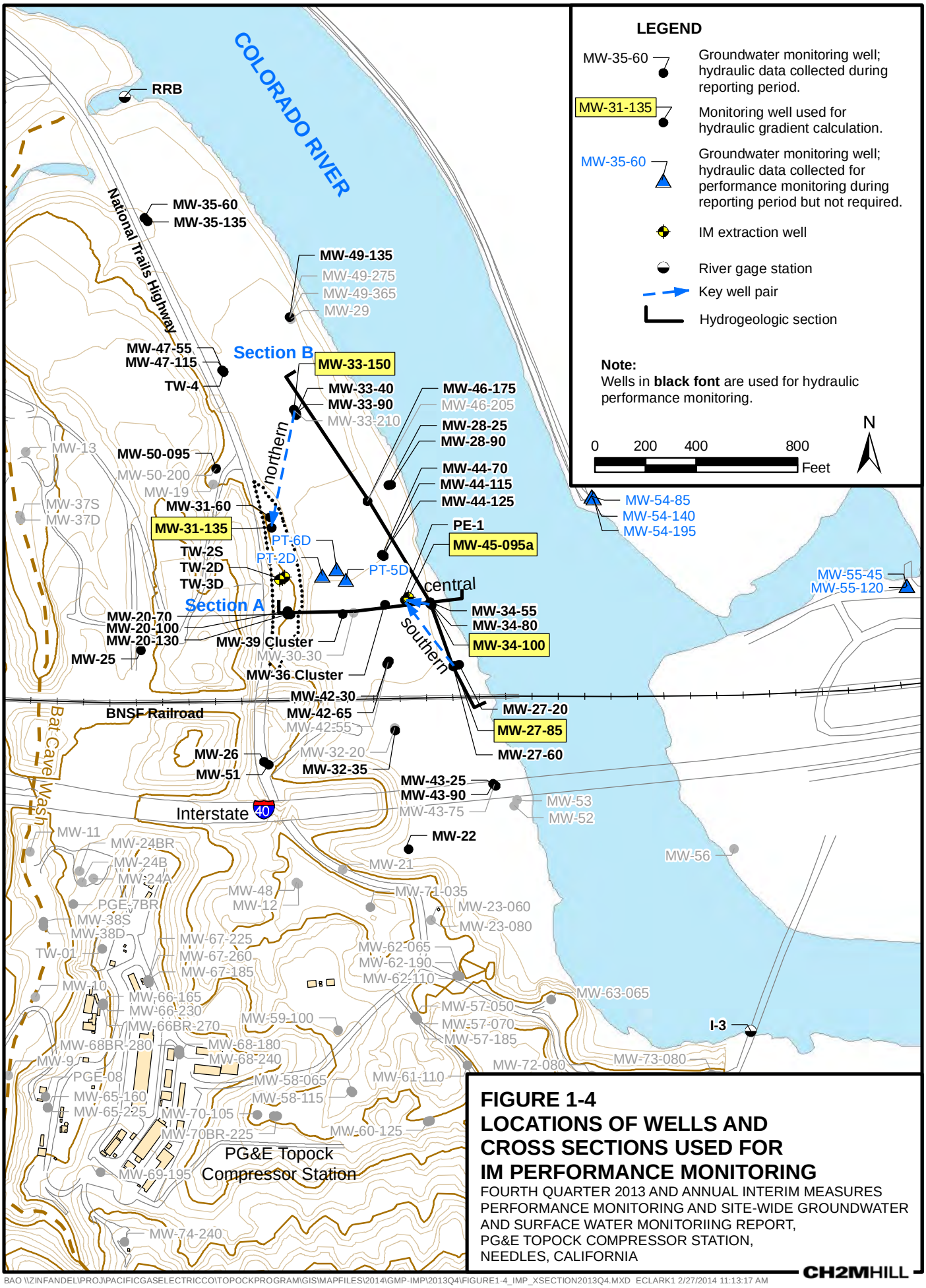
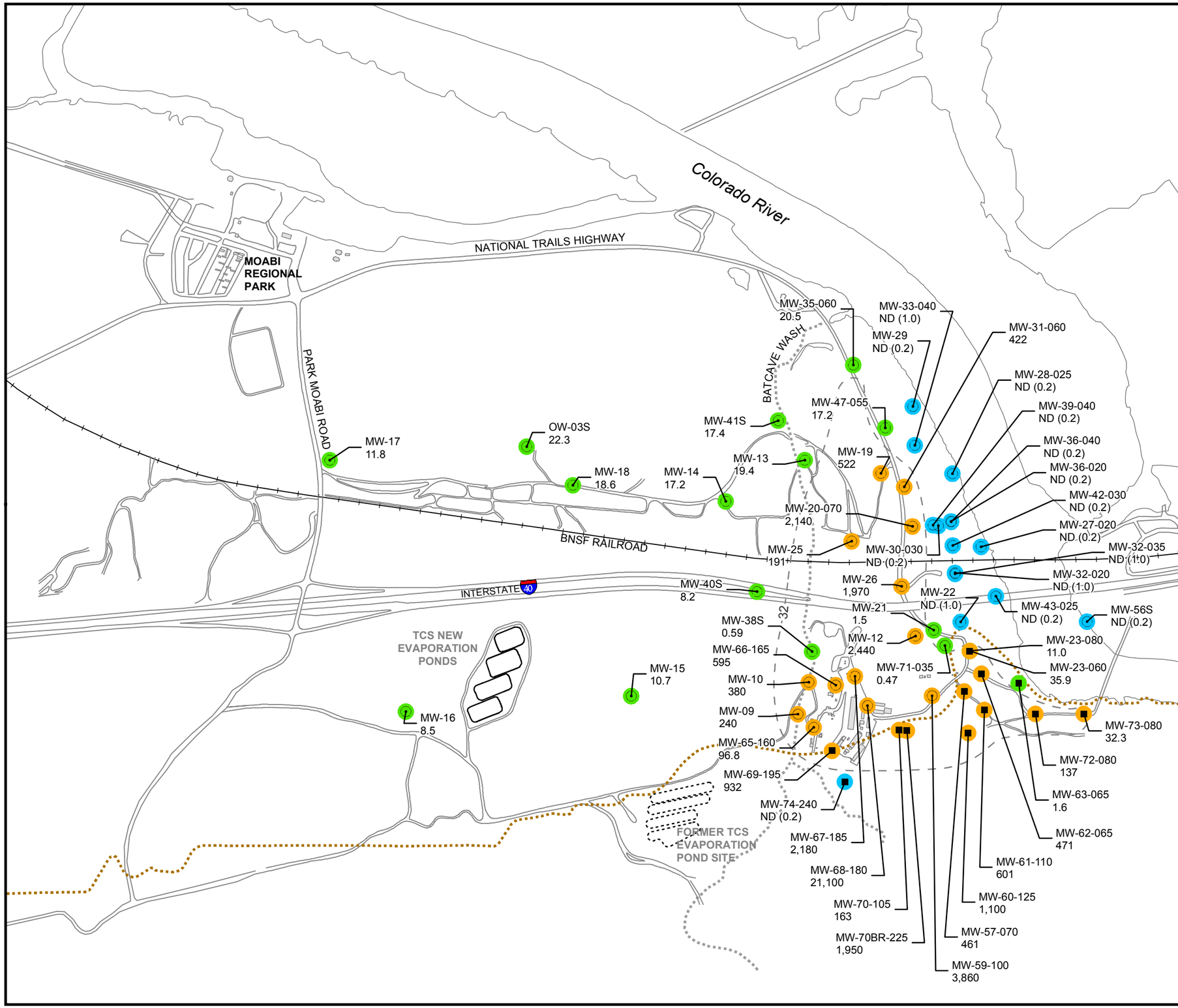


FIGURE 1-4
LOCATIONS OF WELLS AND CROSS SECTIONS USED FOR IM PERFORMANCE MONITORING

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

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE1-4_IMP_XSECTION2013Q4.MXD ECLARK1 2/27/2014 11:13:17 AM



LEGEND

- Alluvial Aquifer well sampled during sampling event
- Bedrock well sampled during sampling event

6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L)

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

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

Cr(VI) Concentrations – Fourth Quarter 2013

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

32 Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations > 32 ug/L based on Fourth Quarter 2013 groundwater sampling results.

Approximate bedrock contact at 455 feet above mean sea level.

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

N

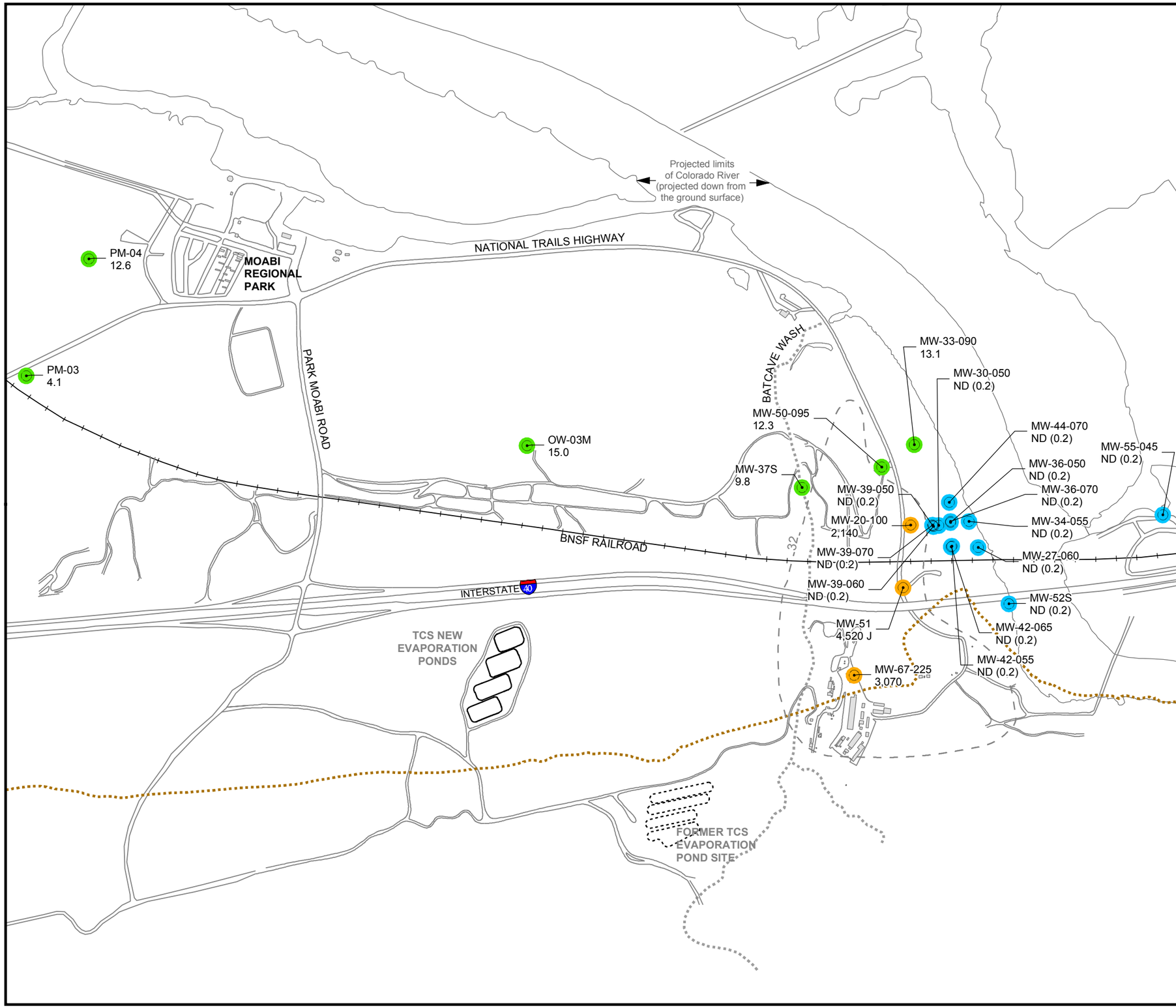
0 500 1,000 Feet

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

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

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE3-1A_IMP_CR6_2013Q4_SHALLOW.MXD ECLARK1 3/3/2014 8:37:23 AM



LEGEND

⊙ Alluvial Aquifer well sampled during sampling event

6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L)

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

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

J = concentration estimated by laboratory or data validation.

Cr(VI) Concentrations – Fourth Quarter 2013

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

-32- Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations > 32 ug/L based on Fourth Quarter 2013 groundwater sampling results.

Approximate bedrock contact at 425 feet above mean sea level.

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

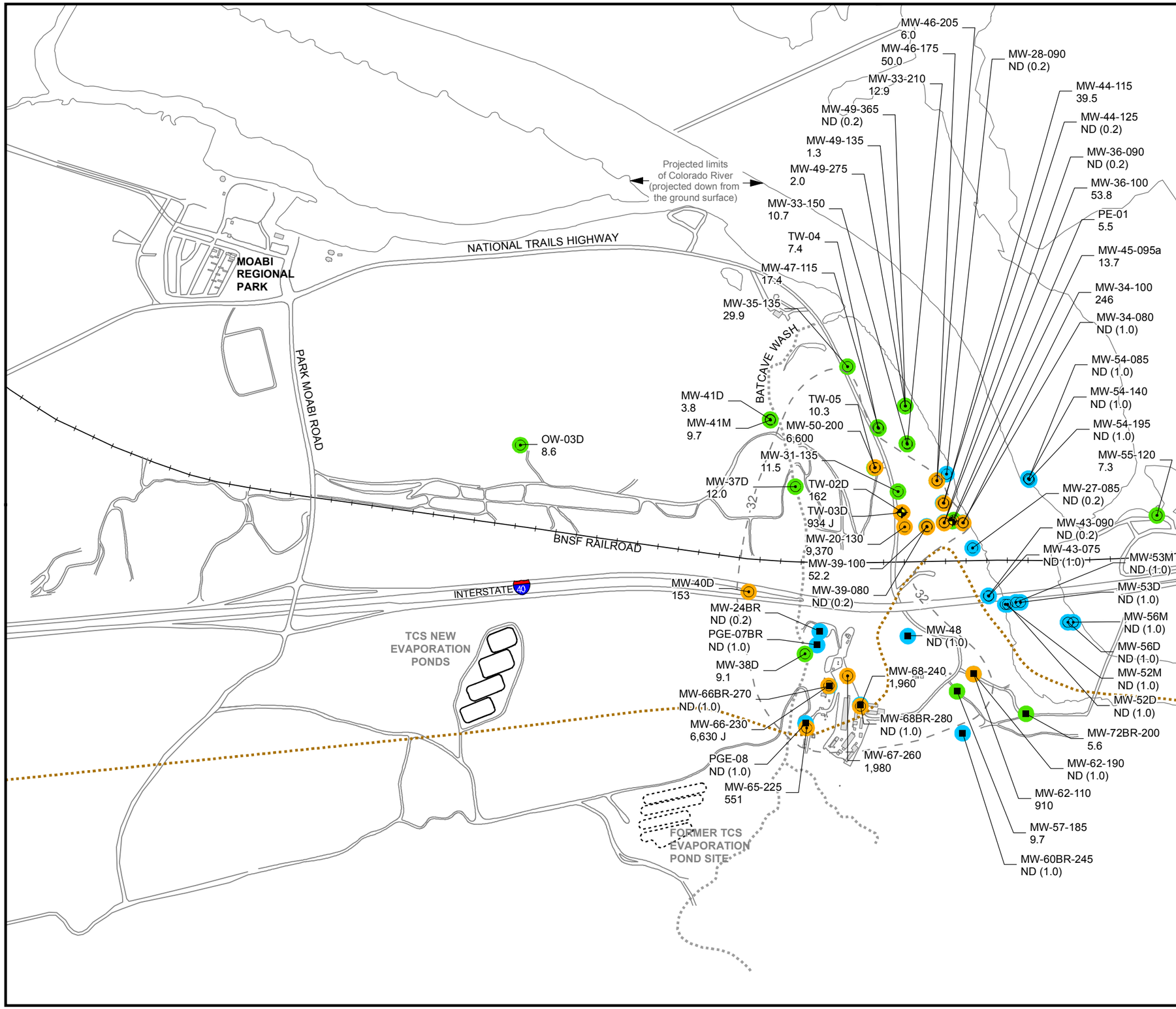
N

0 500 1,000 Feet

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

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

CH2MHILL



LEGEND

- Alluvial Aquifer well sampled during sampling event
- Bedrock well sampled during sampling event
- Extraction 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

J = concentration estimated by laboratory or data validation.

Cr(VI) Concentrations – Fourth Quarter 2013

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

32 Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations > 32 ug/L based on Fourth Quarter 2013 groundwater sampling results.

Approximate bedrock contact at 395 feet above mean sea level.

Notes:

1. Results plotted are maximum concentration from primary and duplicate samples, see Table 3-1 for complete results.
2. In the floodplain area, the 32µg/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

N

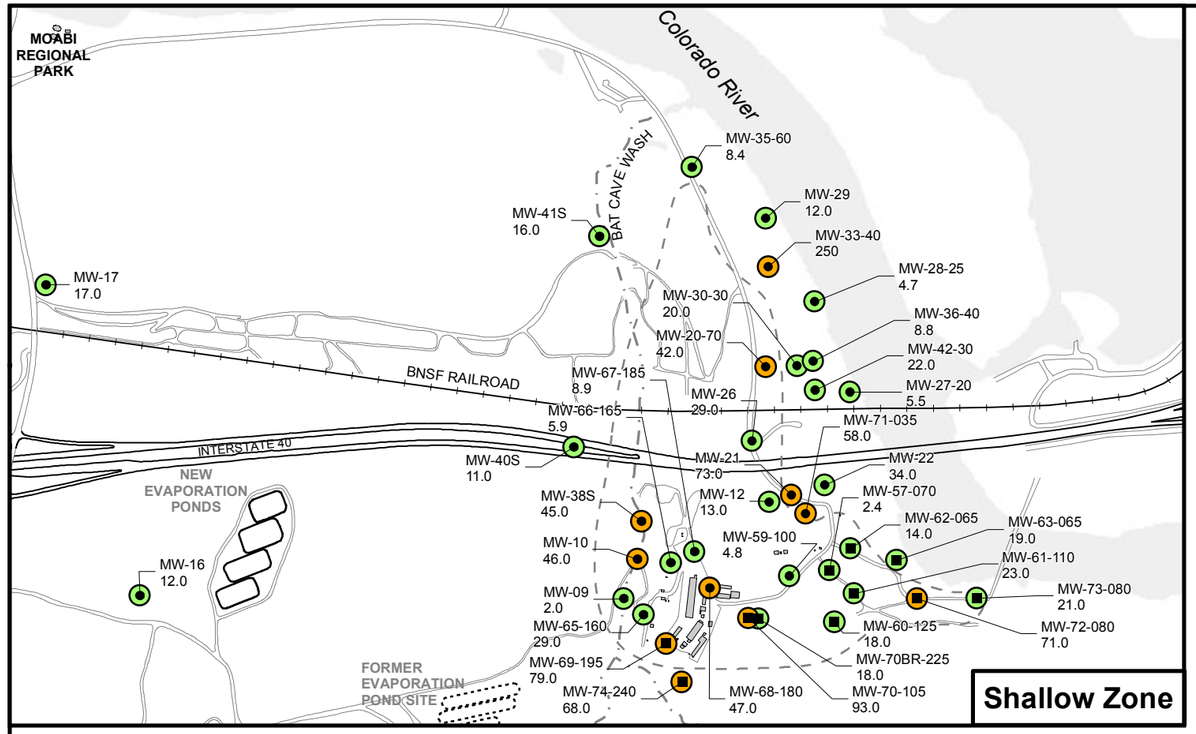
0 500 1,000 Feet

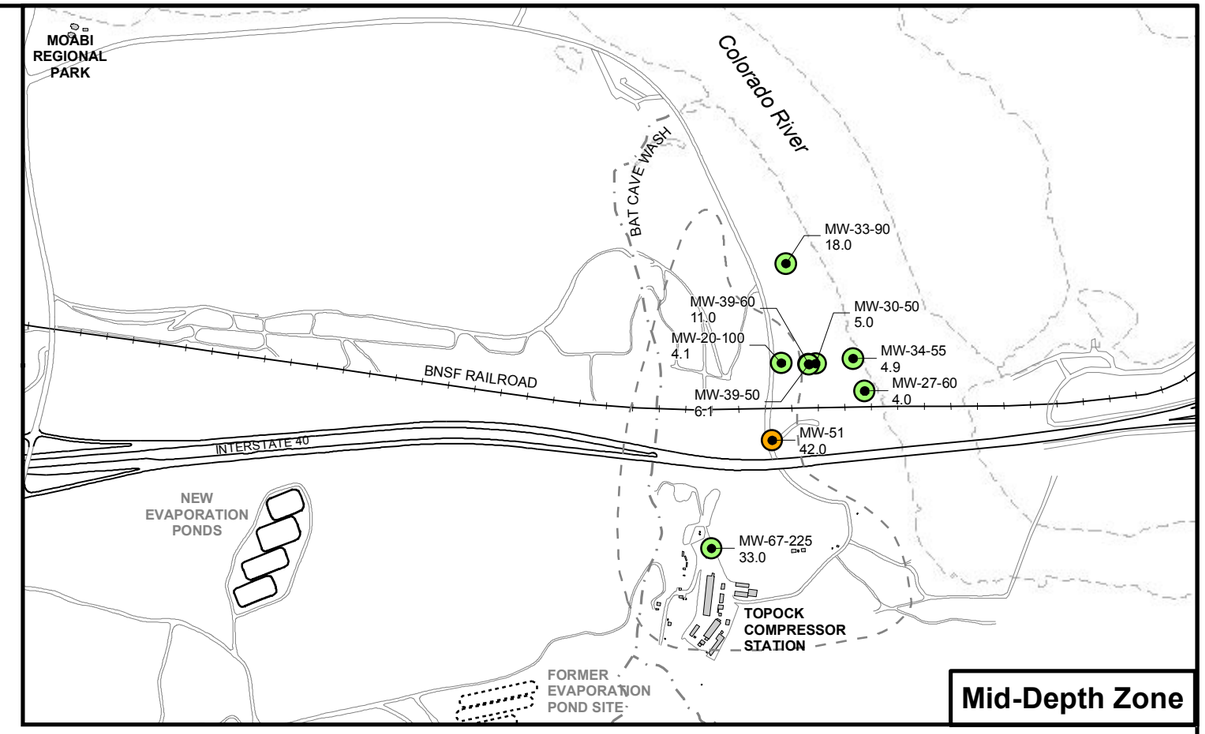
FIGURE 3-1c
Cr(VI) SAMPLING RESULTS, DEEP WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FOURTH QUARTER 2013

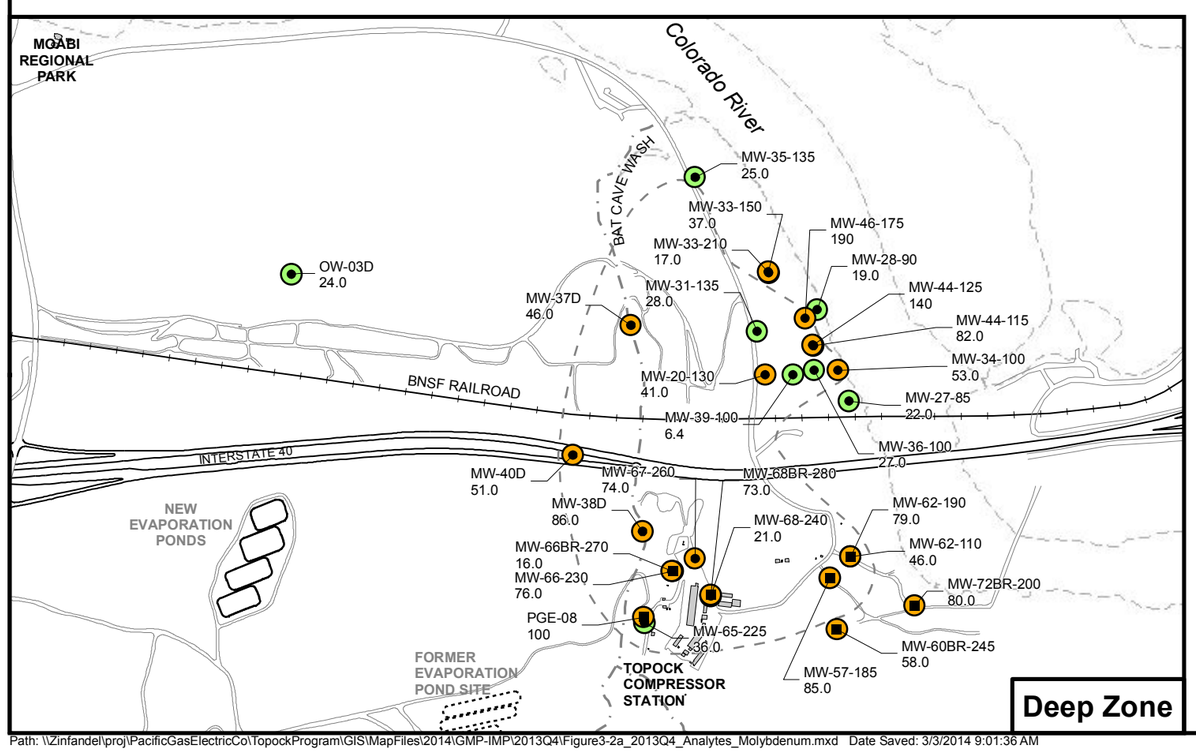
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE3-1C_IMP_CR6_2013Q4_DEEP.MXD ECLARK1 3/12/2014 3:13:45 PM







LEGEND

- Groundwater well completed in Alluvial Aquifer
- Groundwater well completed in bedrock
- Not detected
- Concentration < 36.3 µg/L
- Concentration > 36.3 µg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer and Bedrock depth zone ≥ 32 µg/L, December 2013

µg/L = Micrograms per liter
Cr(VI) = Hexavalent Chromium
USEPA = United States Environmental Protection Agency

Dissolved Molybdenum Concentrations

MW-10 ← Well ID
5.8 ← Concentration in µg/L

N

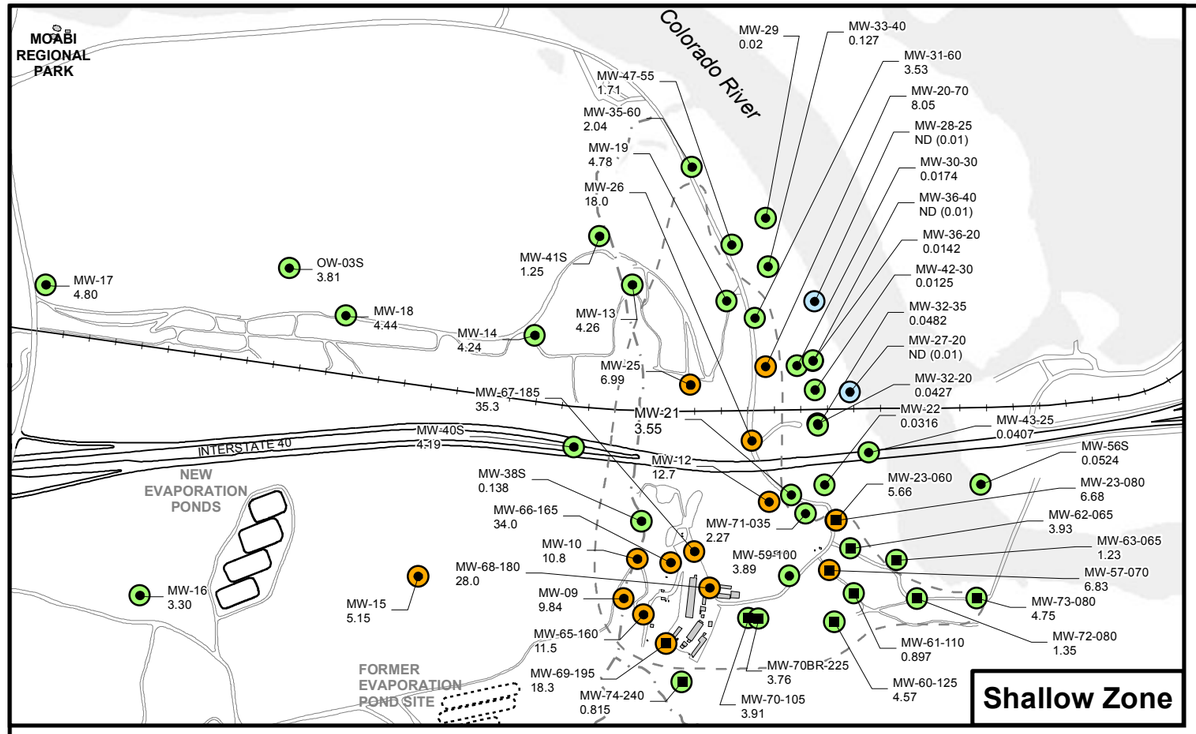
0 500 1,000 Feet

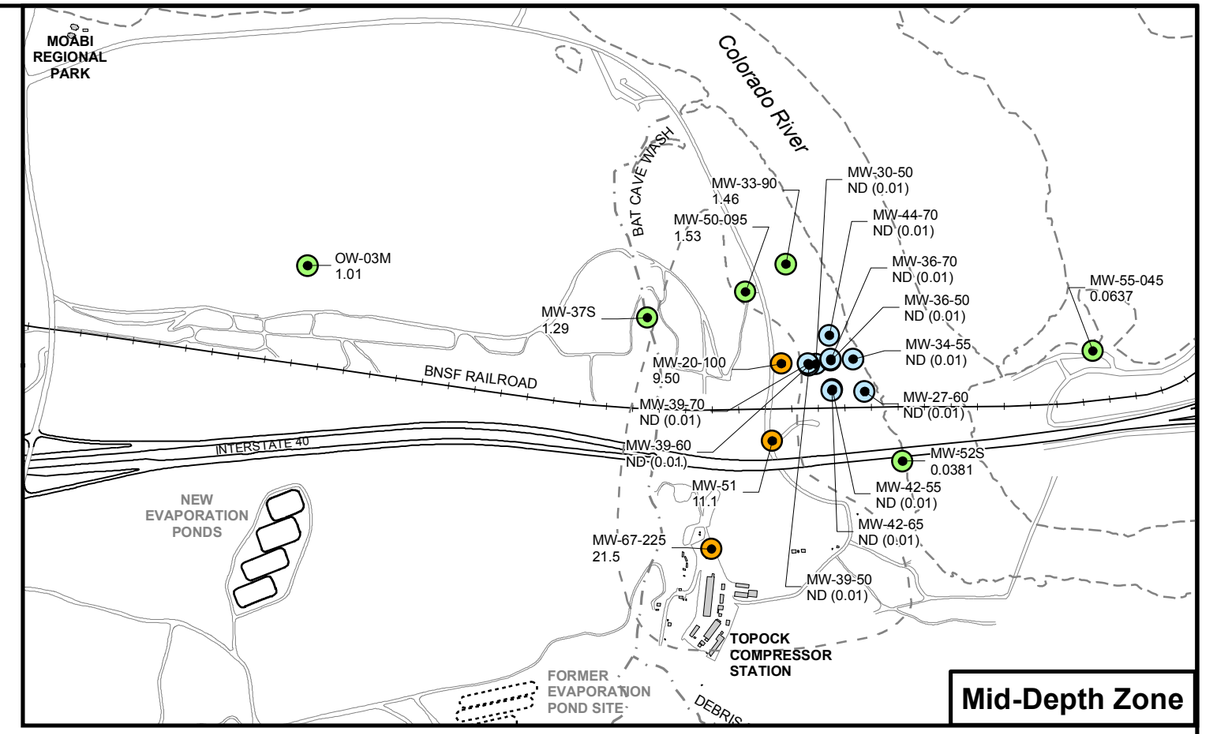
Notes:
1. Molybdenum background study upper tolerance limit (UTL) = 36.3 µg/L. The background study UTL was developed for alluvial wells only.
2. There is no USEPA and california maximum contaminant level for Molybdenum.
3. ND = Not detected at listed reporting limit (RL)
4. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-2 for well construction information.

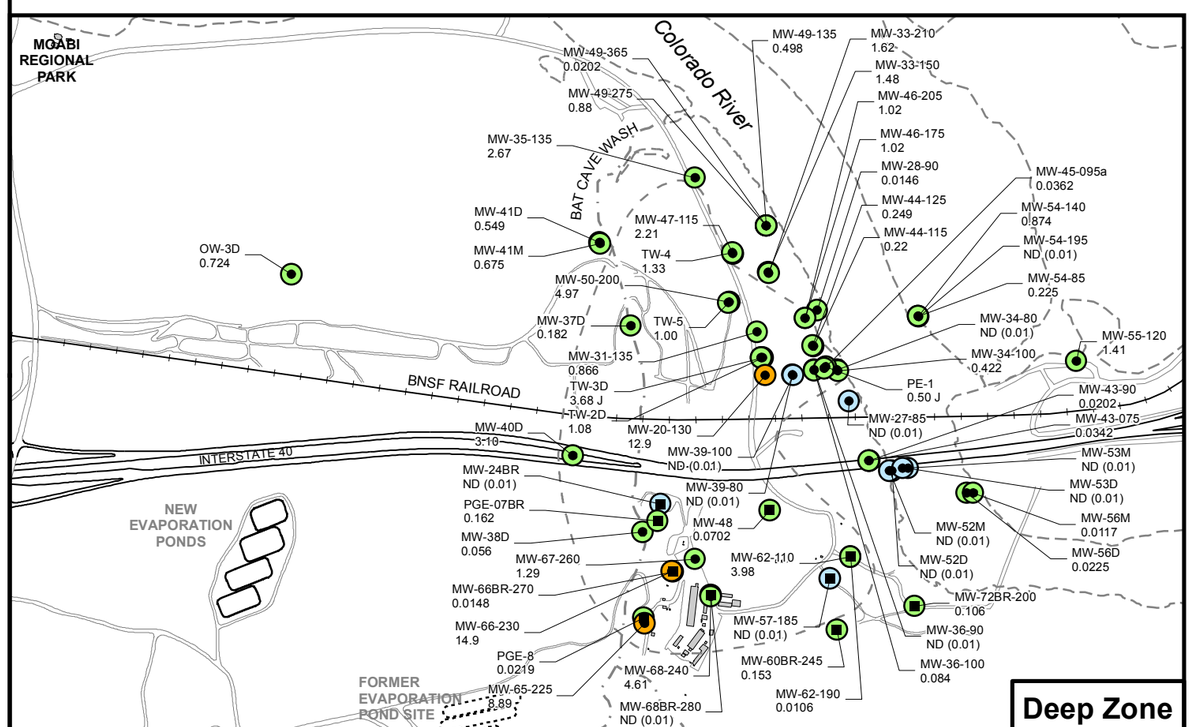
FIGURE 3-2a
MOLYBDENUM SAMPLING RESULTS, FOURTH QUARTER 2013
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure3-2a_2013Q4_Analytes_Molybdenum.mxd Date Saved: 3/3/2014 9:01:36 AM







LEGEND

- Groundwater well completed in Alluvial Aquifer
- Groundwater well completed in bedrock
- Not detected
- Concentration < 5.03 mg/L
- Concentration > 5.03 mg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer and Bedrock depth zone ≥ 32 µg/L, December 2013

Dissolved Nitrate as Nitrogen (N) Concentrations

MW-10 ← Well ID

5.8 ← Concentration in mg/L

0 500 1,000 Feet

N

Notes:

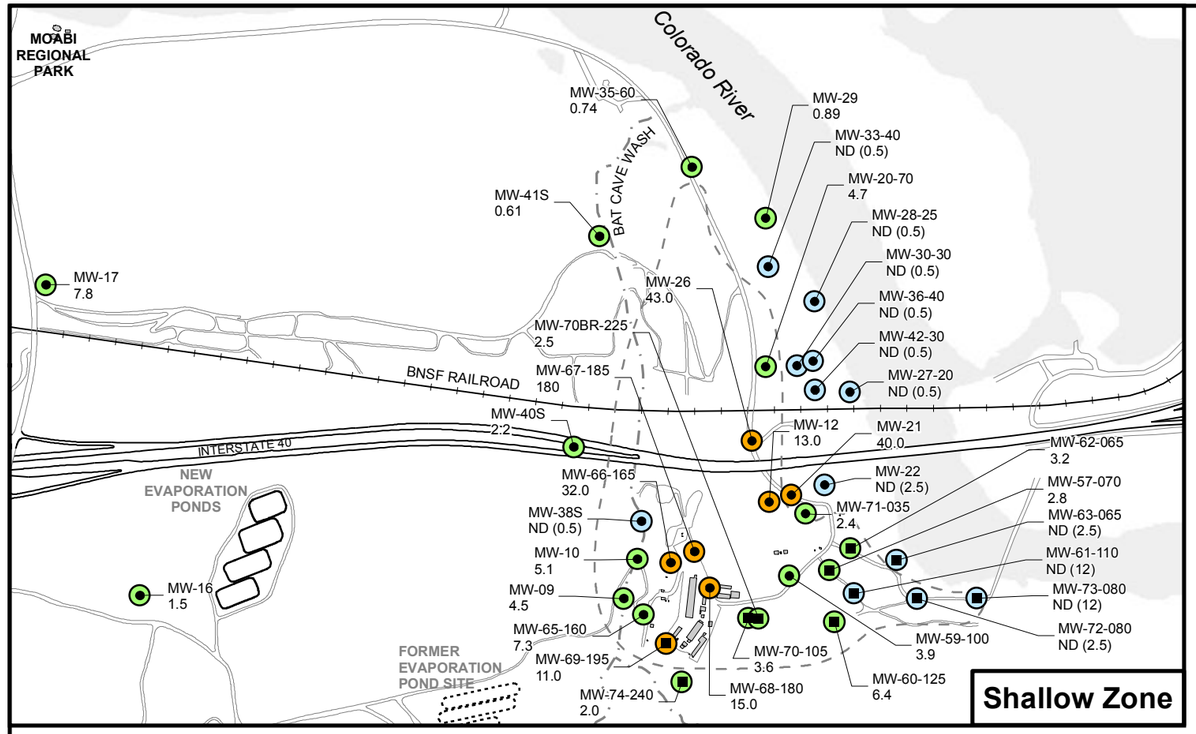
1. Nitrate as N background study upper tolerance limit = 5.03 mg/L
   The background study UTL was developed for alluvial wells only.
2. Nitrate as N maximum contaminant level = 10 mg/L
3. ND = not detected at listed reporting limit (RL)
4. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-2 for well construction information.

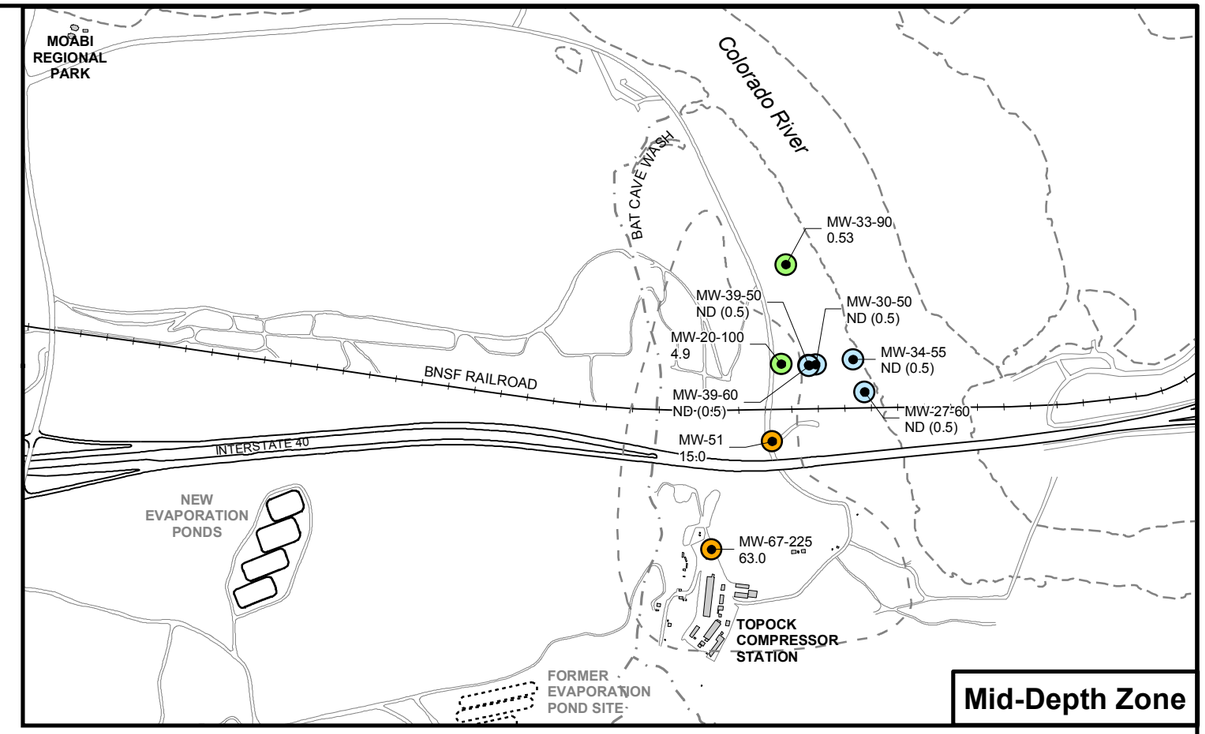
mg/L = Milligrams per liter
Cr(VI) = Hexavalent Chromium

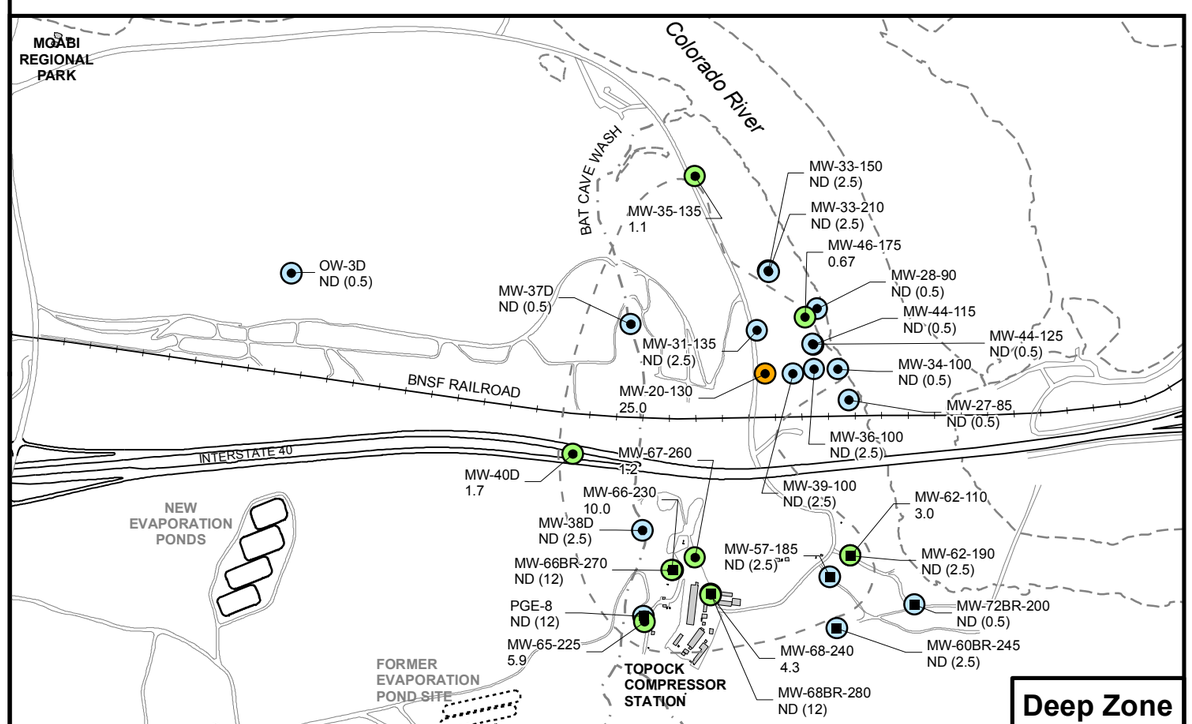
FIGURE 3-2b
NITRATE SAMPLING RESULTS, FOURTH QUARTER 2013
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure3-2b_2013Q4_Analytes_Nitrate.mxd Date Saved: 3/3/2014 9:03:06 AM







LEGEND

- Groundwater well completed in Alluvial Aquifer
- Groundwater well completed in bedrock
- Not detected
- Concentration < 10.3 µg/L
- Concentration > 10.3 µg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer and Bedrock depth zone ≥ 32 µg/L, December 2013

µg/L = Micrograms per liter
Cr(VI) = Hexavalent Chromium

Dissolved Selenium Concentrations

MW-10 ← Well ID
5.8 ← Concentration in µg/L

N

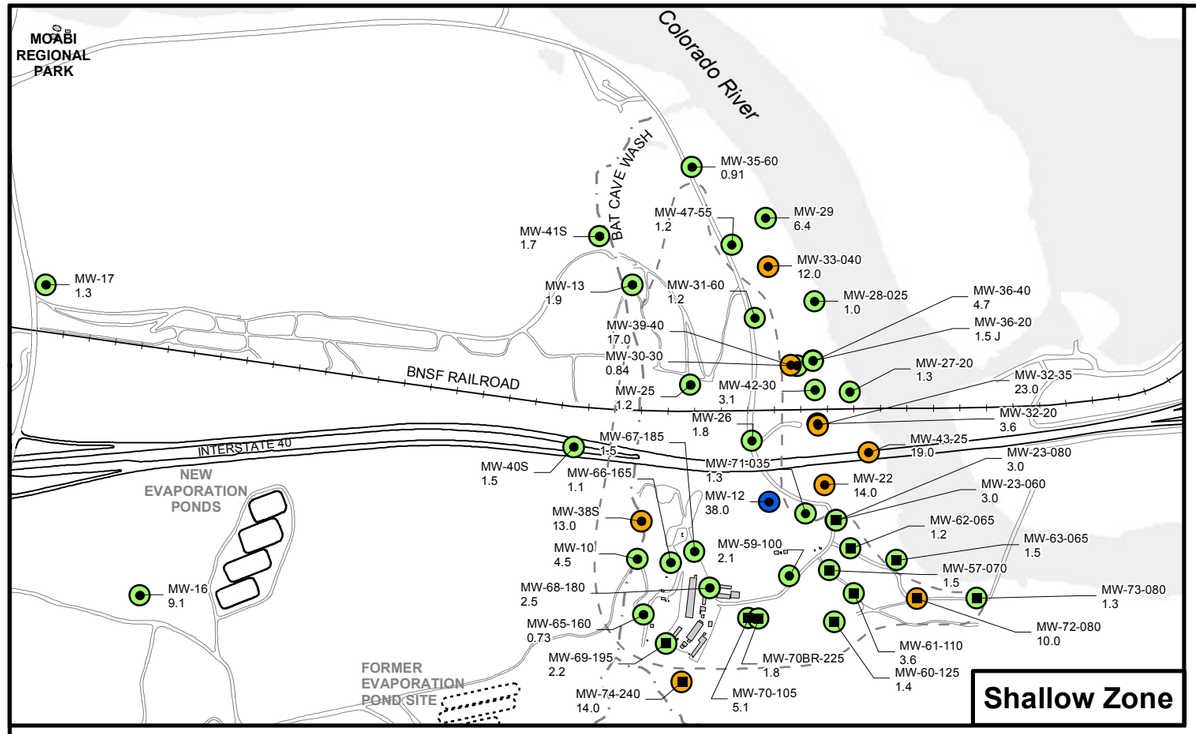
0 500 1,000 Feet

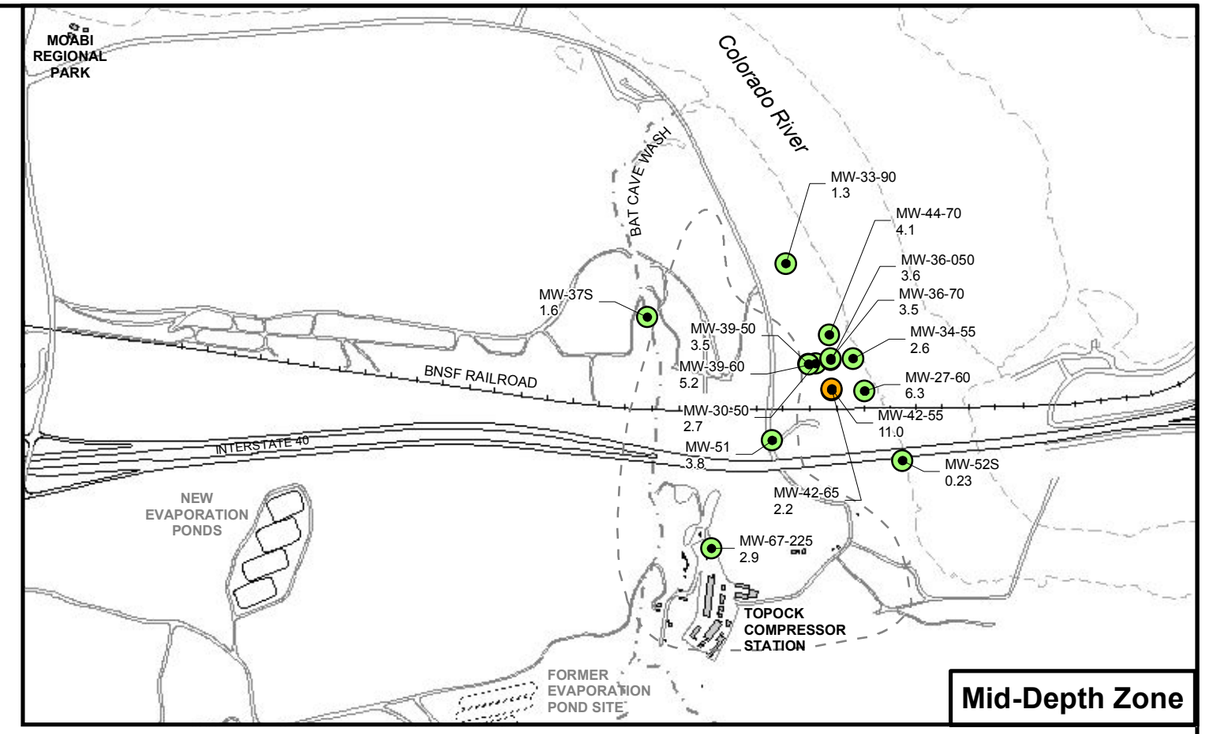
Notes:
1. Selenium background study upper tolerance limit = 10.3 µg/L
   The background study UTL was developed for alluvial wells only.
2. Selenium applicable or relavant and appropriate requirement (ARAR) = 50.0 µg/L
3. ND = Not Detected at listed reporting limit (RL)
4. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-2 for well construction information.

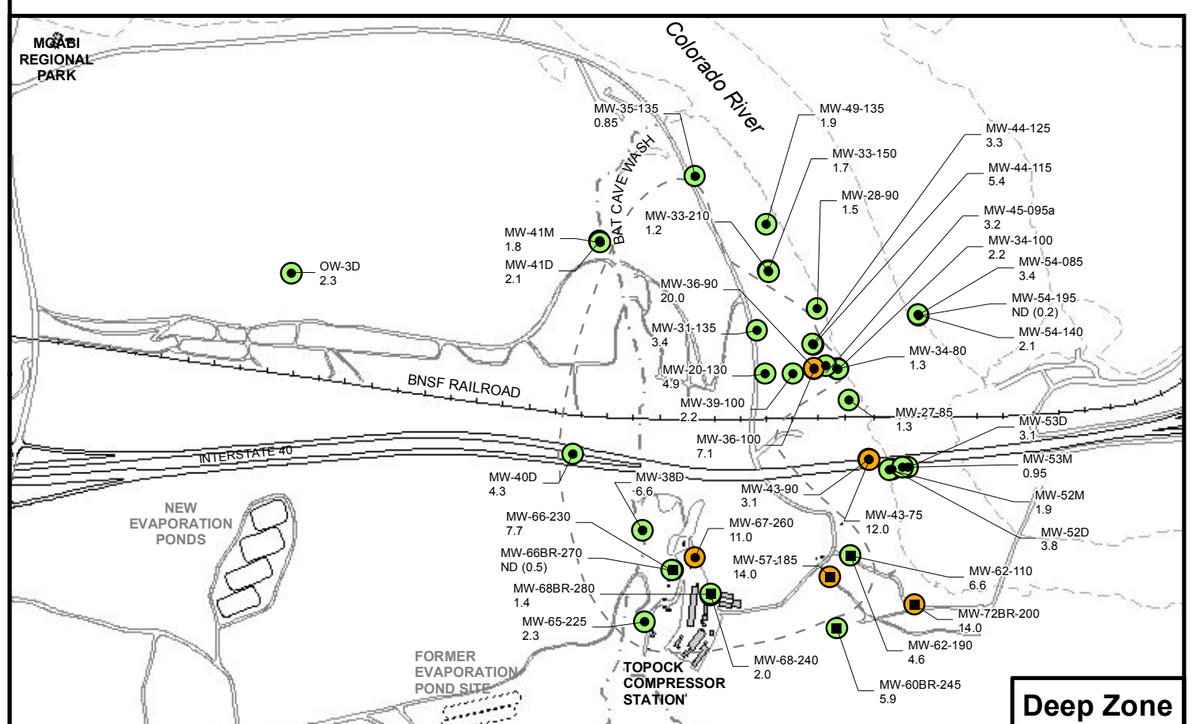
FIGURE 3-2c
SELENIUM SAMPLING RESULTS, FOURTH QUARTER 2013
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure3-2c_2013Q4_Analytes_Selenium.mxd Date Saved: 3/3/2014 9:04:03 AM







LEGEND

- Groundwater well completed in Alluvial Aquifer
- Groundwater well completed in bedrock
- Not detected
- Concentration < 10 µg/L
- Concentration > 10.1 - < 24.3 µg/L
- Concentration > 24.3 µg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer and Bedrock depth zone ≥ 32 µg/L, December 2013

Dissolved Arsenic Concentrations

MW-10 ← Well ID

5.8 ← Concentration in µg/L

µg/L = Micrograms per liter
Cr(VI) = Hexavalent Chromium
USEPA = United States Environmental Protection Agency

N

0 500 1,000 Feet

Notes:

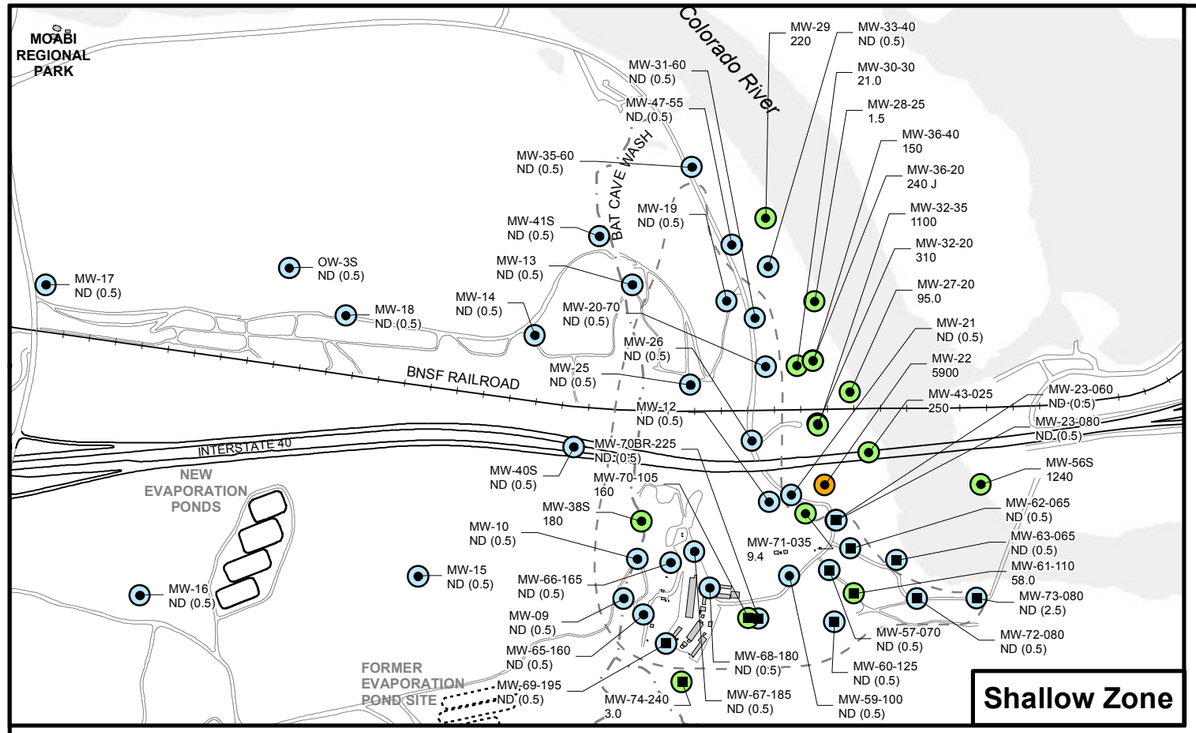
1. Arsenic background study upper tolerance limit = 24.3 ug/L. The background study UTL was developed for alluvial wells only.
2. Arsenic maximum contaminant level = 10.0 ug/L.
3. ND = not detected at listed reporting limit (RL)
4. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-2 for well construction information.

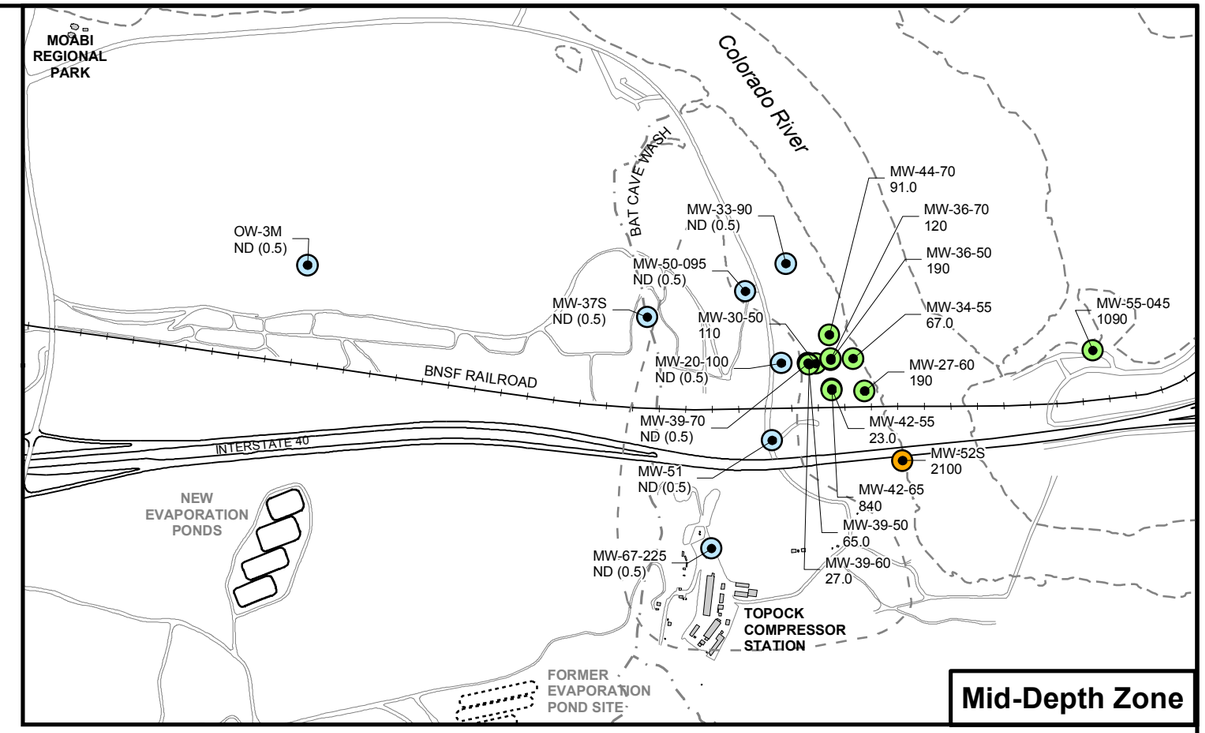
FIGURE 3-2d
ARSENIC SAMPLING RESULTS, FOURTH QUARTER 2013

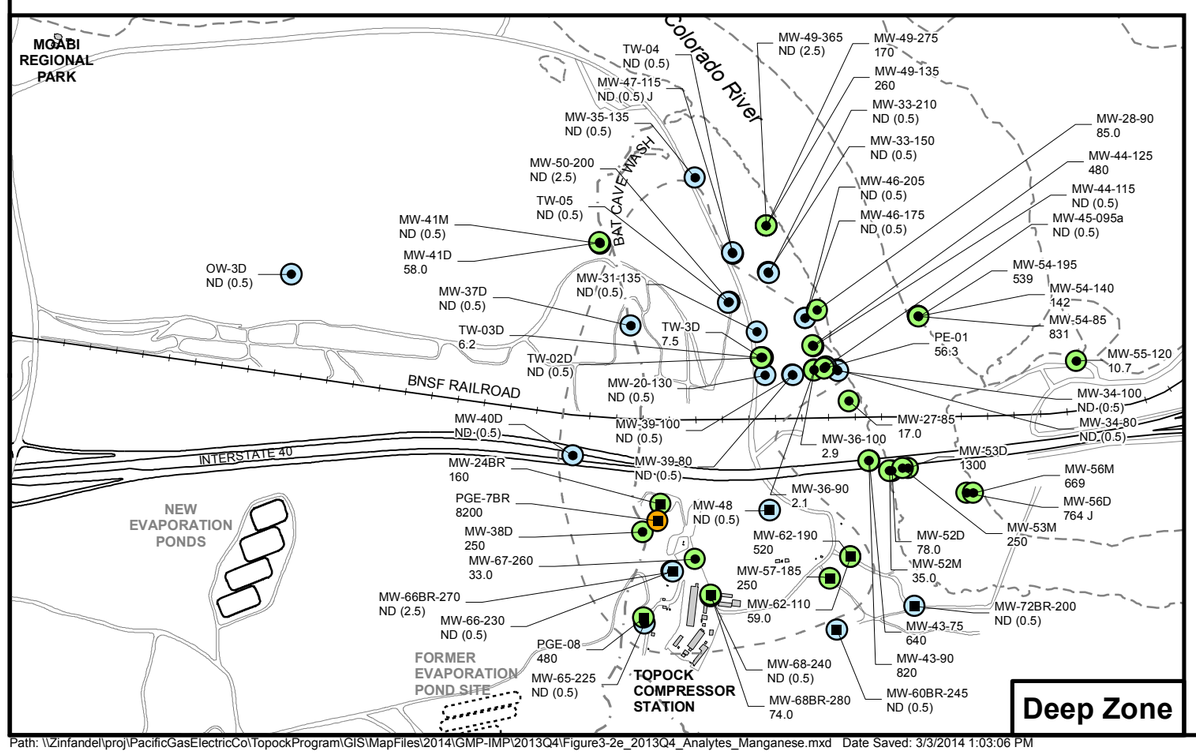
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure3-2d_2013Q4_Analytes_Arsenic.mxd Date Saved: 3/12/2014 11:39:18 AM







LEGEND

- Groundwater well completed in Alluvial Aquifer
- Groundwater well completed in bedrock
- Not detected
- Concentration < 1,320 µg/L
- Concentration > 1,320 µg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer and Bedrock depth zone ≥ 32 µg/L, December 2013

Dissolved Manganese Concentrations

MW-10 ← Well ID

5.8 ← Concentration in µg/L

µg/L = Micrograms per liter
Cr(VI) = Hexavalent Chromium
USEPA = United States Environmental Protection Agency
J = concentration or reporting limit (RL) estimated by laboratory or data validation

N

0 500 1,000 Feet

Notes:

1. Manganese background study report upper tolerance limit = 1,320 ug/L. The background study UTL was developed for alluvial wells only.
2. There is no primary USEPA and california maximum contaminant level (MCL) for Manganese. The secondary MCL is 50 µg/L.
3. ND = not detected at listed reporting limit (RL)
4. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-2 for well construction information.

FIGURE 3-2e
MANGANESE SAMPLING RESULTS, FOURTH QUARTER 2013

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

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure3-2e_2013Q4_Analytes_Manganese.mxd Date Saved: 3/3/2014 1:03:06 PM

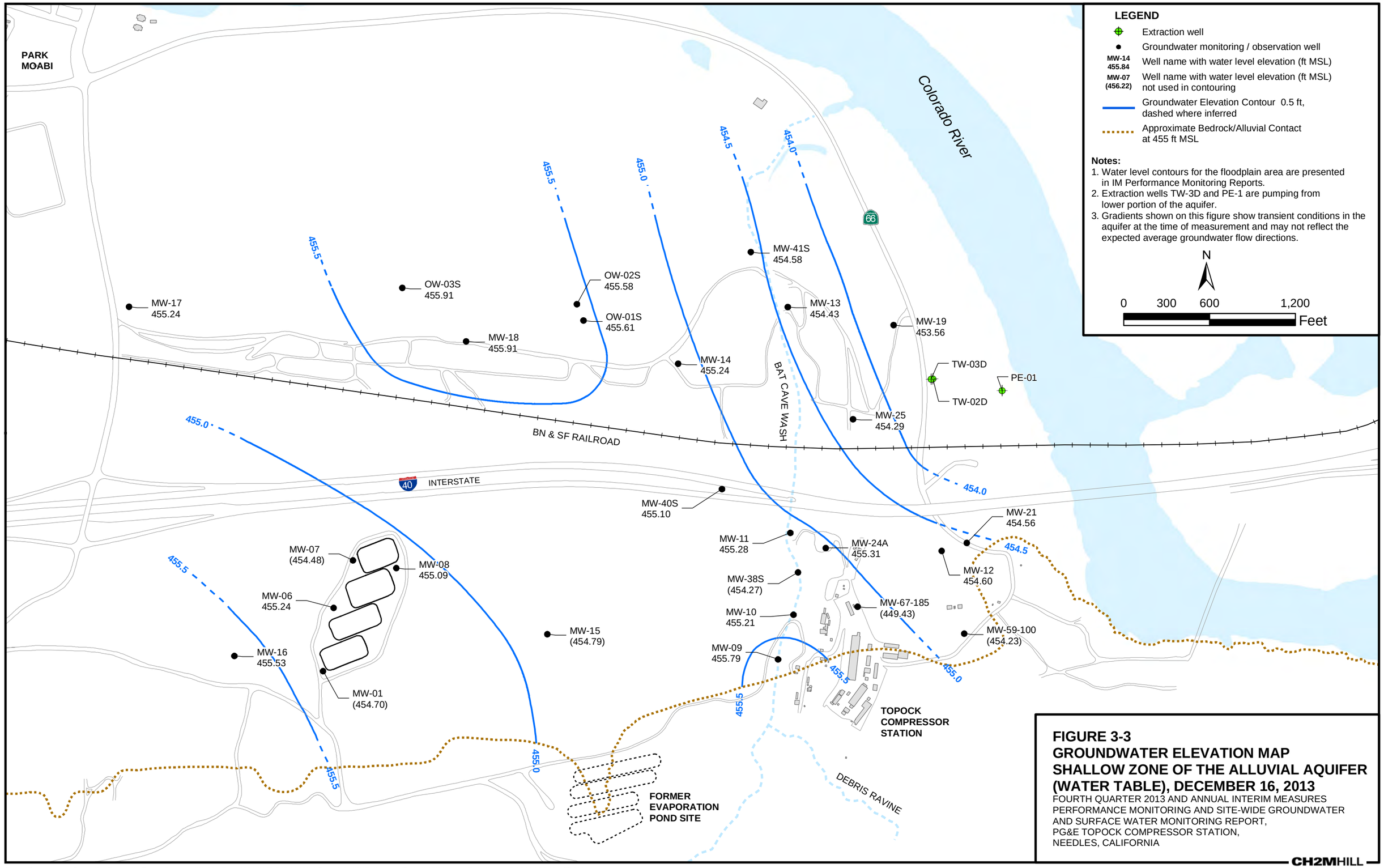
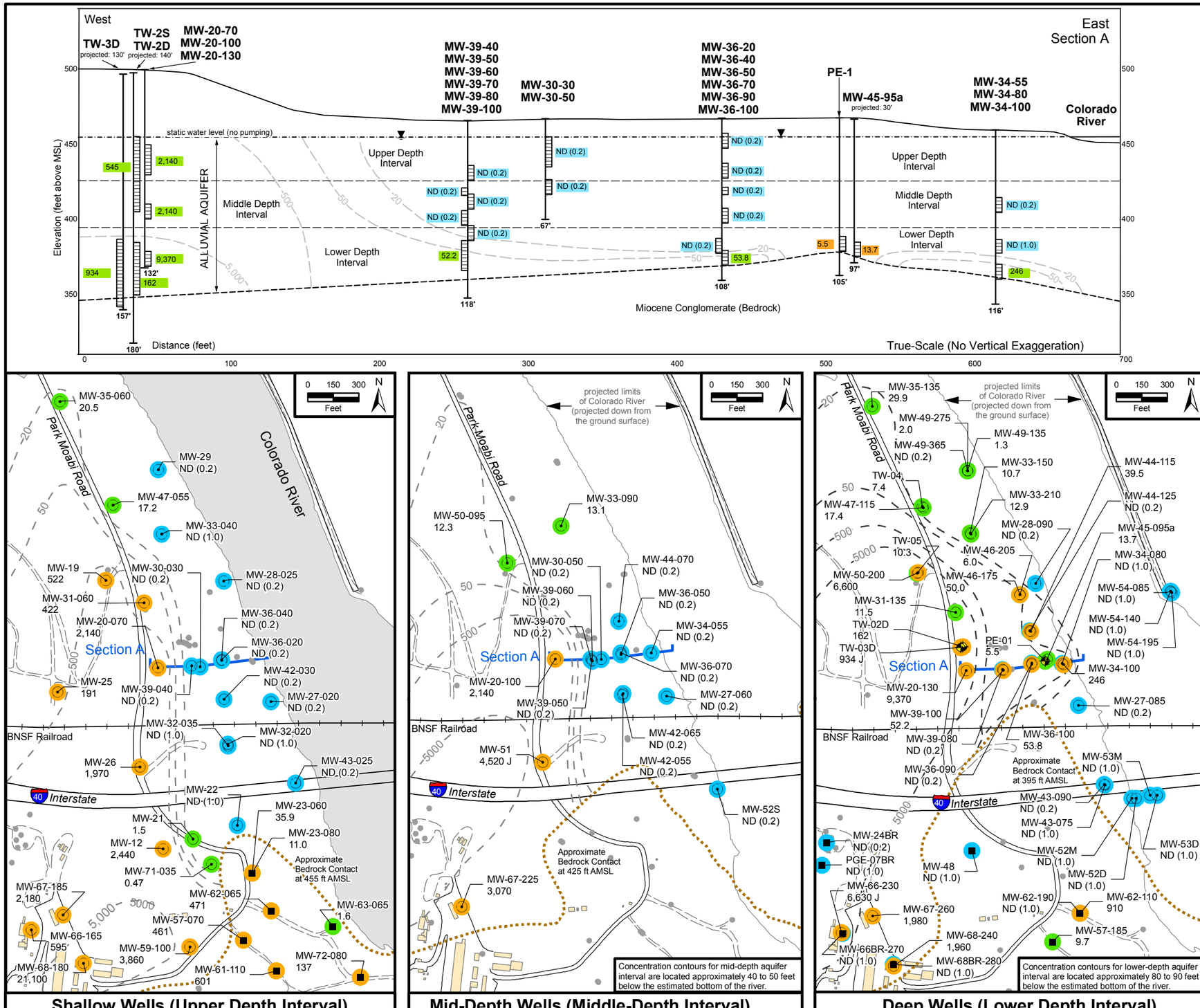


FIGURE 3-3
GROUNDWATER ELEVATION MAP SHALLOW ZONE OF THE ALLUVIAL AQUIFER (WATER TABLE), DECEMBER 16, 2013
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure3-3_GWE_SnapshotPlot_2013Q4.mxd Date Saved: 2/14/2014 10:20:57 AM



Shallow Wells (Upper Depth Interval)

Mid-Depth Wells (Middle-Depth Interval)

Deep Wells (Lower Depth Interval)

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

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

Cr(VI) Concentrations - Fourth Quarter 2013

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

50 Inferred Cr(VI) concentration contour within Alluvial Aquifer depth interval based on Fourth Quarter 2013 groundwater sampling results.

Hydrogeologic Section A

Approximate bedrock contact

Notes:

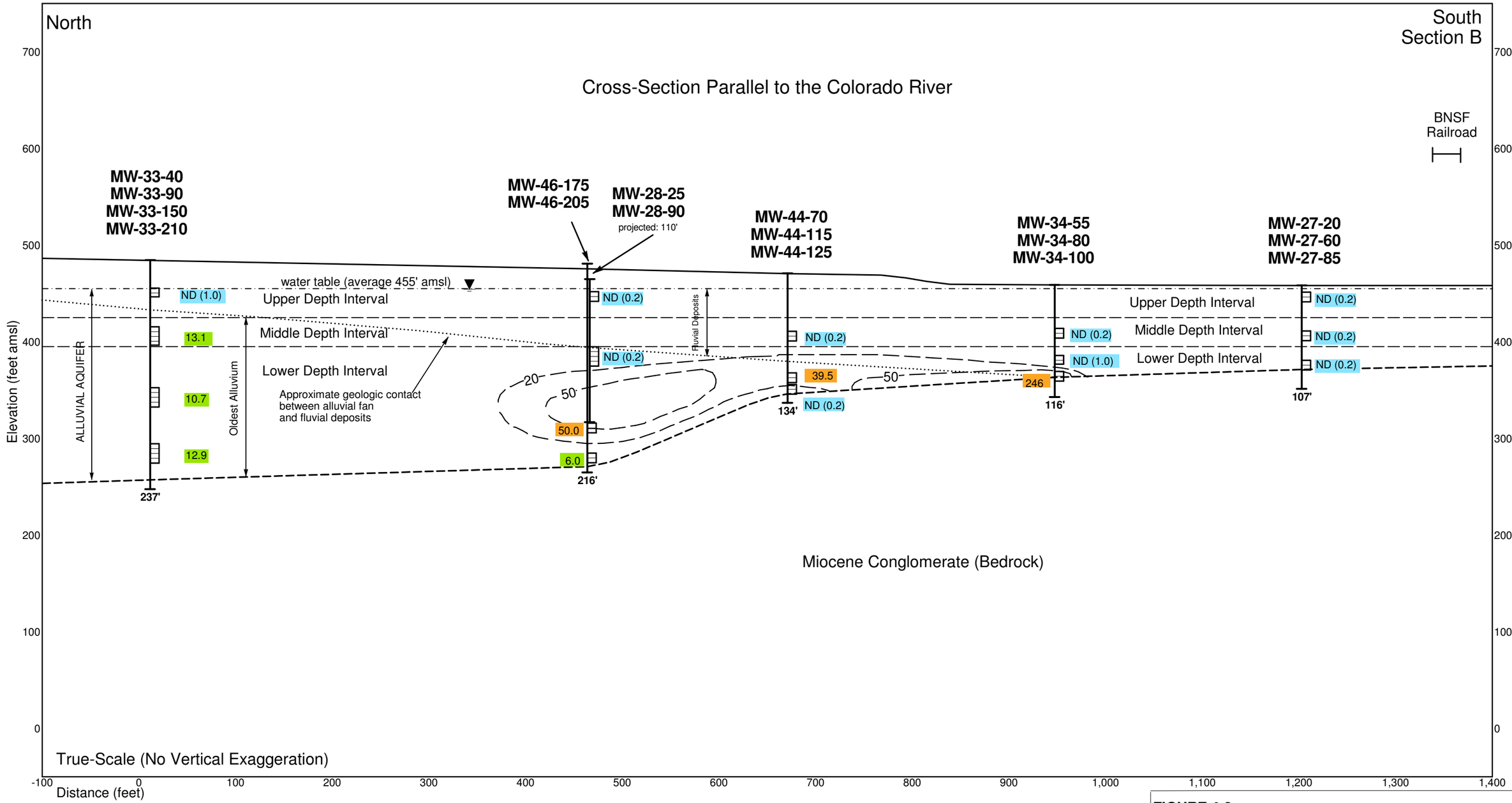
1. The Cr(VI) concentration contours of 20 and 50 µg/L are shown in accordance with DTSC's 2005 IM performance monitoring directive. The IM performance standard was established for containment of Cr(VI) concentrations greater than 20 ug/L in the floodplain portion of the Alluvial Aquifer.
2. Extraction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

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

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

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE4-1_IMP_CR6_PPB_2013Q4_MAX.MXD ECLARK1 3/13/2014 11:00:41 AM



Notes:

amsl = above mean sea level.
ND = not detected at listed reporting limit.
µg/L = micrograms per liter.

1. See Table 3-1 for additional sampling data and prior results for wells on this figure.

2. See Figure 1-4 for location of this cross-section.

water level

well screen 3,810

boring depth (feet) 103'

50

Inferred hexavalent chromium contours (µg/L) in Alluvial Aquifer from fourth quarter 2013.

Hexavalent Chromium [Cr(VI)] concentration in micrograms per liter (µg/L), equivalent to parts per billion (ppb).

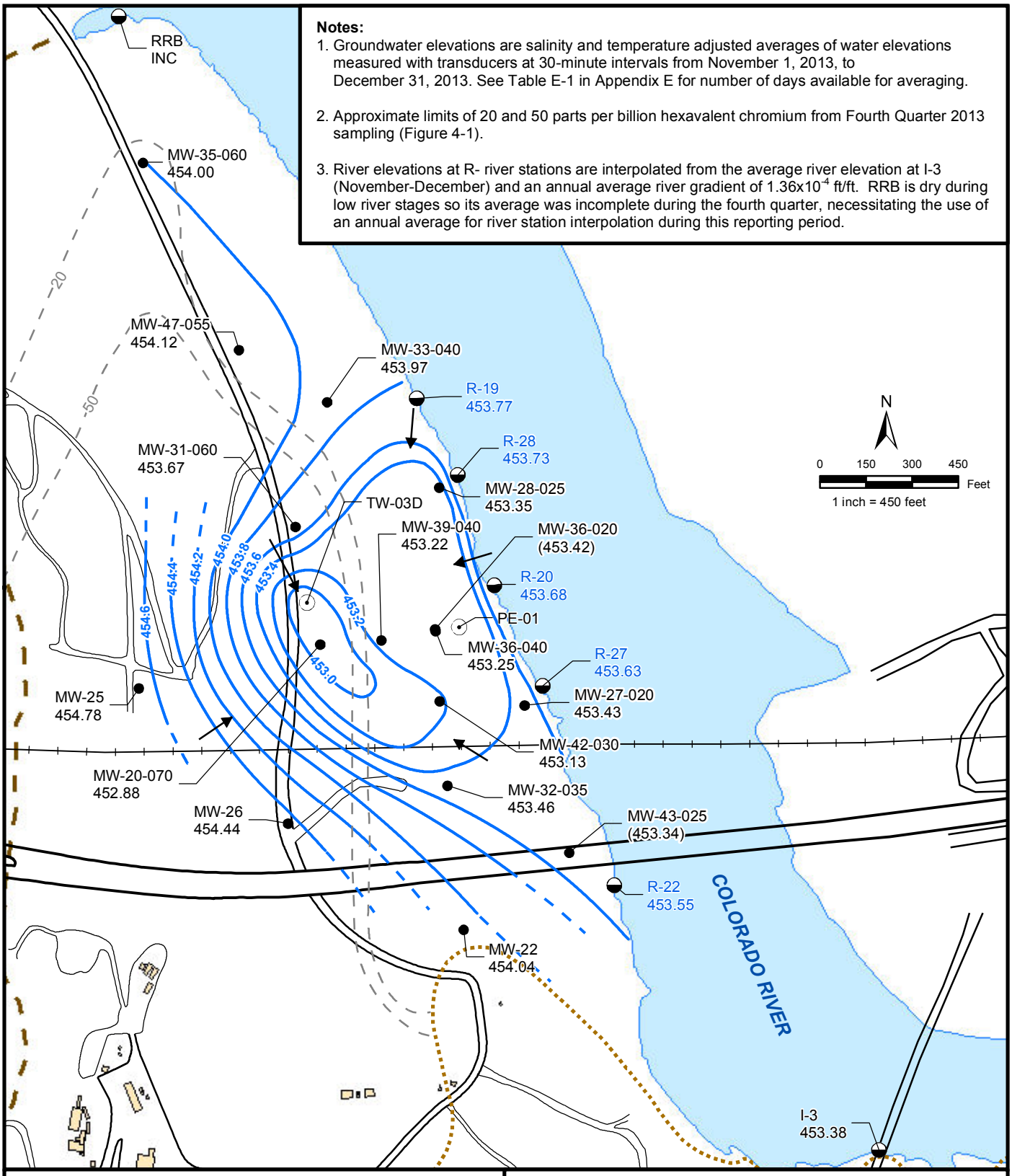
ND (0.2)	Not detected at listed reporting limit
24.2	Concentration between reporting limit and 32 µg/L
203	Concentration greater than or equal to 32 µg/L

FIGURE 4-2
Cr(VI) CONCENTRATIONS
FLOODPLAIN CROSS-SECTION B,
FOURTH QUARTER 2013

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

CH2MHILL

C:\USERS\CHRISTY.GITLIN\DOCUMENTS\TOPOCK\PMP\QUARTERLY REPORTS\2013\4TH QUARTER\FIGURES\WORK FILES\FIGURE4-2_XSECB_CR.GDW;



Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from November 1, 2013, to December 31, 2013. See Table E-1 in Appendix E for number of days available for averaging.

2. Approximate limits of 20 and 50 parts per billion hexavalent chromium from Fourth Quarter 2013 sampling (Figure 4-1).

3. River elevations at R- river stations are interpolated from the average river elevation at I-3 (November-December) and an annual average river gradient of 1.36×10^{-4} ft/ft. RRB is dry during low river stages so its average was incomplete during the fourth quarter, necessitating the use of an annual average for river station interpolation during this reporting period.

MW-29 455.85	Average Groundwater Elevation at Monitoring Station (ft amsl)	Monitoring Well	
MW-29 (455.85)	Average Groundwater Elevation at Monitoring Station (ft amsl) Not Used for Contouring	River Station	
R-22 454.84	River Elevation (ft msl) Interpolated Average	Extraction Well	
INC	Data incomplete for reporting period	Interpreted Groundwater Flow Direction	
	Bedrock Contact at 455 ft elevation	Groundwater Elevation Contour 0.2 ft (dashed where inferred)	

FIGURE 4-3a
AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS AND RIVER ELEVATIONS, FOURTH QUARTER 2013

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

CH2MHILL

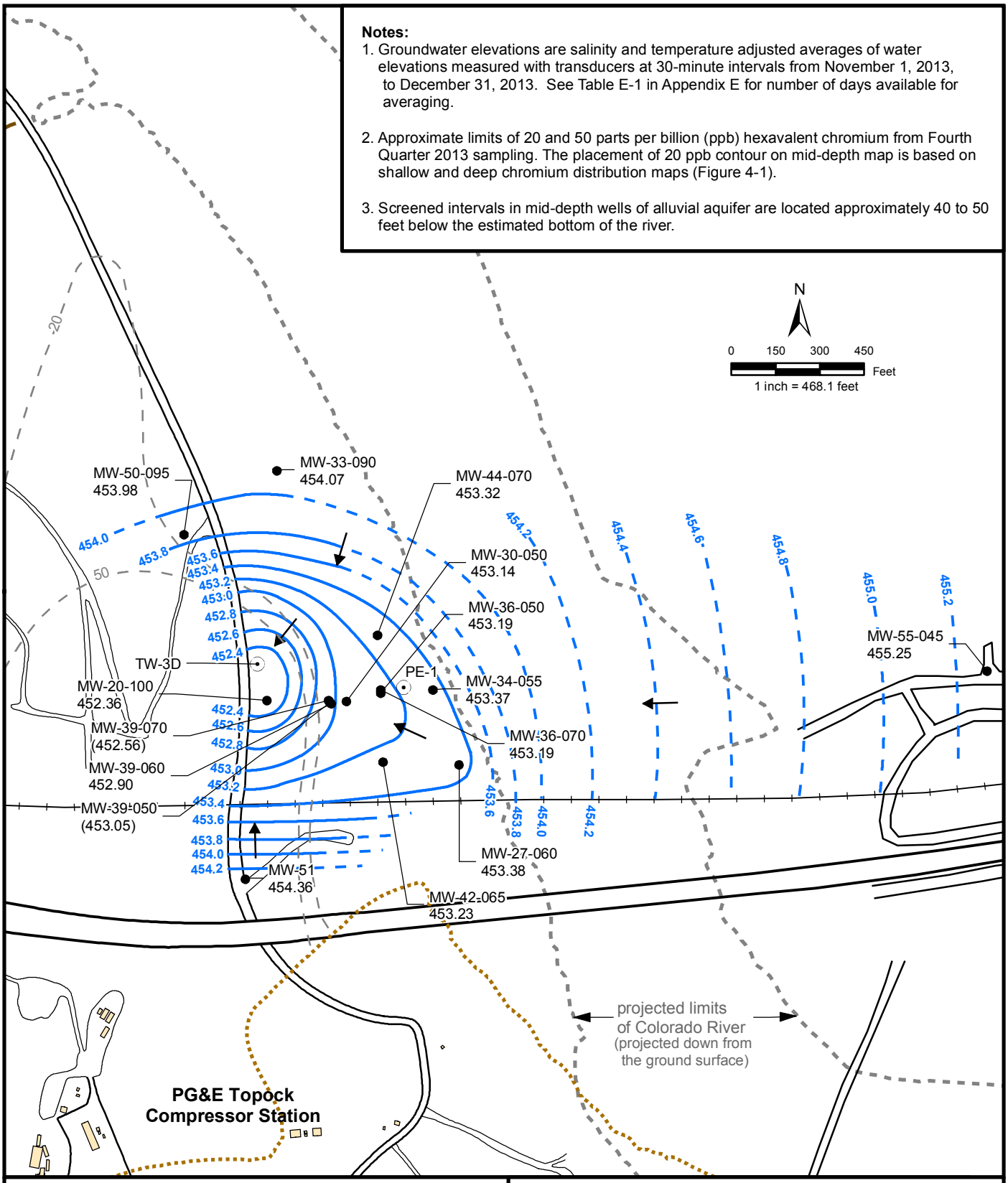
BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE4-3A_GWE_2013Q4_SHALLOW.MXD ECLARK1 3/3/2014 1:09:03 PM

Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from November 1, 2013, to December 31, 2013. See Table E-1 in Appendix E for number of days available for averaging.

2. Approximate limits of 20 and 50 parts per billion (ppb) hexavalent chromium from Fourth Quarter 2013 sampling. The placement of 20 ppb contour on mid-depth map is based on shallow and deep chromium distribution maps (Figure 4-1).

3. Screened intervals in mid-depth wells of alluvial aquifer are located approximately 40 to 50 feet below the estimated bottom of the river.



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

FIGURE 4-3b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS, FOURTH QUARTER 2013

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

CH2MHILL

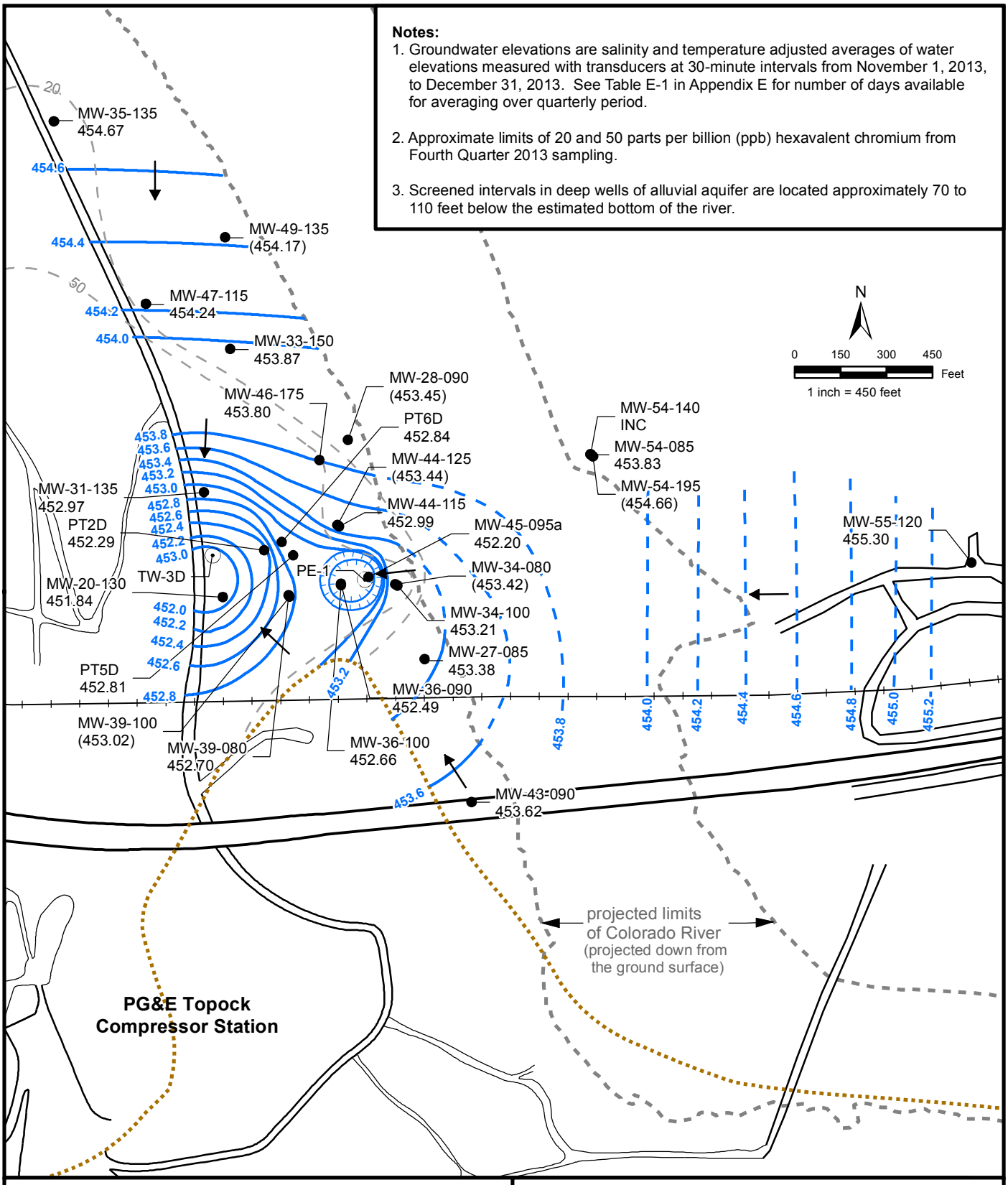
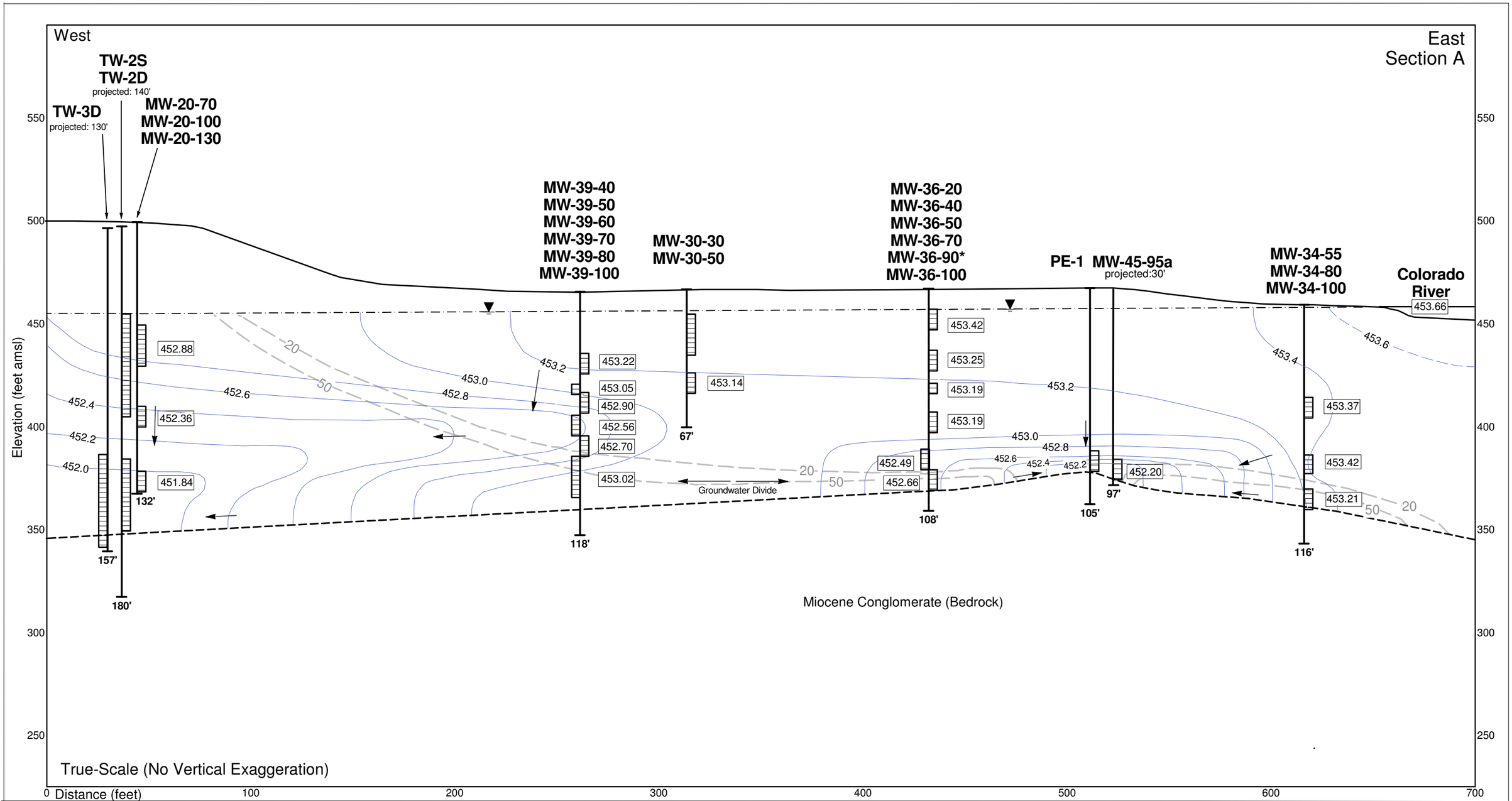


FIGURE 4-3c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, FOURTH QUARTER 2013
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2014\GMP-IMP\2013Q4\FIGURE4-3C_GWE_2013Q4_DEEP.MXD ECLARK1 3/12/2014 12:12:53 PM



Notes:
1. Results show average groundwater elevations for November 1, 2013 through December 31, 2013 measured with transducers at 30 minute intervals.

2. Groundwater elevations adjusted for salinity and temperature. Well MW-36-90* is excluded from contouring.River elevation (R-27) is the calculated average river level based upon the river gradient between RRB and I-3.

amsl = above mean sea level.

Legend:

MW-30-50 — Inferred water table

well screen — 455.23 — Average groundwater head (ft amsl)

103 — boring depth (feet)

20 — Inferred hexavalent chromium contour (ppb) in Alluvial Aquifer from Fourth Quarter 2013.

453.5 — Groundwater head contour

453.5 — Inferred groundwater head contour

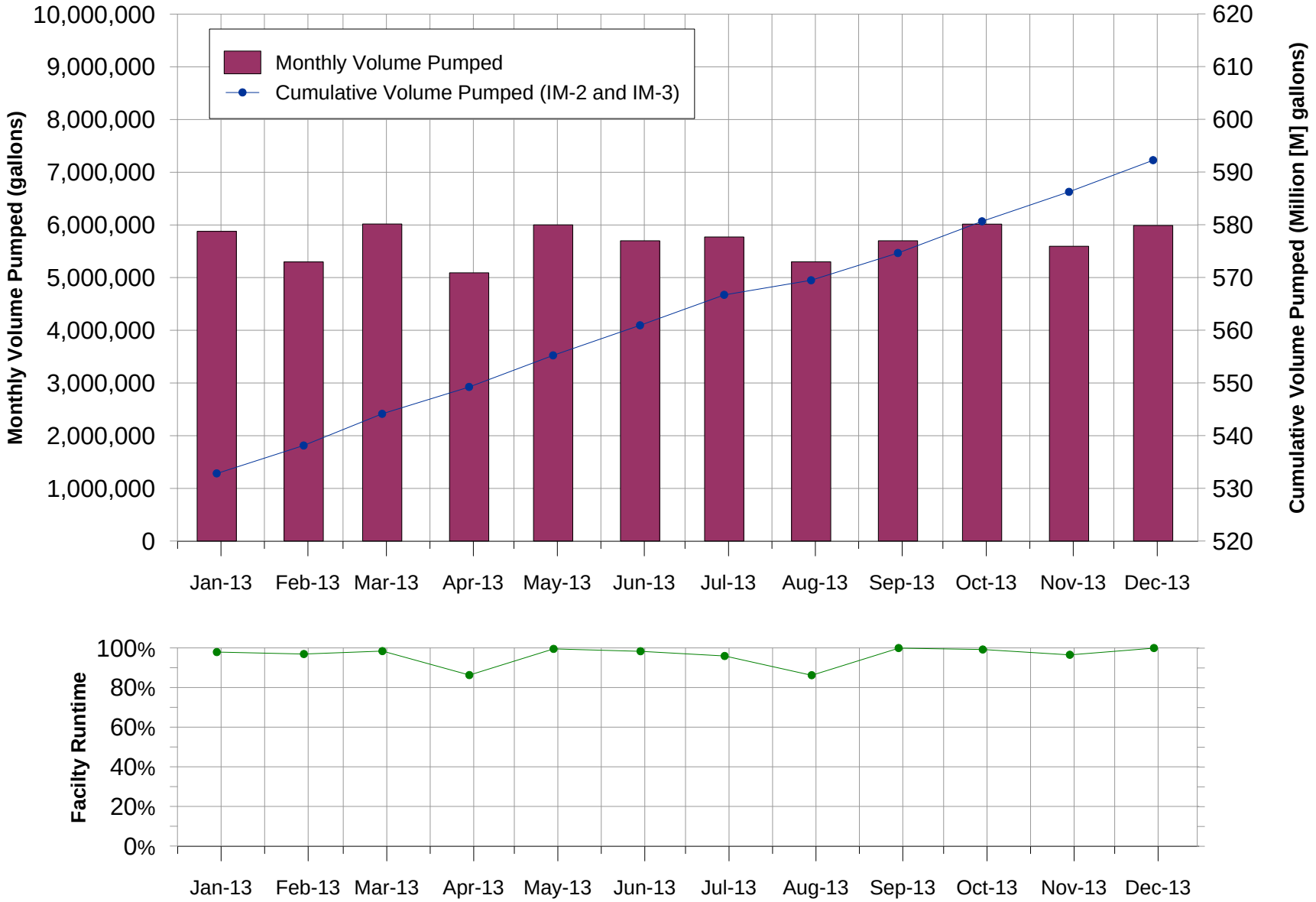
Interpreted groundwater flow direction

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

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

CH2MHILL

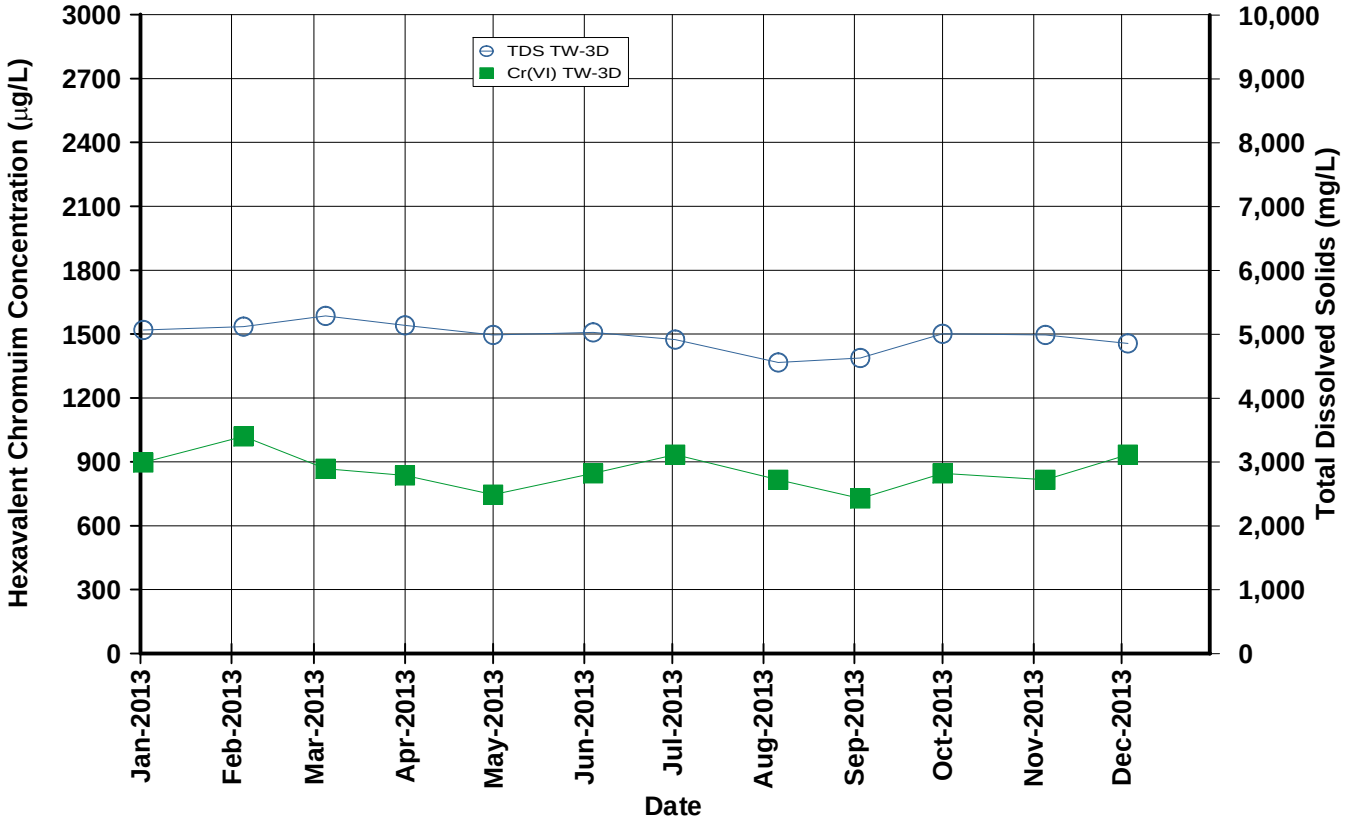
C:\USERS\CHRISTY.GITLIN\DOCUMENTS\TOPOCK\PMP\QUARTERLY REPORTS\2013\4TH QUARTER\FIGURES\WORK FILES\FIGURE4-4_XSECA_GW.GDW;

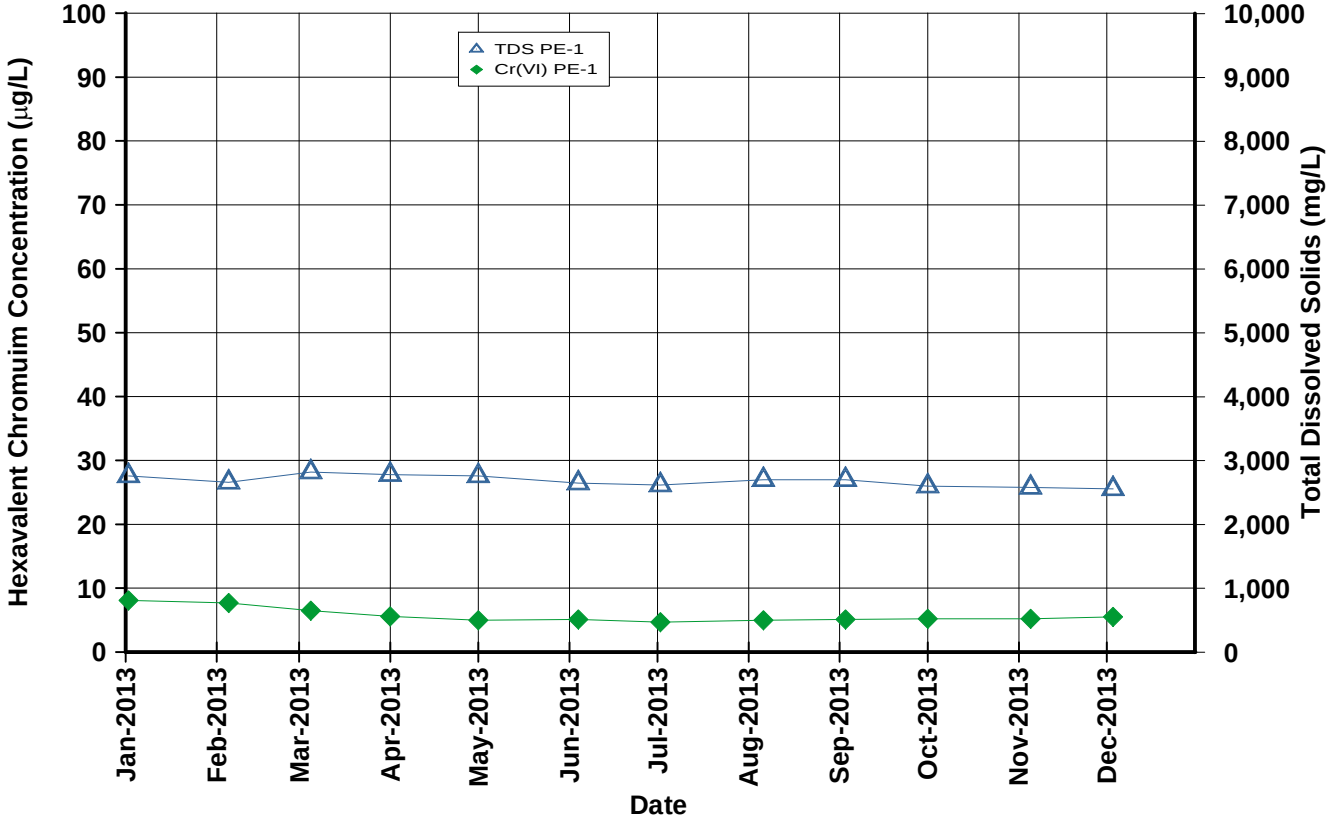


Notes:
In August 2013, a series of lightning strikes at the IM-3 treatment facility caused significant damage to electrical components. On August 18, 2013, the lightning strikes caused the flow meters at TW-3D and PE-01 to fail. The extraction pumps continued to operate following the lightning strikes without operable flow meters because replacement flow meters were not readily available. The flow meter at PE-01 was replaced on August 29, 2013, and the flow meter in TW-3D was replaced on September 4, 2013. Flow meter data for PE-01 were unavailable between August 18 and August 28, 2013, and flow meter data for TW-03D were unavailable from August 18, 2013 through September 4, 2013. Therefore, the total volume extracted and combined pumping rates in August and September were estimated by combining the flow totals from the flow meters when they were operable and data from the IM-3 treatment plant facility when flow meter data were unavailable.

FIGURE 5-1
MONTHLY COMBINED PUMPING VOLUMES AND PERCENT UPTIME, 2013 REPORTING PERIOD
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL





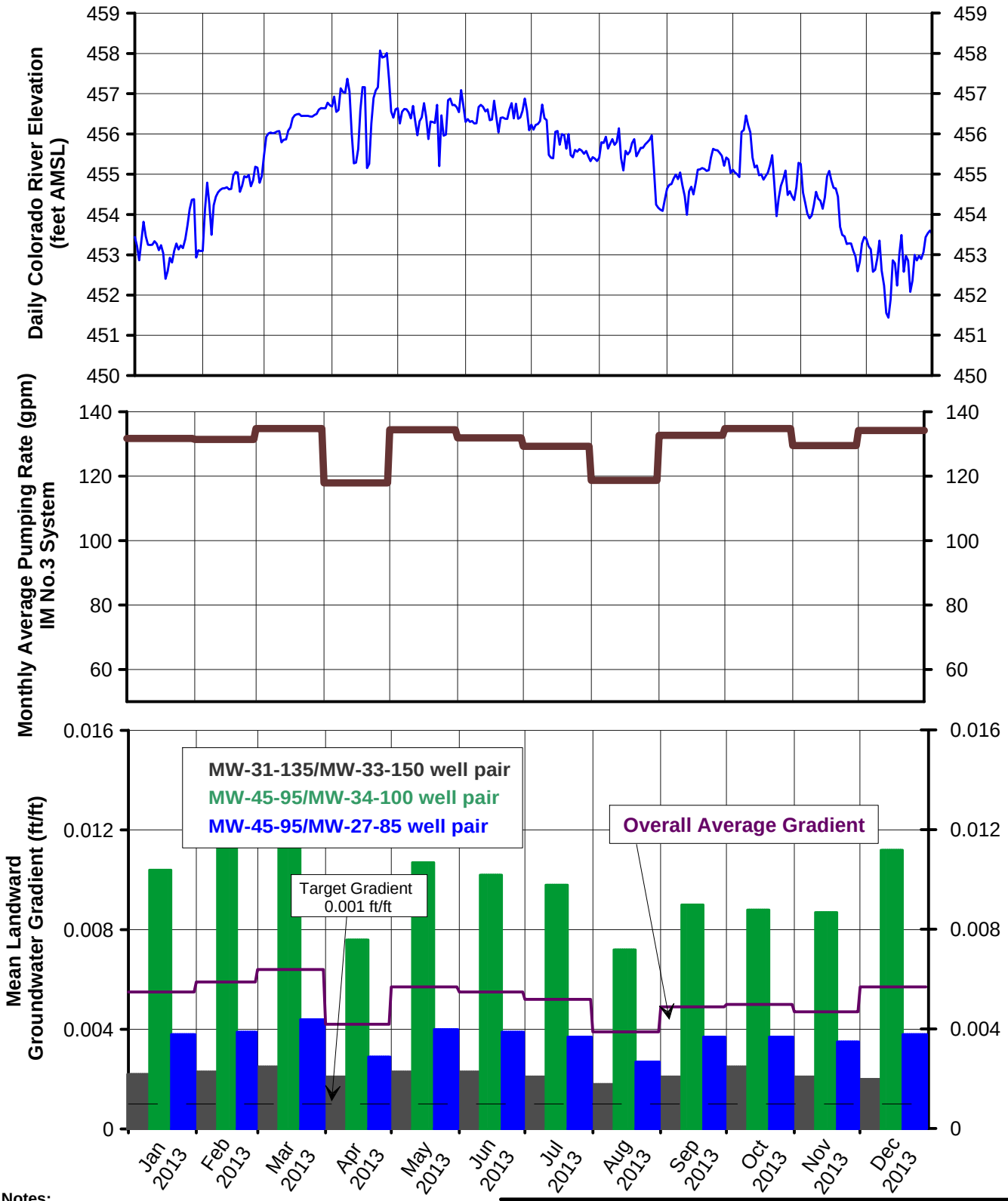
Notes:
gpm = gallons per minute.
µg/L = micrograms per liter.
mg/L = milligrams per liter.

TW-3D pumping began on 20-Dec-05.
PE-1 pumping began on 26-Jan-06.

For average pumping information see Table 5-1.

FIGURE 5-2
Cr(VI) AND TOTAL DISSOLVED SOLIDS CONCENTRATIONS IN EXTRACTION WELLS TW-3D AND PE-1, 2013 REPORTING PERIOD
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



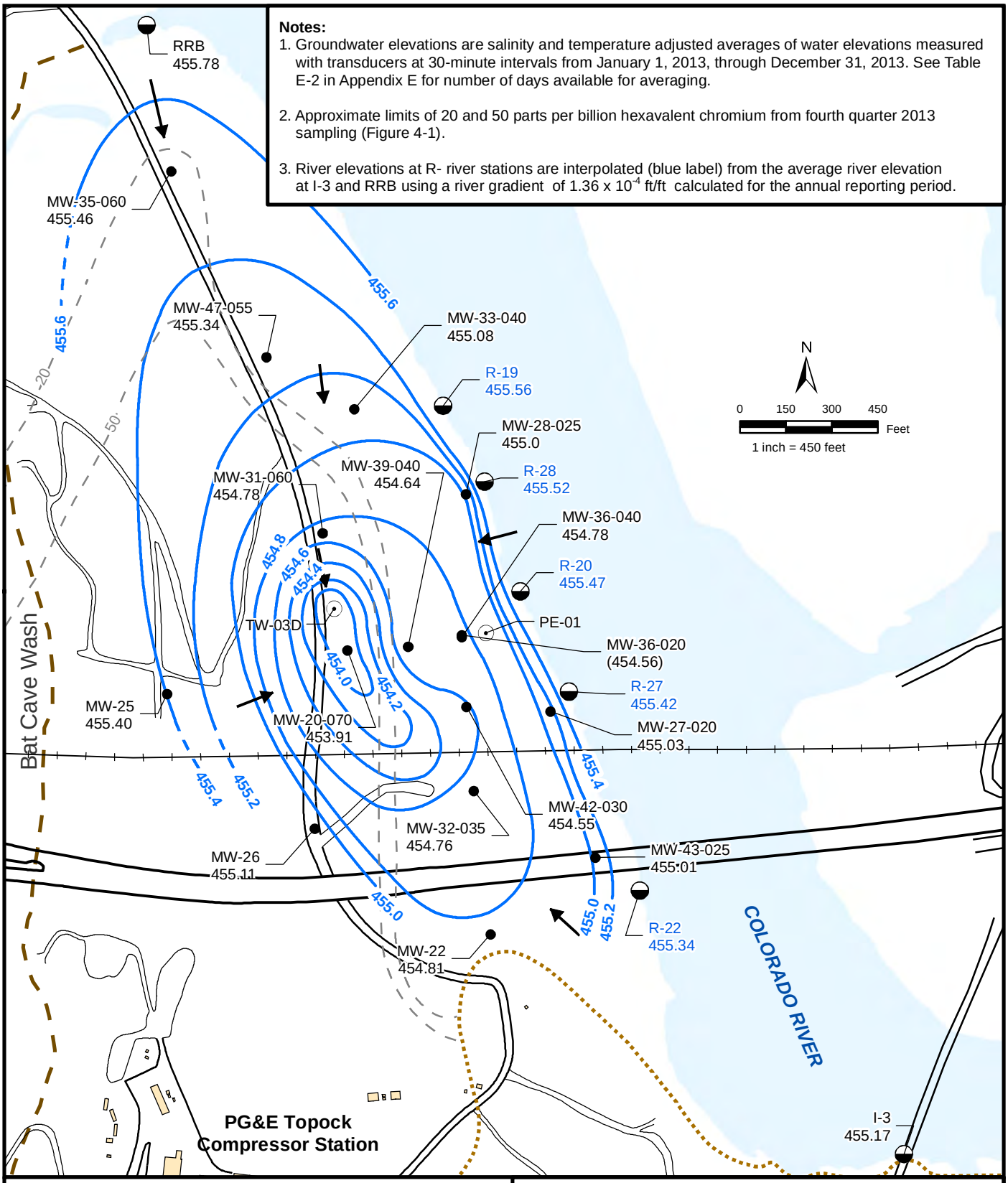
Notes:

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

FIGURE 5-3
MEASURED HYDRAULIC GRADIENTS, RIVER ELEVATION, AND PUMPING RATE, 2013 REPORTING PERIOD

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

CH2MHILL



Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from January 1, 2013, through December 31, 2013. See Table E-2 in Appendix E for number of days available for averaging.

2. Approximate limits of 20 and 50 parts per billion hexavalent chromium from fourth quarter 2013 sampling (Figure 4-1).

3. River elevations at R- river stations are interpolated (blue label) from the average river elevation at I-3 and RRB using a river gradient of 1.36 x 10^{-4} ft/ft calculated for the annual reporting period.

- **MW-29 455.85** Average Groundwater Elevation at Monitoring Station (ft amsl)
- **R-22 455.56** River Elevation (ft msl) Interpolated Average
- Interpreted Groundwater Flow Direction
- Bedrock Contact at 455 ft elevation
- Monitoring Well
- River Station
- Extraction Well
- Groundwater Elevation Contour 0.2 ft (dashed where inferred)

FIGURE 5-4a
AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS AND RIVER ELEVATIONS, 2013 REPORTING PERIOD

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

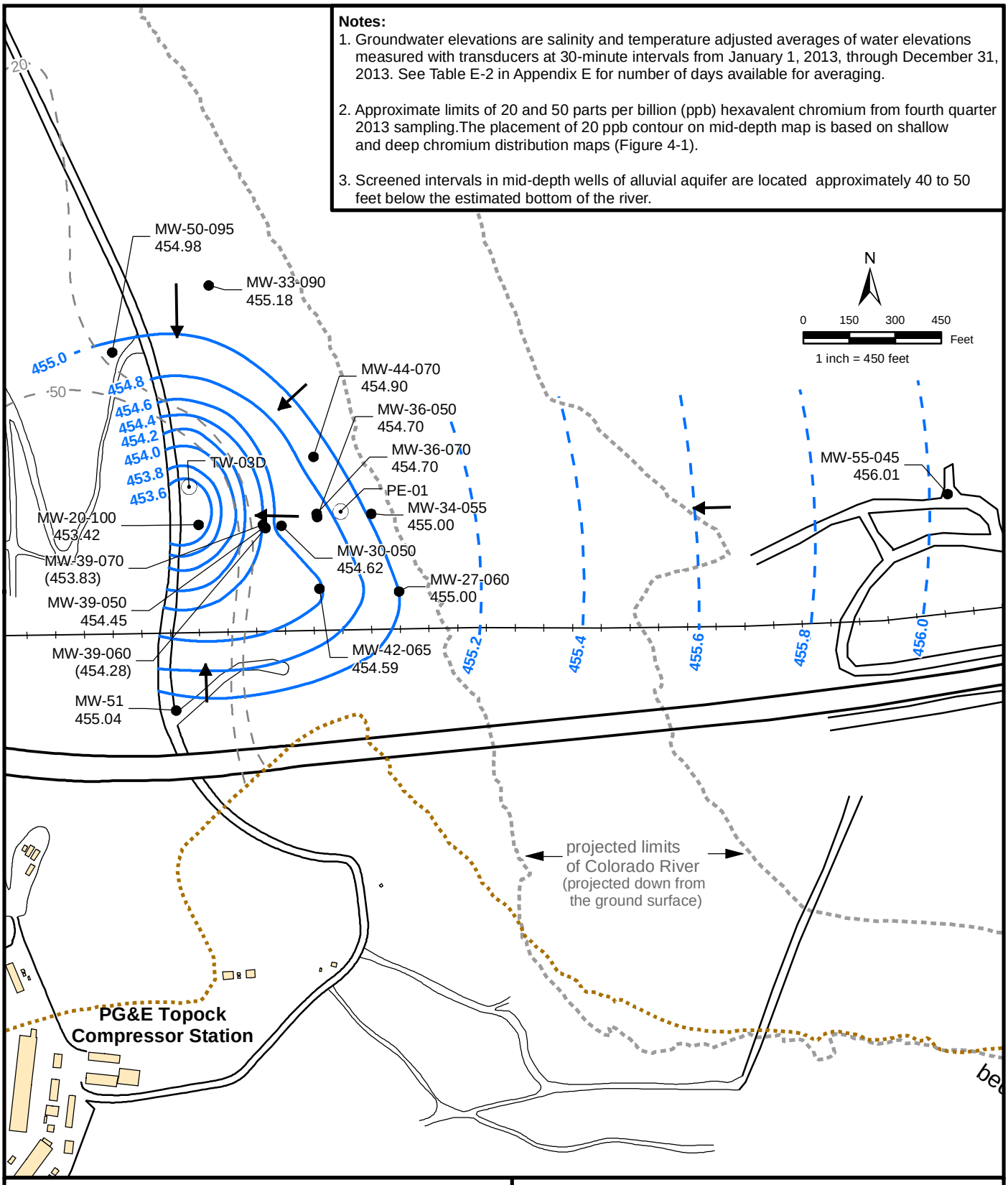
CH2MHILL

Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from January 1, 2013, through December 31, 2013. See Table E-2 in Appendix E for number of days available for averaging.

2. Approximate limits of 20 and 50 parts per billion (ppb) hexavalent chromium from fourth quarter 2013 sampling.The placement of 20 ppb contour on mid-depth map is based on shallow and deep chromium distribution maps (Figure 4-1).

3. Screened intervals in mid-depth wells of alluvial aquifer are located approximately 40 to 50 feet below the estimated bottom of the river.



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

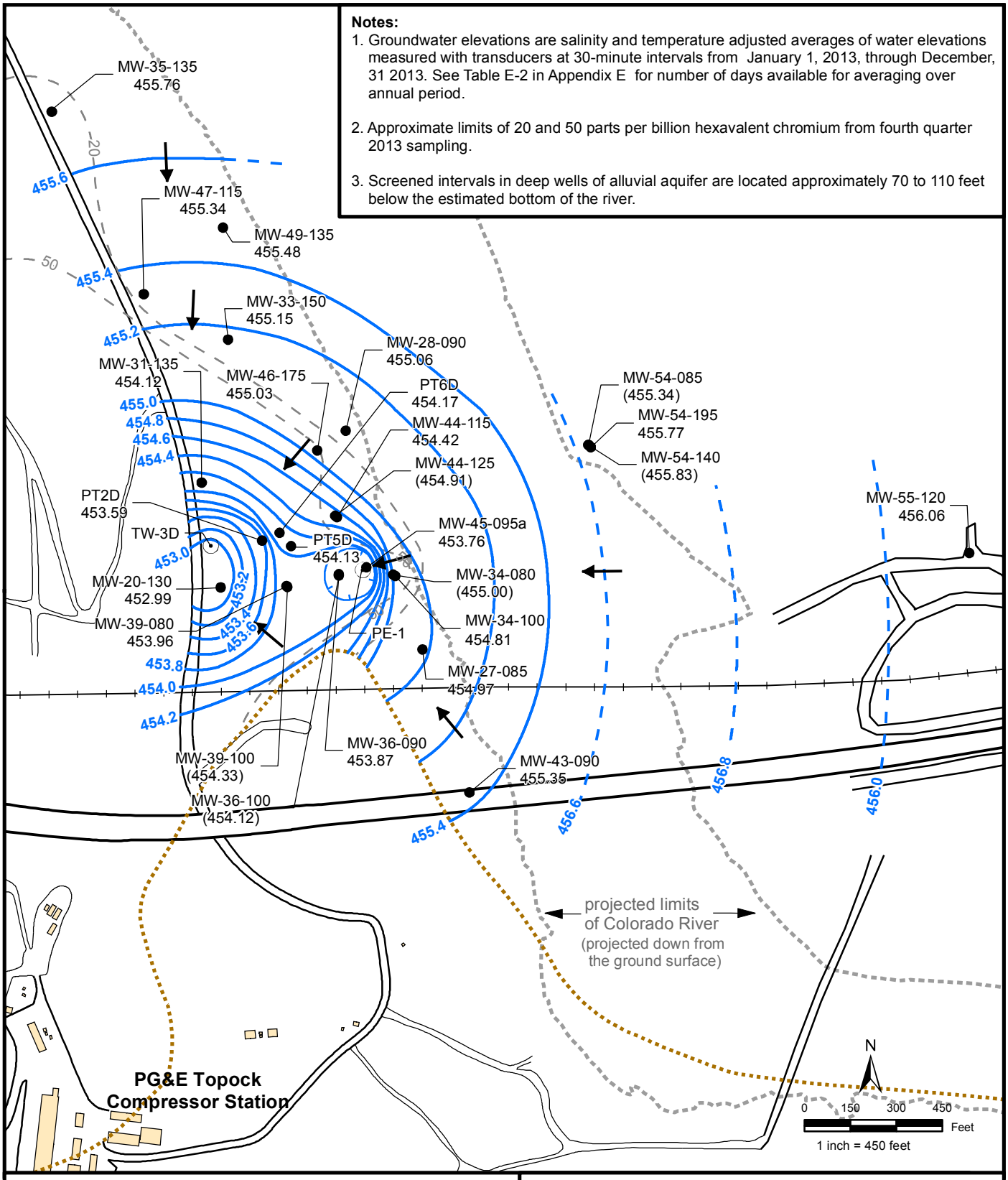
FIGURE 5-4b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS 2013 REPORTING PERIOD

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

CH2MHILL

Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from January 1, 2013, through December, 31 2013. See Table E-2 in Appendix E for number of days available for averaging over annual period.
2. Approximate limits of 20 and 50 parts per billion hexavalent chromium from fourth quarter 2013 sampling.
3. Screened intervals in deep wells of alluvial aquifer are located approximately 70 to 110 feet below the estimated bottom of the river.



MW-29 455.85 — Average Groundwater Elevation at Monitoring Station (ft amsl)

MW-29 (455.85) — Average Groundwater Elevation at Monitoring Station (ft amsl) Not Used for Contouring

Interpreted Groundwater Flow Direction

Bedrock Contact at 395 ft elevation

Monitoring Well

River Station

Extraction Well

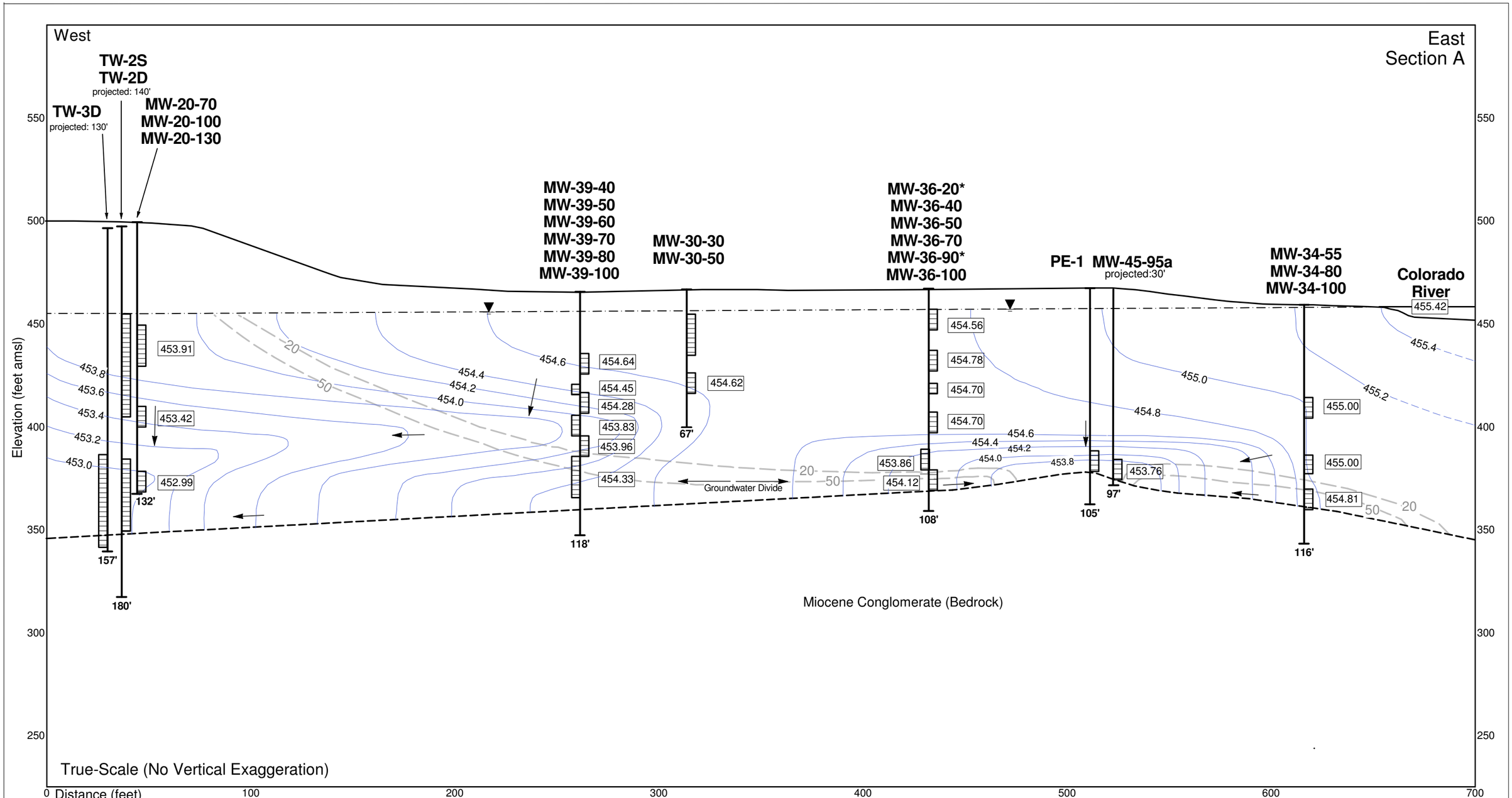
Groundwater Elevation Contour 0.2 ft (dashed where inferred)

FIGURE 5-4c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, 2013 REPORTING PERIOD

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

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure5-4c_2013Annual_GWE_Deep.mxd Date Saved: 3/12/2014 12:13:23 PM



Notes:

1. Results show average groundwater elevations for January 1, 2013, through December 31, 2013, measured with transducers at 30-minute intervals.

2. Groundwater elevations adjusted for salinity and temperature. Wells MW-36-020* and MW-36-90* are excluded from contouring. River elevation (R-27) is the calculated average river level based upon the river gradient between RRB and I-3.

amsl = above mean sea level.

Legend:

MW-30-50 — Inferred water table; well screen; 455.23 — Average groundwater head (ft amsl); 103 — boring depth (feet)

20 — Inferred hexavalent chromium contours (ppb) in Alluvial Aquifer from fourth quarter 2013.

453.5 — Groundwater head contour

453.5 — Inferred groundwater head contour

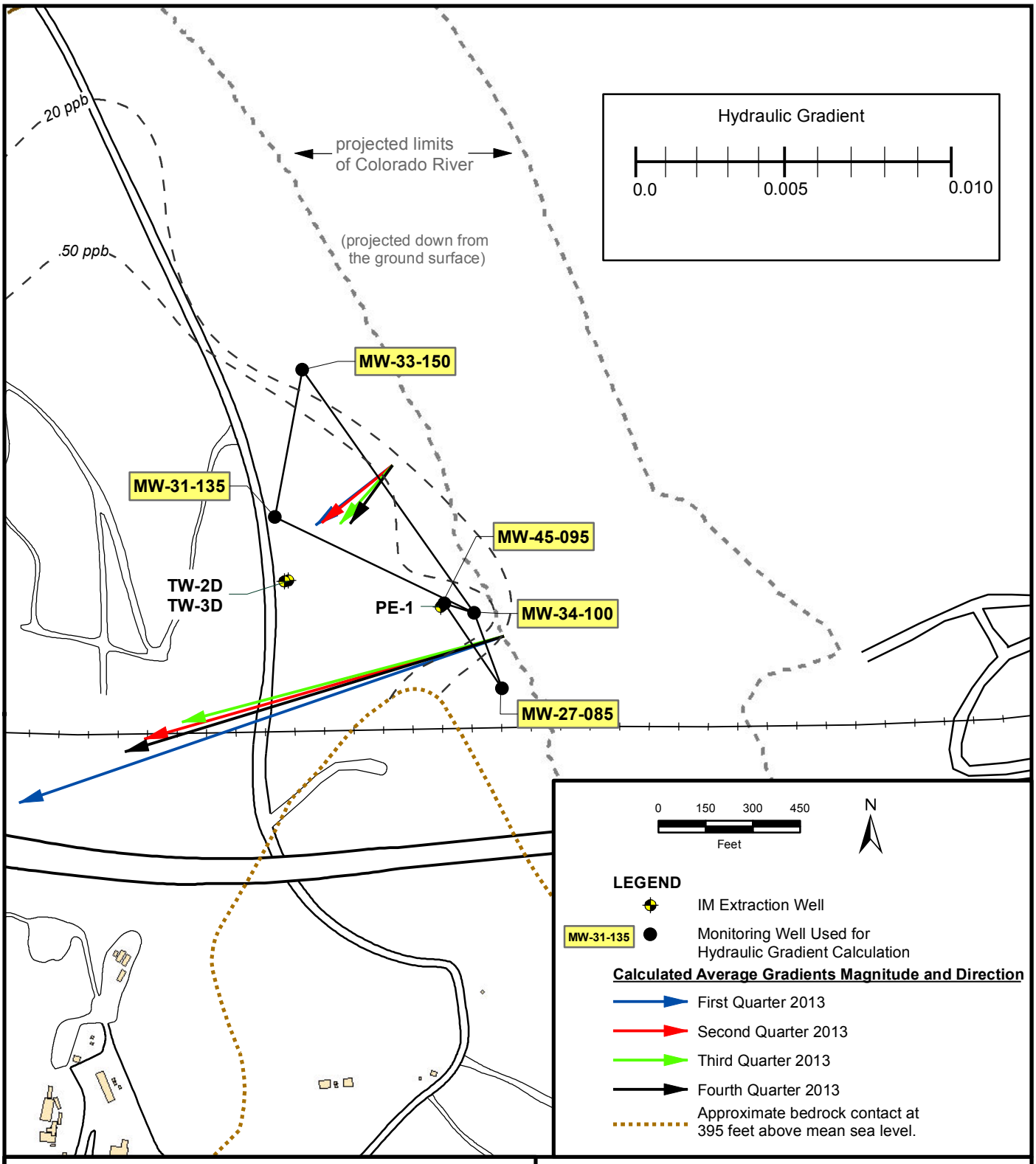
Interpreted groundwater flow direction

FIGURE 5-5
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A, 2013 REPORTING PERIOD

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

CH2MHILL

C:\USERS\CHRISTY.GITLIN\DOCUMENTS\TOPOCK\PMP\QUARTERLY REPORTS\2013\4TH QUARTER\FIGURES\WORK FILES\FIGURE5-5_XSECA_GW-ANNUAL.GDW;



Notes:

1. Direction and magnitude of hydraulic gradient for each well triad (MW-45-095, MW-33-150, MW-31-135 and MW-45-095, MW-34-100, MW-27-085) were calculated using triangulation with linear interpretation and average head values for each quaterly reporting period.

2. Approximate limits of 20 and 50 parts per billion hexavalent chromium from Fourth Quarter 2013 sampling event.

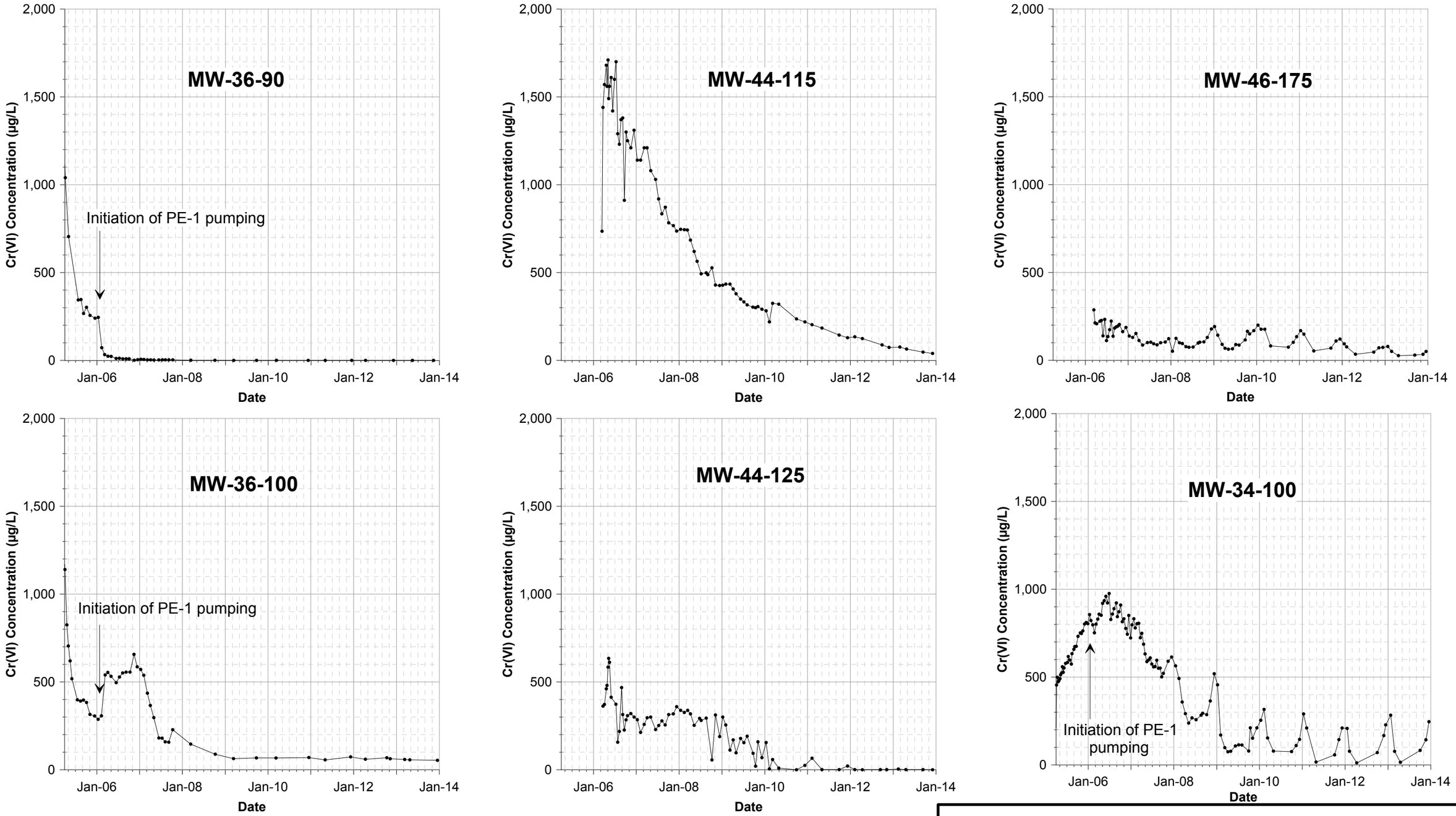
3. Screened intervals in deep wells of alluvial aquifer are located approximately 70 to 110 feet below the estimated bottom of the river.

FIGURE 5-6
MAGNITUDE AND DIRECTION OF HYDRAULIC GRADIENTS IN LOWER DEPTH INTERVAL DURING 2013 ANNUAL PERIOD

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

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure5-6_2013_Annual_Hydro_Gradient_LowerDepth.mxd Date Saved: 2/27/2014 1:21:16 PM

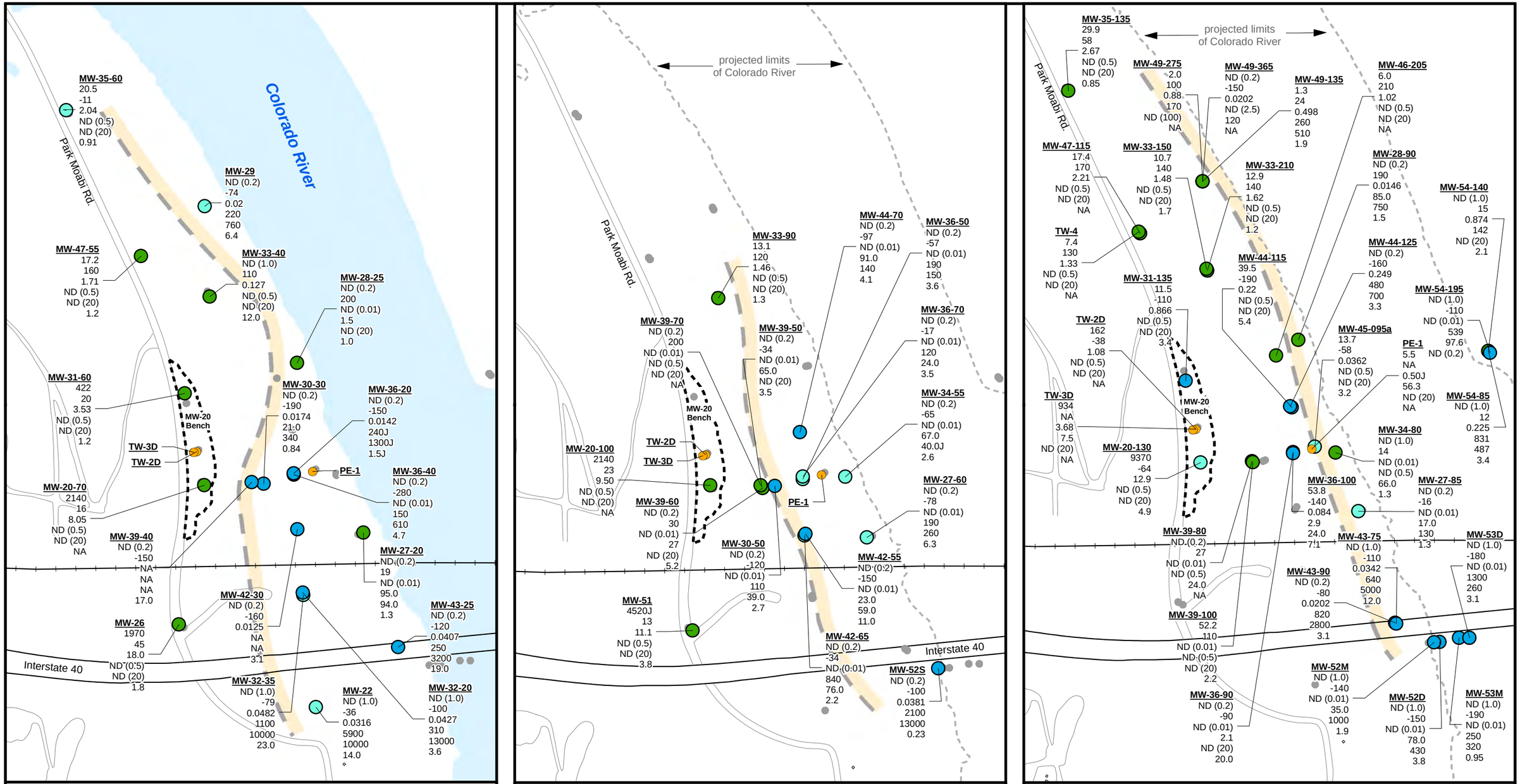


Notes:

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

FIGURE 5-7
Cr(VI) CONCENTRATION TRENDS IN SELECTED PERFORMANCE MONITORING WELLS, APRIL 2005 THROUGH DECEMBER 2013
FOURTH QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Shallow Wells (Upper Depth Interval) - 2013

Intermediate Wells (Middle Depth Interval) - 2013

Deep Wells (Lower Depth Interval) - 2013

LEGEND

- Approximate limit of reducing groundwater based upon a **combination** of redox indicator parameters.
- Groundwater ORP < -90 mV
- Groundwater -90 mV < ORP < 1 mV
- Groundwater ORP > 1 mV
- IM3 Extraction Wells (TW-2D, TW-3D, and PE-1)

MW-22	Groundwater Results, Fourth Quarter 2013
ND (1)	Hexavalent chromium, micrograms per liter (µg/L)
-65.7	Oxidation reduction potential (ORP), millivolts (mV)
ND (2.5)	Nitrate/Nitrite as N, milligrams per liter (mg/L)
4400	Manganese (Mn), mircrograms per liter (µg/L)
9400	Iron (Fe), mircrograms per liter (µg/L)
12	Arsenic (As), mircrograms per liter (µg/L)

Notes:
ND = not detected at listed reporting limit
NA = data not collected during reporting period
J = the value is an estimate

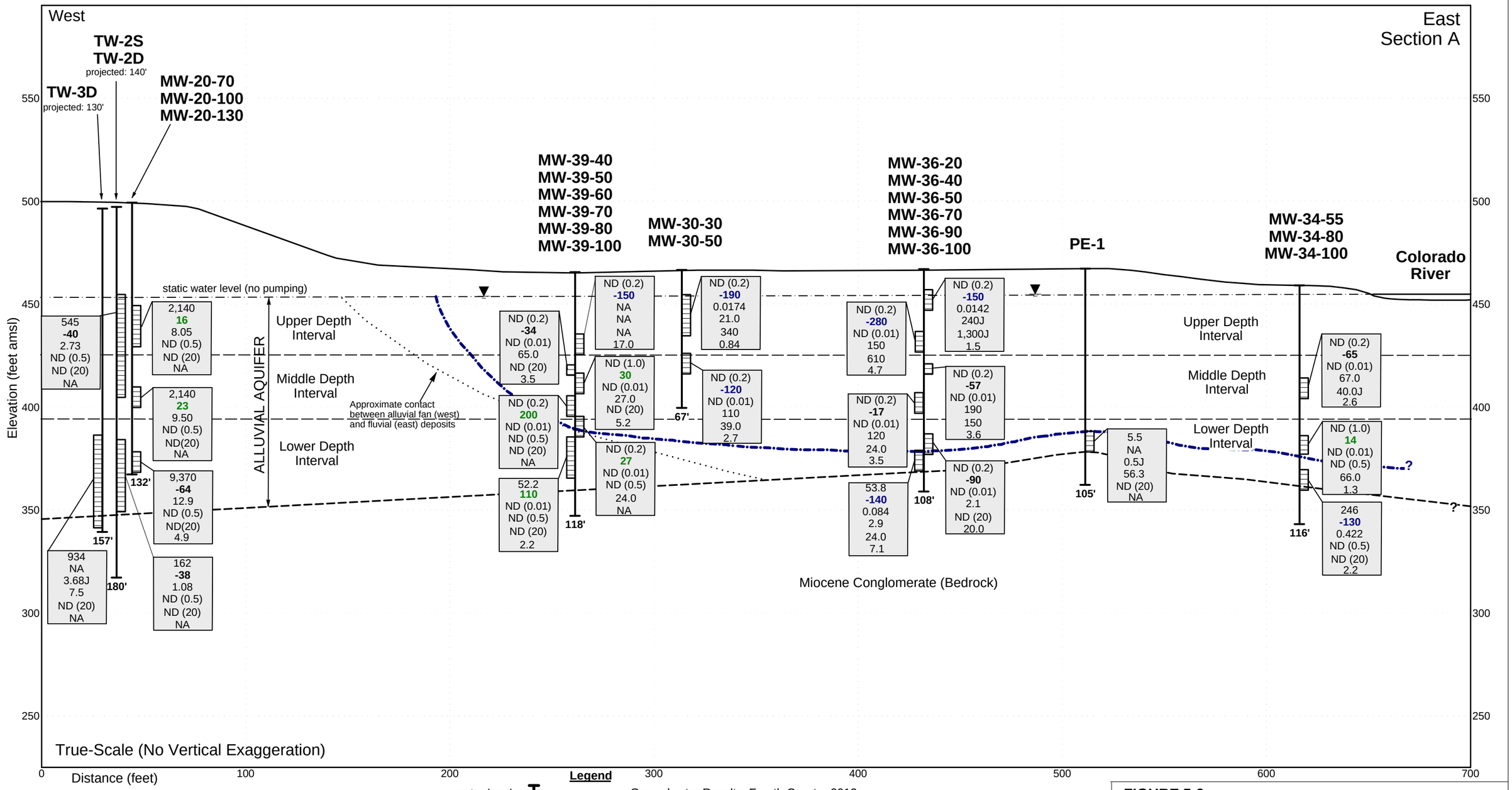
N

0 400 800 Feet

FIGURE 5-8
DISTRIBUTION OF Cr(VI), GEOCHEMICAL INDICATOR PARAMETERS, AND IN SITU BYPRODUCTS IN FLOODPLAIN WELLS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure5-8_Geochem_Floodplain_2013Q4_SF.mxd Date Saved: 2/27/2014 8:41:05 AM



Notes:
ND = not detected at listed reporting limit.
NA = data not collected during reporting period.
amsl = above mean sea level.

Legend

water level

well screen

boring depth (feet)

3,130
75.2
16
ND (10)
ND (20)
16.0
103

Groundwater Results, Fourth Quarter 2012

Hexavalent chromium, micrograms per liter (µg/L)
Oxidation reduction potential, millivolts (mV)
Nitrate/Nitrite as N or Nitrate as N, milligrams per liter (mg/L)
Manganese (Mn), micrograms per liter (µg/L)
Iron (Fe), micrograms per liter (µg/L)
Arsenic (As), micrograms per liter (µg/L)

ORP values less than -90 mV highlighted blue.
Positive ORP values highlighted green.

Approximate limit of reducing water; based on a combination of redox indicator parameters.

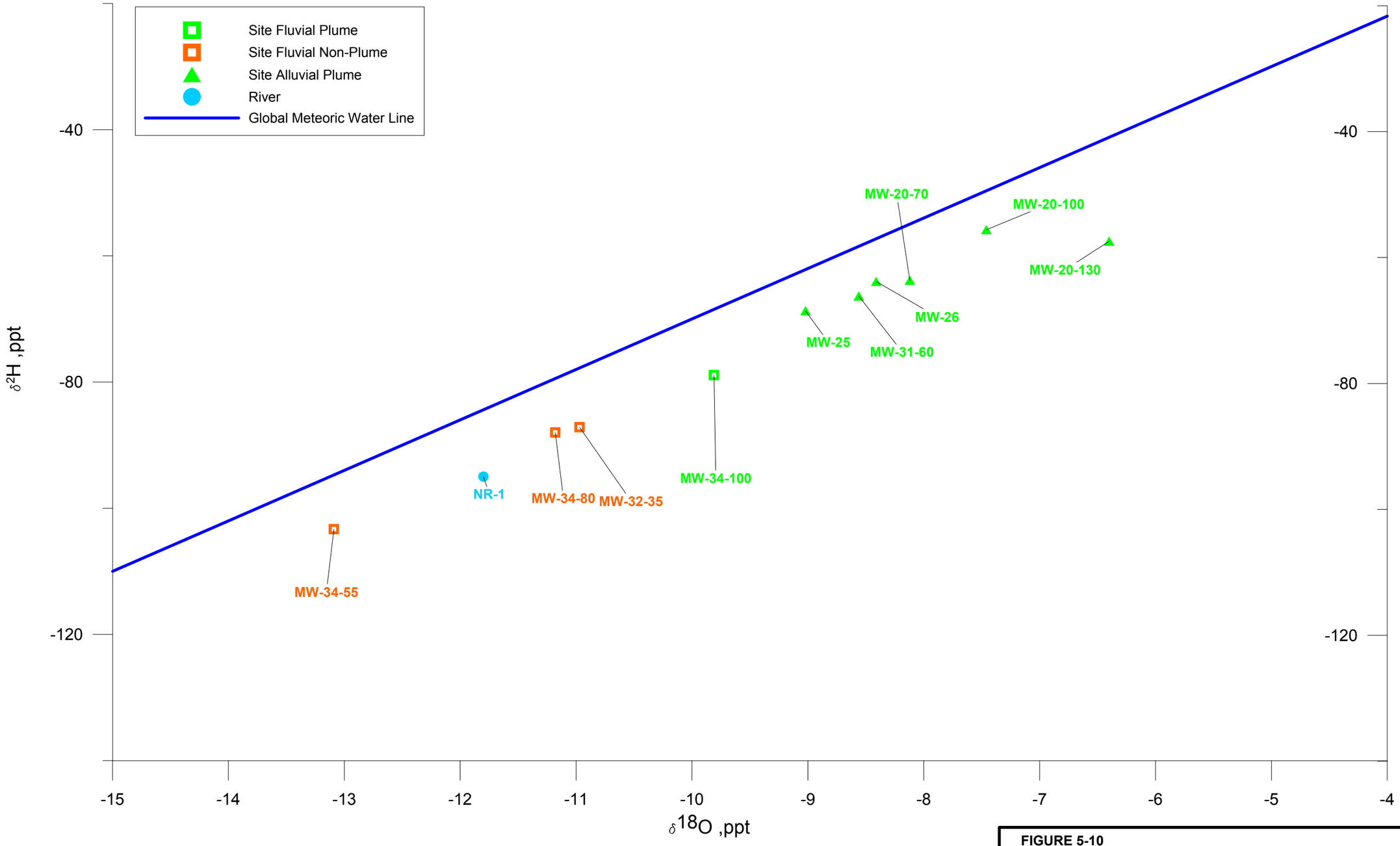
Groundwater ORP <-90mV
Groundwater ORP -90mV <ORP<1mV
Groundwater ORP >1mV

FIGURE 5-9
DISTRIBUTION OF Cr(VI), GEOCHEMICAL INDICATOR PARAMETERS, AND IN SITU BYPRODUCTS IN FLOODPLAIN WELLS CROSS-SECTION A, FOURTH QUARTER 2013

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

CH2MHILL

C:\USERS\E2USER\DOCUMENTS\TOPOCK\GINT\2013_4Q\FIGURE_5-9_X-SEC_GEOCHEM_ANNUAL_2013.GDW;

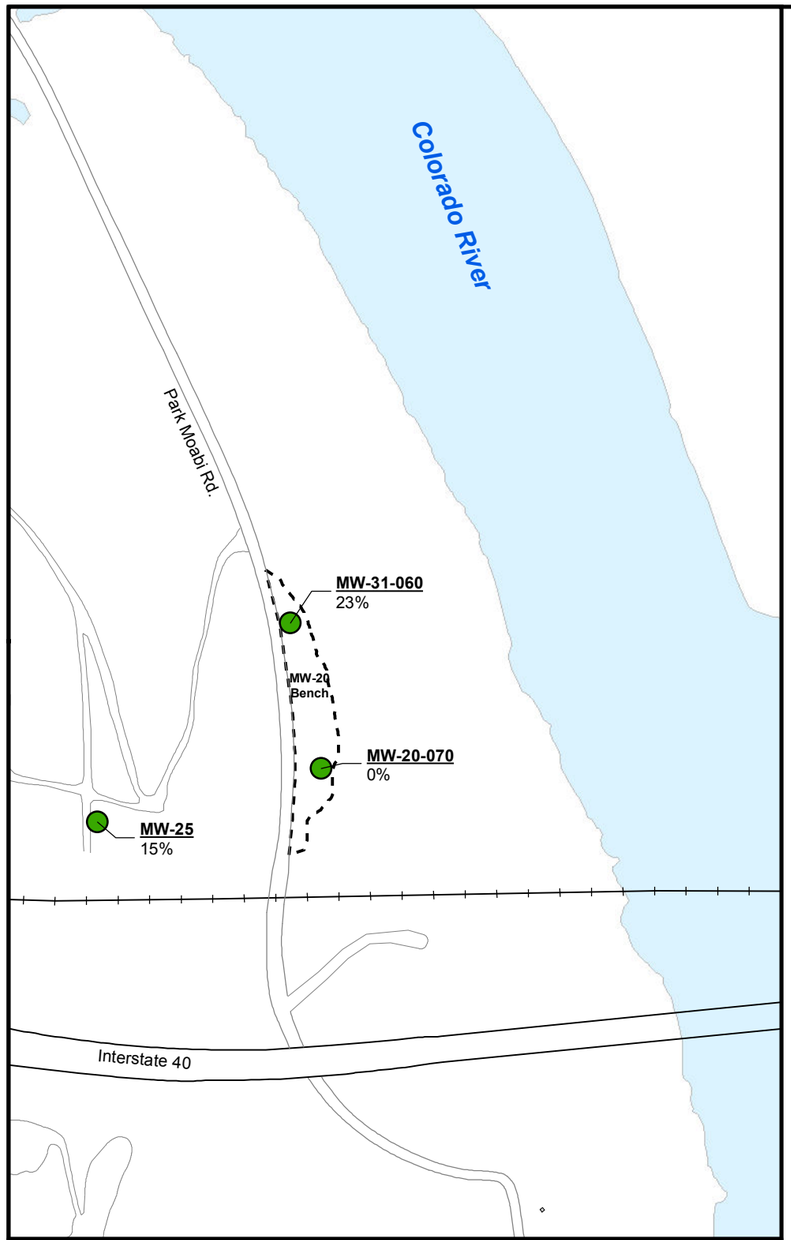


Notes:
ppt = part per trillion.

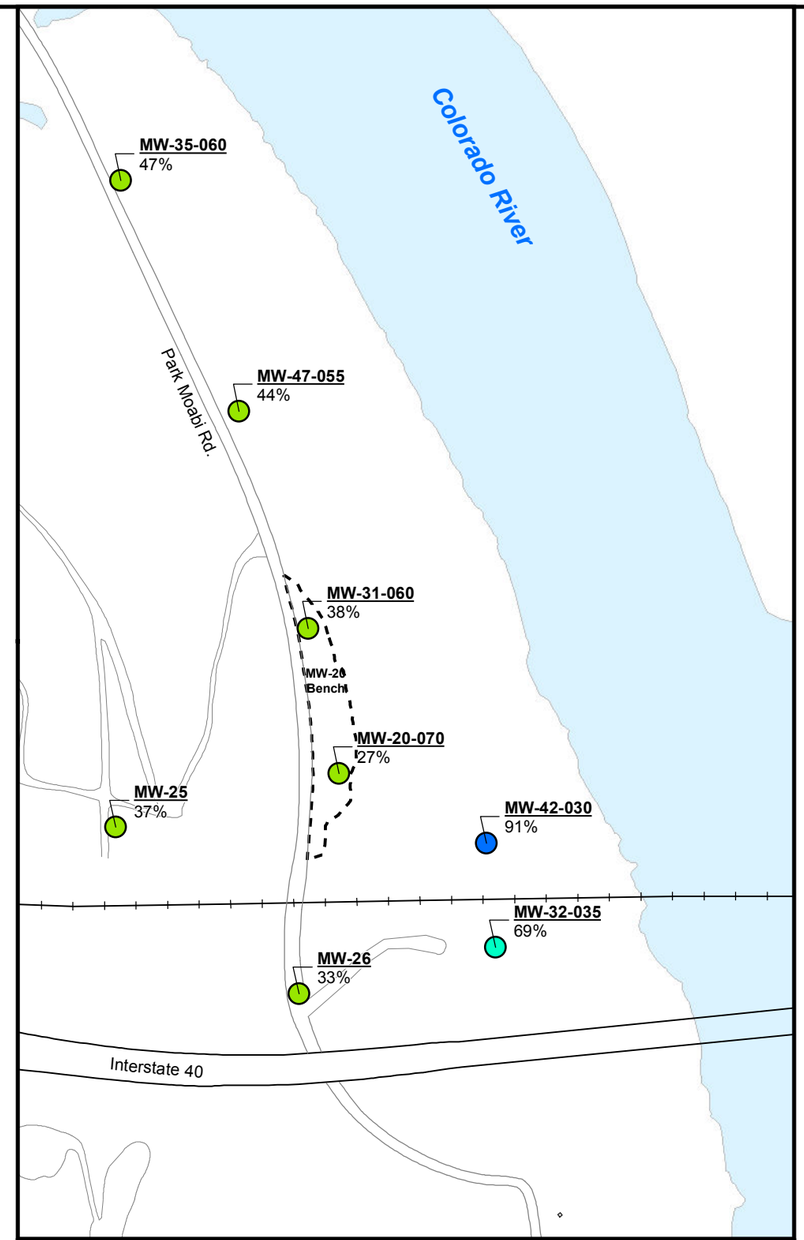
1. Values for Performance Monitoring Program wells are averages from the 2013 reporting period.
2. Values from background wells are cumulative averages from all years.

FIGURE 5-10
AVERAGE STABLE ISOTOPES OF OXYGEN AND DEUTERIUM
JANUARY 2013 THROUGH DECEMBER 2013
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

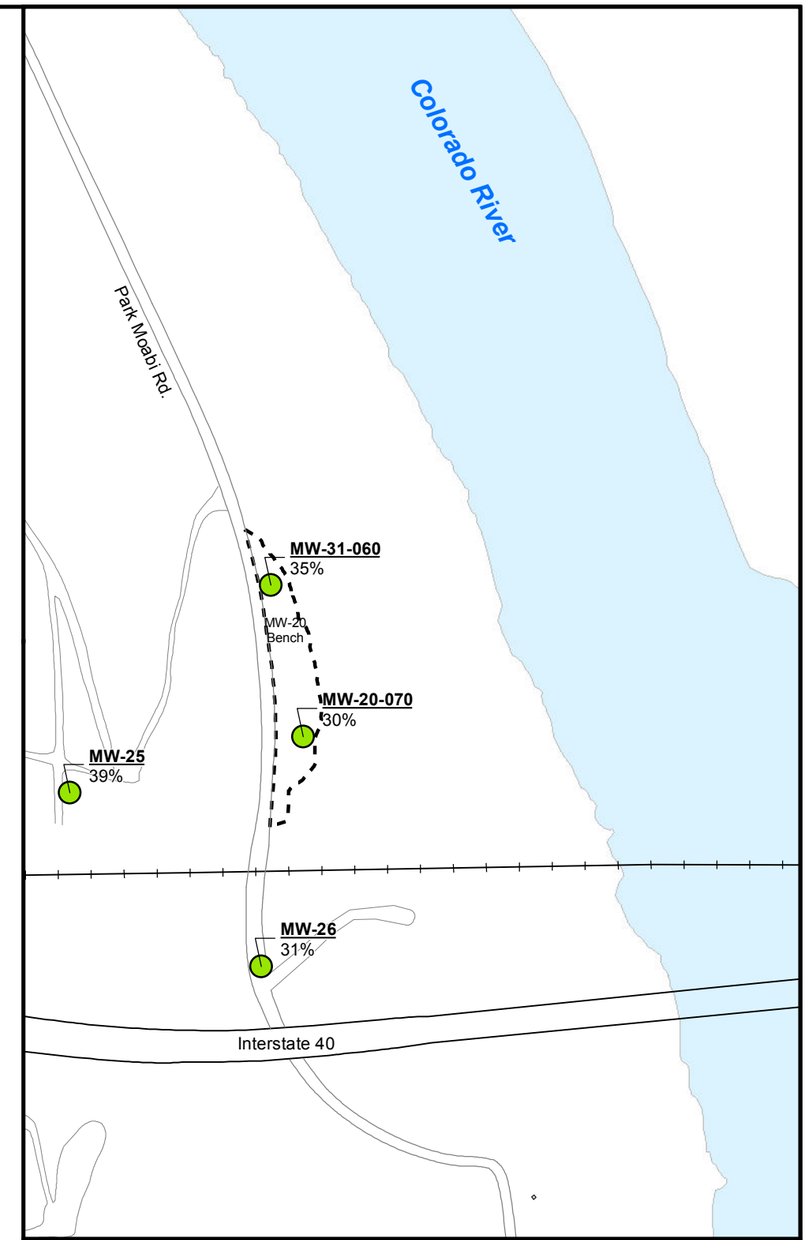
CH2MHILL



Shallow Wells (Upper Depth Interval) - 2004



Shallow Wells (Upper Depth Interval) - 2011



Shallow Wells (Upper Depth Interval) - 2013

LEGEND

Calculated Riverine Signature

- < 25%
- 26 - 50%
- 51 - 75%
- 76 - 100%

MW-22 **Well ID**
22% Percent River Signature

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2010 and 2013. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

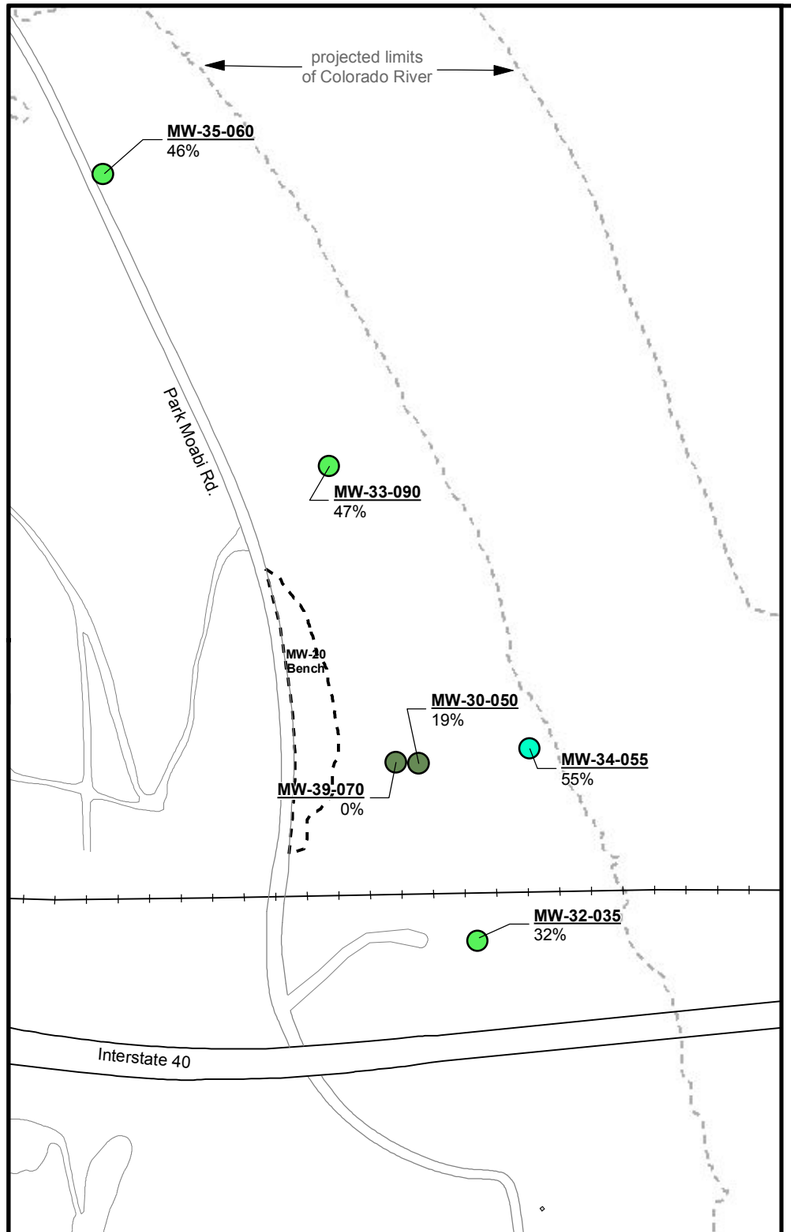
N

0 400 800 Feet

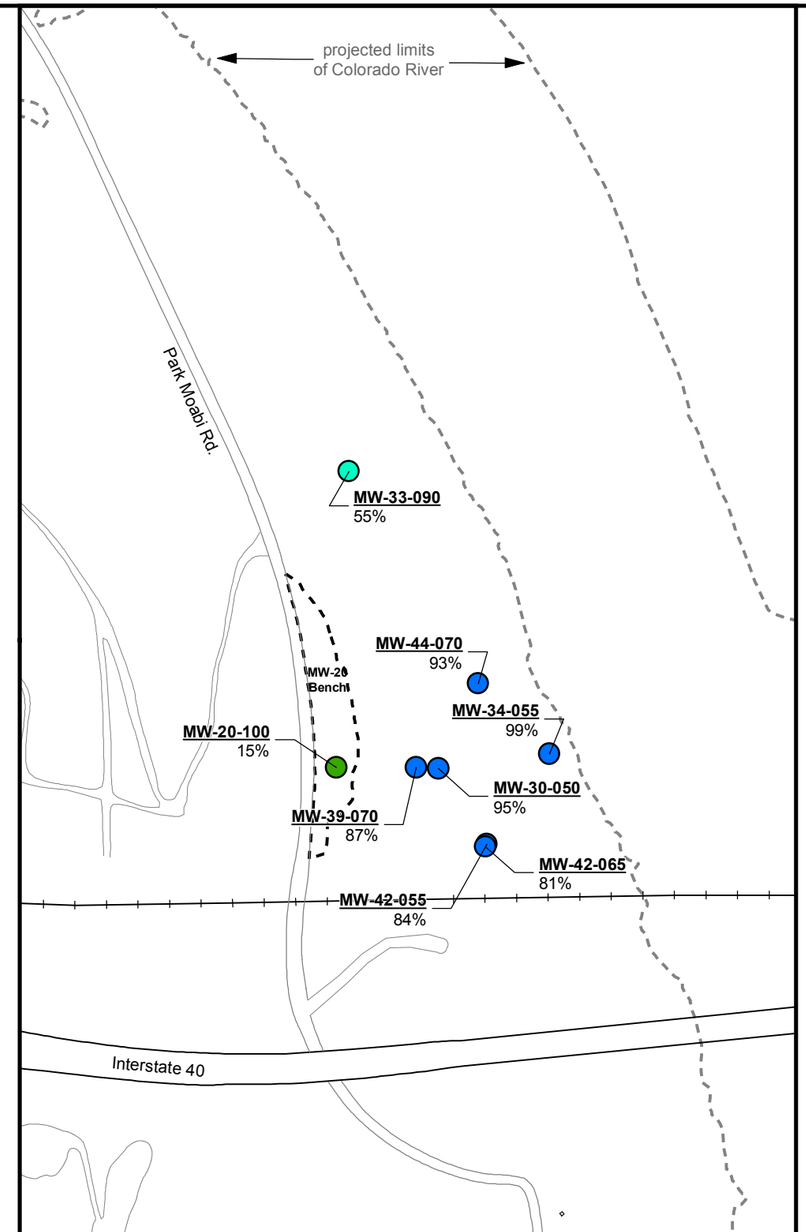
FIGURE 5-11a
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, SHALLOW WELLS (UPPER DEPTH INTERVAL)
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

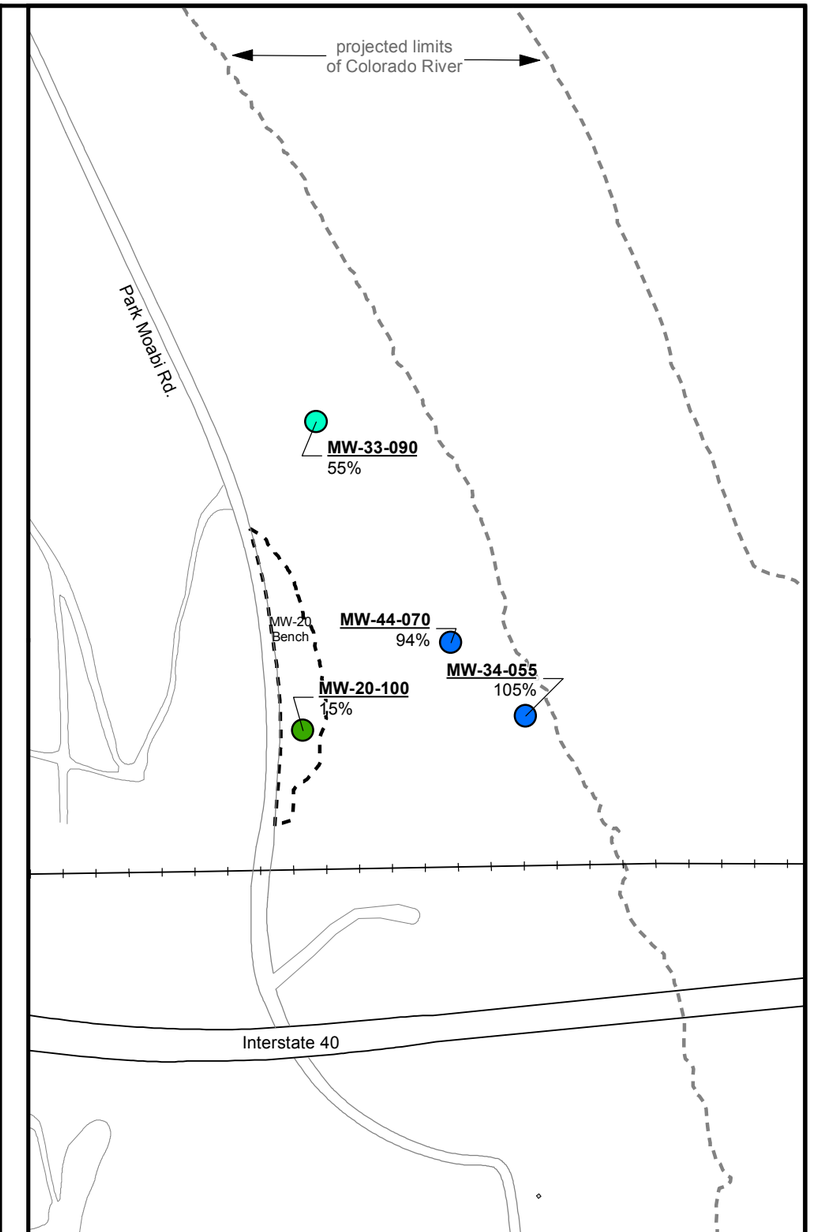
Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure5-11a_RiverSignature_2013Q4_Shallow.mxd Date Saved: 2/27/2014 8:11:23 PM



Mid-Depth Wells (Middle Depth Interval) - 2004



Mid-Depth Wells (Middle Depth Interval) - 2011



Mid-Depth Wells (Middle Depth Interval) - 2013

LEGEND

Calculated Riverine Signature

- < 25%
- 26 - 50%
- 51 - 75%
- 76 - 100%

MW-22	Well ID
22%	Percent River Signature

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2010 and 2013. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

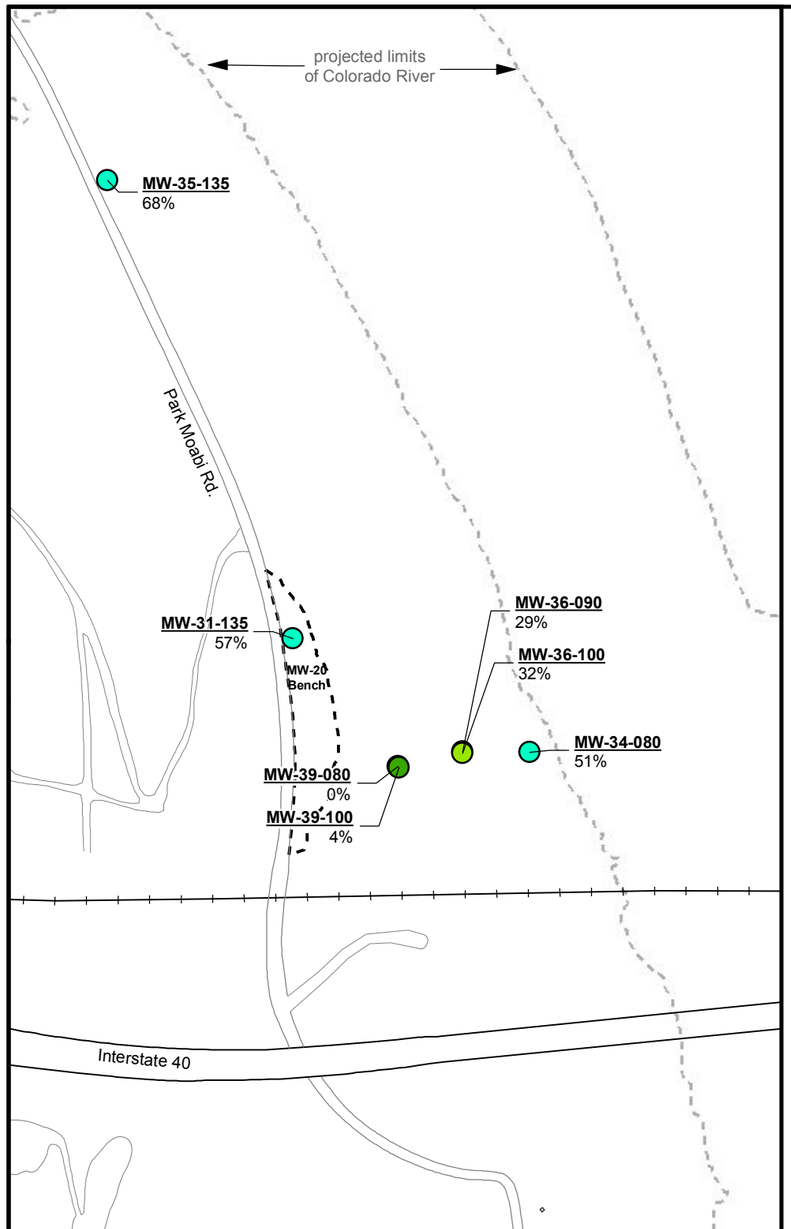
N

0 400 800 Feet

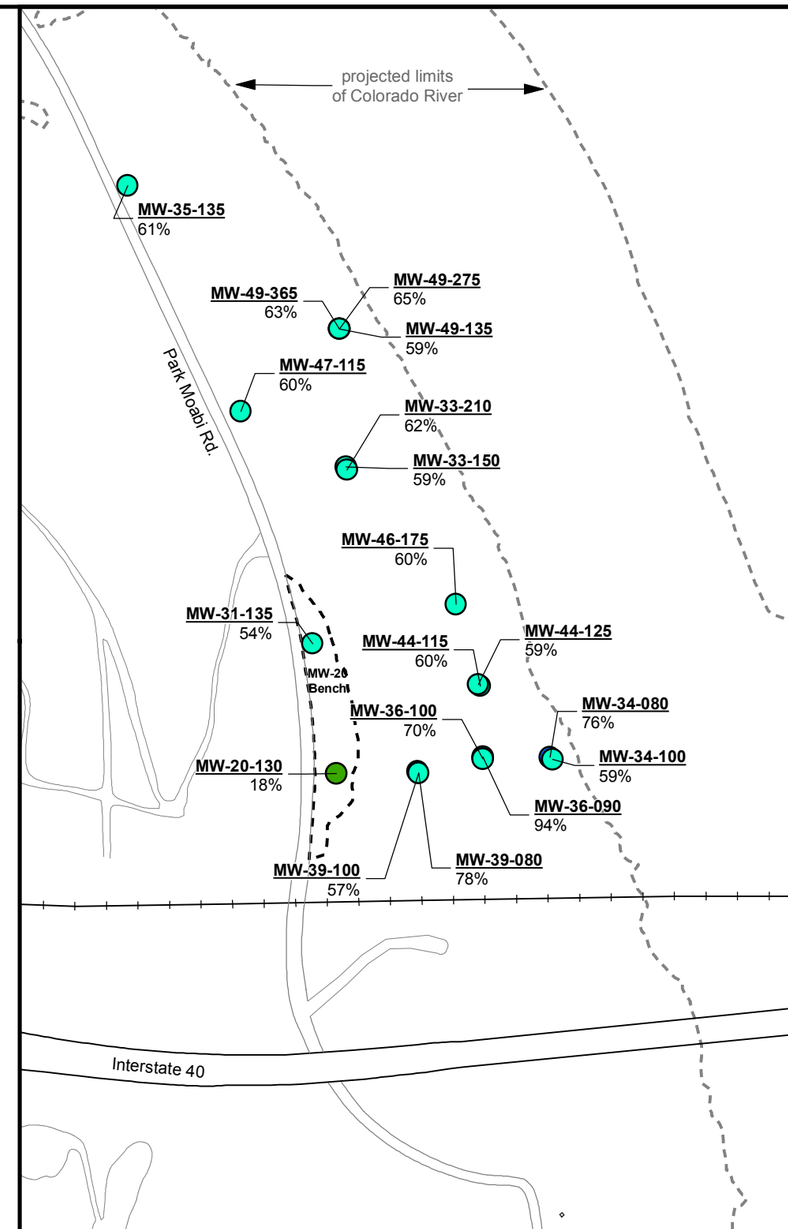
FIGURE 5-11b
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, MID-DEPTH WELLS (MIDDLE DEPTH INTERVAL)
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

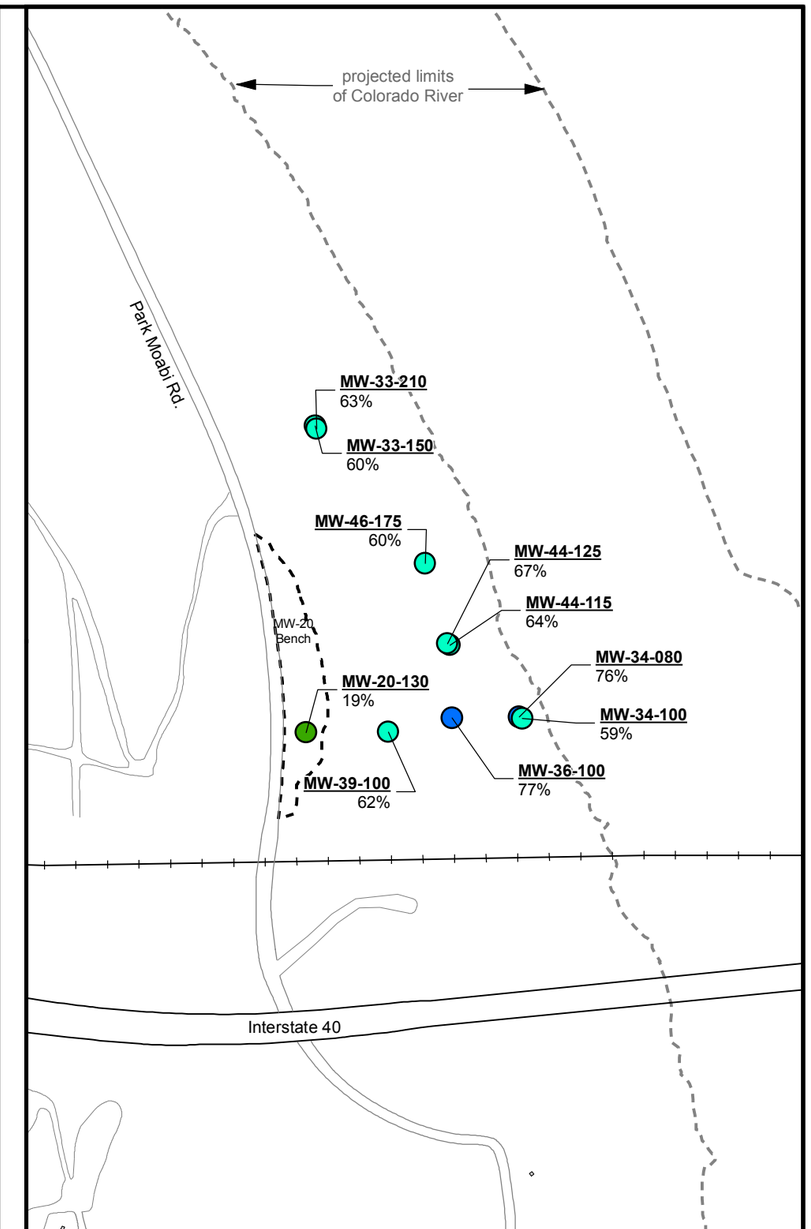
Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure5-11b_RiverSignature_2013Q4_Miid.mxd Date Saved: 3/3/2014 9:07:59 AM



Deep Wells (Lower Depth Interval) - 2004



Deep Wells (Lower Depth Interval) - 2011



Deep Wells (Lower Depth Interval) - 2013

LEGEND

Calculated Riverine Signature

- < 25%
- 26 - 50%
- 51 - 75%
- 76 - 100%

MW-22 **Well ID**
22% Percent River Signature

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2010 and 2013. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

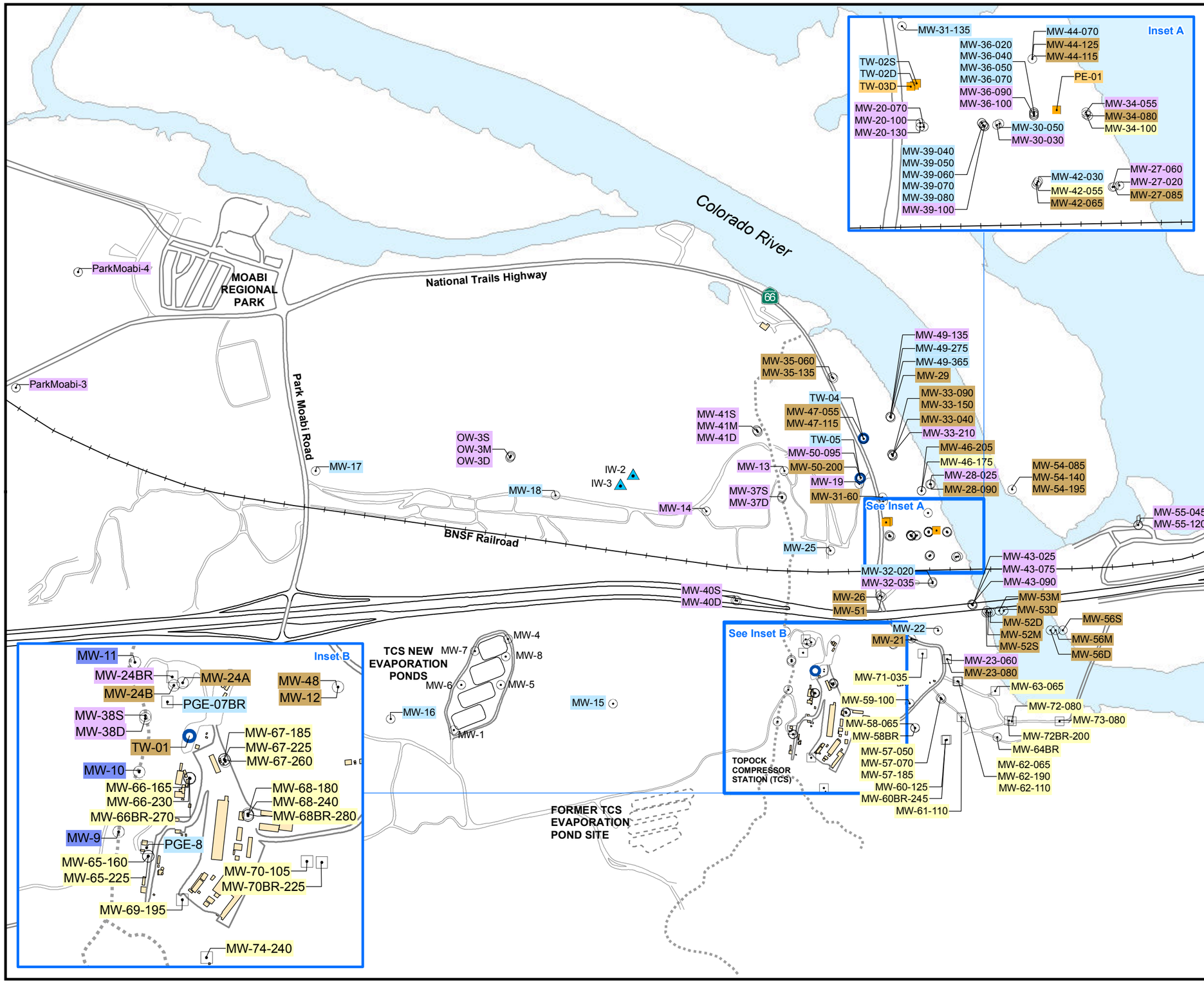
N

0 400 800 Feet

FIGURE 5-11c
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, DEEP WELLS (LOWER DEPTH INTERVAL)
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure5-11c_RiverSignature_2013Q4_Deep.mxd Date Saved: 3/3/2014 9:08:29 AM



LEGEND

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

Sampling Frequency for Groundwater Monitoring Program (GMP)

MW-17	Biennial sampling
MW-13	Annual sampling
MW-09	Annual; quarterly when channel full flow in Bat Cave Wash
MW-21	Semiannual sampling
TW-01	Quarterly sampling
TW-3D	Monthly sampling

N

0 500 1,000 Feet

California State Plane NAD83 Zone 5 US Feet

FIGURE 7-1
MONITORING LOCATIONS AND PROPOSED SAMPLING FREQUENCY FOR GMP

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

CH2MHILL

Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\GMP-IMP\2013Q4\Figure7-1_Sampling_Frequency.mxd Date Saved: 3/12/2014 12:14:49 PM

Appendix A
Well Inspections and Construction Information

TABLE A-1
Well Inspection Log, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo on file? (Y/N)	Notes	Required Actions	Action Completed (Y/N)	Action Completed Date
CW-1D	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
CW-1M	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
CW-2D	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
CW-2M	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
CW-3D	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
CW-3M	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
CW-4D	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
CW-4M	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-01	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-03	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-04	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-05	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-06	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-07	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-08	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-09	12/09/13	Y	N	Y	N	Y	Y[a]	Y	N	Y	Y	N	Y		One traffic pole is bent over.			
MW-10	12/12/13	Y	N	Y	N	Y	Y	Y	N[a]	Y	Y	N	Y		Deposition.			
MW-11	11/19/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y					
MW-12	12/10/13	Y	N	Y	N	Y	Y	Unk	N[a]	Y	Y	N	Y	NA	Pad buried deposition			
MW-13	11/13/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-14	12/19/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-15	11/11/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				

TABLE A-1
Well Inspection Log, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and
Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo on file? (Y/N)	Notes	Required Actions	Action Completed (Y/N)	Action Completed Date
MW-16	11/06/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-17	11/11/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-18	11/11/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-19	12/05/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-20-070	12/11/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-20-100	12/11/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-20-130	12/17/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-21	11/04/13	Y	N	N [a]	N	Y	NA	Y	N	NA	Y	N	Y	NA	Flush mount			
MW-22	11/04/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-23-060 MW-23-080	11/11/13	Y	N	NA	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-24 BR	12/02/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-24A	11/19/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-24B	11/19/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-25	12/09/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-26	12/04/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-020	11/04/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-060	11/04/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-085	11/04/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-28-025	11/05/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-28-090	11/05/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-29	11/05/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-30-030	11/04/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Some rust on prot. casing			
MW-30-050	11/04/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

TABLE A-1
Well Inspection Log, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and
Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo on file? (Y/N)	Notes	Required Actions	Action Completed (Y/N)	Action Completed Date
MW-31-060	12/03/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-31-135	11/07/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-32-020	11/06/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-32-035	11/06/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-150	12/03/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-210	12/03/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-40	12/03/13	Y	N	Y	N	N	NA	Y	N	Y	Y	N	Y	NA		Label well		
MW-33-90	12/03/13	Y	N	Y	N	N	NA	Y	N	Y	Y	N	Y	NA		Label well		
MW-34-055	11/20/13	Y	N	Y	N	N	NA	Y	N	Y	Y	N	Y	NA				
MW-34-080	11/20/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-34-100	11/20/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-35-135	11/12/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-35-60	11/12/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-36-020 MW-36-070	11/11/13	Y	N	Y	N	Y	NA	Y	N	Y	Y[a]	N	Y	NA	Transducer caps well			
MW-36-090 MW-36-040	11/11/13	Y	N	Y	N	Y	NA	Y	N	Y	Y[a]	N	Y	NA	Transducer caps well			
MW-36-050 MW-36-100	11/11/13	Y	N	Y	N	Y	NA	Y	N	Y	Y[a]	N	Y	NA	Transducer caps well			
MW-37D	12/02/13	Y	N	Y	N	Y	[a]	Y	N	Y	Y	N	Y	NA	Only 2			
MW-37S	11/06/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-38S	12/03/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-38D	12/03/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-39-040 MW-39-070	11/12/13	Y	N	Y	N	Y	NA	Y	N	Y	Y[a]	N	Y	NA	Transducer caps well			
MW-39-050 MW-39-080	11/12/13	Y	N	Y	N	Y	NA	Y	N	Y	Y[a]	N	Y	NA	Transducer caps well			
MW-39-060 MW-39-100	11/12/13	Y	N	Y	N	Y	NA	Y	N	Y	Y[a]	N	Y	NA	Transducer caps well			

TABLE A-1
Well Inspection Log, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo on file? (Y/N)	Notes	Required Actions	Action Completed (Y/N)	Action Completed Date
MW-40D	11/11/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-40S	11/11/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-41D	11/04/13	Y	N	Y	N	Y	NA	Y	Y [a]	Y	Y	N	Y	NA	Minor erosion under pad			
MW-41M	11/04/13	Y	N	Y	N	Y	NA	Y	Y [a]	Y	Y	N	Y	NA	Minor erosion around pad			
MW-41S	11/04/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-030	11/05/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-055	11/05/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-065	11/05/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-025	11/06/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-075	11/06/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-090	11/06/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-44-125 MW-44-070	12/02/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-44-115	12/02/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-45-095a MW-45-095b	12/02/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-46-175 MW-46-205	11/20/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-47-055 MW-47-115	11/12/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-48	11/04/13	Y	N	Y	N	Y	Y	Y [a]	Y [a]	Y	Y	N	Y	NA	Pad is mostly covered by soil deposited during storm events.			
MW-49-135 MW-49-275 MW-49-365	11/06/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-50-095 MW-50-200	11/06/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-51	12/11/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-52	11/13/13	NA	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Slant wells			
MW-53	11/13/13	NA	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Slant wells			

TABLE A-1
Well Inspection Log, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo on file? (Y/N)	Notes	Required Actions	Action Completed (Y/N)	Action Completed Date
MW-54-085 MW-54-140	11/21/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-54-195	11/21/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-55-045 MW-55-120	11/21/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-56 D/S/M	11/14/13	NA	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-57-050	11/07/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-57-070	12/12/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-57-185	11/07/13	Y	N	NA	N	Y	NA	Y [a]	Y [a]	Y	Y	N	Y	NA	Deposition over concrete pad makes hard to see.			
MW-58BR	12/17/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-58-065	12/17/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-60-125	12/04/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-60BR-245	12/03/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-61-110	12/05/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-62-110 MW-62-190	11/12/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-62-065	12/11/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-63-065	12/04/13	Y	N	NA [a]	N	Y	NA	Y	N	Y	Y	N	Y	NA	Flush mount			
MW-64-BR	12/16/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-65-160 MW-65-225	12/02/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-66-165 MW-66-230	12/03/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-59-100	12/10/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-66BR-270	11/21/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-67-185	12/04/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-67-225 MW-67-260	12/09/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-68BR	12/08/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

TABLE A-1
Well Inspection Log, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo on file? (Y/N)	Notes	Required Actions	Action Completed (Y/N)	Action Completed Date
MW-68-180 MW-68-290	12/04/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-69-195	12/03/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-70BR-225	12/10/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-70-105	12/04/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-71-035	12/10/13	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-72-080	12/04/13	Y	N	NA [a]	N	Y	NA	Y	N [a]	Y	Y	Y	Y	NA	Evidence of deposition around well head	Water removed from Annulus		
MW-72-200	11/05/13	Y	N	NA	N	Y	NA	Y [a]	N [a]	NA	Y	N	Y	NA	Well pad burried by deposition of soil			
MW-73-080	12/04/13	Y	N	NA [a]	N	N	NA	Y	N	NA	Y	Y	Y	NA	Flush mount	Water build from Annulus, labeled		12/4/2013
MW-74-240	12/03/13	Y	N	NA [a]	N	Y	NA	Y	N	NA	Y	N	Y	NA	Flush mount			
MWP-08	01/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MWP-10	01/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-1D	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-1M	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-1S	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2D	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2M	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2S	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3D	11/05/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3M	11/13/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3S	11/13/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-5D	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-5M	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

TABLE A-1
Well Inspection Log, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and
Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo on file? (Y/N)	Notes	Required Actions	Action Completed (Y/N)	Action Completed Date
OW-5S	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
P2	01/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	There is a different well labeled P2 on the steel casing at the quarry but PVC case inside says MWP-12. This inspected well is at the new ponds near MW-4. It is labeled PX-2 on the lid and P3 on the steel casing, but shows up as P2 on the map. Since the quarry well is located near the "old ponds" area there is a chance that well is actually an MWP designation well.	Records search for correct designations for these wells.	N	
PG&E-8	12/18/13	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
PGE-7	12/09/13	N [a]	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	New surface completion, needs resurveyed			
PT-1 3 WELLS	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-2 3 WELLS	11/19/13	Y	N	Y	N	Y	NA	a	N	Y	Y	N	Y	NA	Burried in sand			
PT-3 3 WELLS	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-4 3 WELLS	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-5 3 WELLS	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-6 3 WELLS	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-7 S/D	01/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-7M	01/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-8 S/D	01/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-8M	01/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-9 S/D	01/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-9M	01/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PTI-1D	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PTI-1M	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PTI-1S	11/19/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
TW-01	12/17/13	N	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA	No WL access hole			

TABLE A-1
Well Inspection Log, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo on file? (Y/N)	Notes	Required Actions	Action Completed (Y/N)	Action Completed Date
TW-04	11/12/13	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
TW-05	11/06/13	Y	N	Y	N	Y	NA	Y	N [a]	Y	Y	N	Y	NA	Deposition around well pad.			

Notes:

[a] There is a note with more information on this parameter.

TABLE A-2

Well Construction and Sampling Summary, Fourth Quarter 2013

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

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Remarks
GMP Monitoring Wells									
MW-9	Bat Cave Wash	536.56	77 - 87	Alluvial	4 in PVC	89.4	80.8	Temp. pump	
MW-10	Bat Cave Wash	530.65	74 - 94	Alluvial	4 in PVC	96.9	75.4	CD pump	
MW-11	Bat Cave Wash	522.61	62.5 - 82.5	Alluvial	4 in PVC	86.1	67.3	CD pump	
MW-12	East of Station	484.01	27.5 - 47.5	Alluvial	4 in PVC	50.4	29.4	Temp. pump	
MW-13	Bat Cave Wash	488.64	28.5 - 48.5	Alluvial	4 in PVC	52.0	34.2	CD pump	
MW-14	East Mesa	570.99	111 - 131	Alluvial	4 in PVC	133.8	117.0	CD pump	
MW-15	East of New Ponds	641.52	180.5 - 200.5	Alluvial	4 in PVC	203.0	186.7	CD pump	
MW-16	Near New Ponds	657.31	198 - 218	Alluvial	4 in PVC	218.1	201.7	Temp. pump	
MW-17	West of Mesa Area	589.96	130 - 150	Alluvial	4 in PVC	153.6	134.6	CD pump	
MW-18	West Mesa	545.32	85 - 105	Alluvial	4 in PVC	106.7	89.3	Temp. pump	
MW-19	Route 66	499.92	46 - 66	Alluvial	4 in PVC	65.8	46.3	CD pump	
MW-20-70	MW-20 bench	500.15	50 - 70	Alluvial	4 in PVC	69.6	49.2	Temp. pump	
MW-20-100	MW-20 bench	500.58	89.5 - 99.5	Alluvial	4 in PVC	101.4	50.2	Temp. pump	
MW-20-130	MW-20 bench	500.66	121 - 131	Alluvial	4 in PVC	132.3	50.5	Temp. pump	
MW-21	Route 66	505.55	39 - 59	Alluvial	4 in PVC	58.5	51.4	Temp. pump	low recharge well; typically purges dry at 1 casing volume
MW-22	Floodplain	460.72	5.5 - 10.5	Fluvial	2 in PVC	12.4	6.3	Peristaltic	
MW-23-060	East Ravine	504.08	50 - 60	Bedrock	2 in Sch 40 PVC	60.2	49.9	Temp. pump	
MW-23-080	East Ravine	504.13	75 - 80	Bedrock	2 in Sch 40 PVC	80.8	50.0	Temp. pump	
MW-24A	MW-24 Bench	567.16	104 - 124	Alluvial	4 in PVC	127.5	111.9	CD pump	
MW-24B	MW-24 Bench	564.76	193 - 213	Alluvial	4 in PVC	214.8	109.5	CD pump	
MW-24BR	MW-24 Bench	563.95	378 - 437	Bedrock	4 in PVC	441.0	108.9	Temp. pump	low recharge well; typically purges dry at 1 casing volume

TABLE A-2

Well Construction and Sampling Summary, Fourth Quarter 2013

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

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Remarks
GMP Monitoring Wells									
MW-25	Near Bat Cave Wash	542.90	84.5 - 104.5	Alluvial	4 in PVC	106.5	88.6	CD pump	
MW-26	Route 66	502.22	51.5 - 71.5	Alluvial	2 in PVC	70.1	49.1	CD pump	
MW-27-20	Floodplain	460.56	7 - 17	Fluvial	2 in PVC	14.4	6.2	Temp. pump	
MW-27-60	Floodplain	461.38	47.3 - 57.3	Fluvial	2 in PVC	59.0	7.3	Temp. pump	
MW-27-85	Floodplain	460.99	77.5 - 87.5	Fluvial	2 in PVC	80.0	7.2	Temp. pump	
MW-28-25	Floodplain	466.77	13 - 23	Fluvial	2 in PVC	21.1	12.6	Ded. RF	
MW-28-90	Floodplain	467.53	70 - 90	Fluvial	2 in PVC	98.4	13.3	Temp. pump	
MW-29	Floodplain	485.21	29.5 - 39.5	Fluvial	2 in PVC	41.5	30.3	Temp. pump	
MW-30-30	Floodplain	468.12	12 - 32	Fluvial	2 in PVC	26.9	14.2	Ded. RF	
MW-30-50	Floodplain	468.81	40 - 50	Fluvial	4 in PVC	52.6	15.3	Ded. RF	
MW-31-60	MW-20 Bench	496.81	41.5 - 61.5	Alluvial	4 in PVC	64.0	43.2	CD pump	
MW-31-135	MW-20 Bench	498.11	113 - 133	Alluvial	2 in PVC	135.4	46.0	Temp. pump	
MW-32-20	Floodplain	461.51	10 - 20	Fluvial	2 in PVC	19.6	10.0	Ded. RF	
MW-32-35	Floodplain	461.63	27.5 - 35	Fluvial	4 in PVC	37.2	7.9	Ded. RF	
MW-33-40	Floodplain	487.38	29 - 39	Fluvial	2 in PVC	41.8	33.3	Temp. pump	
MW-33-90	Floodplain	487.55	69 - 89	Alluvial	4 in PVC	88.3	33.3	Temp. pump	
MW-33-150	Floodplain	487.77	132 - 152	Alluvial	2 in PVC	155.4	34.0	Temp. pump	
MW-33-210	Floodplain	487.25	190 - 210	Alluvial	2 in PVC	223.0	33.5	Temp. pump	
MW-34-55	Floodplain	460.95	45 - 55	Fluvial	4 in PVC	56.6	8.4	Ded. RF	
MW-34-80	Floodplain	461.20	73 - 83	Fluvial	4 in PVC	84.3	7.1	Temp. pump	
MW-34-100	Floodplain	460.97	89.5 - 99.5	Fluvial	2 in PVC	117.0	7.9	Ded. RF	

TABLE A-2

Well Construction and Sampling Summary, Fourth Quarter 2013

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

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Remarks
GMP Monitoring Wells									
MW-35-60	Route 66	484.33	41 - 61	Alluvial	2 in PVC	56.8	29.2	Temp. pump	
MW-35-135	Route 66	484.24	116 - 136	Alluvial	2 in PVC	158.7	30.5	Temp. pump	
MW-36-20	Floodplain	469.33	10 - 20	Fluvial	1 in PVC	20.3	15.5	Peristaltic	
MW-36-40	Floodplain	469.59	30 - 40	Fluvial	1 in PVC	40.3	15.6	Peristaltic	
MW-36-50	Floodplain	469.62	46 - 51	Fluvial	1 in PVC	108.0	15.4	Peristaltic	
MW-36-70	Floodplain	469.27	60 - 70	Fluvial	1 in PVC	70.3	15.5	Peristaltic	
MW-36-90	Floodplain	469.64	80 - 90	Fluvial	1 in PVC	90.3	16.5	Peristaltic	
MW-36-100	Floodplain	469.65	88 - 98	Fluvial	2 in PVC	108.0	19.0	Ded. RF	
MW-37D	Bat Cave Wash	486.19	180 - 200	Alluvial	2 in PVC	226.7	32.9	Temp. pump	
MW-37S	Bat Cave Wash	485.97	64 - 84	Alluvial	2 in PVC	85.0	32.3	Temp. pump	
MW-38D	Bat Cave Wash	525.31	163 - 183	Alluvial	2 in PVC	190.9	71.7	Temp. pump	
MW-38S	Bat Cave Wash	525.51	75 - 95	Alluvial	2 in PVC	98.1	71.2	Temp. pump	
MW-39-40	Floodplain	468.02	30 - 40	Fluvial	1 in PVC	42.1	13.9	Peristaltic	
MW-39-50	Floodplain	467.93	47 - 52	Fluvial	1 in PVC	54.6	14.2	Peristaltic	
MW-39-60	Floodplain	468.00	49 - 59	Alluvial	1 in PVC	66.3	14.6	Peristaltic	
MW-39-70	Floodplain	468.02	60 - 70	Alluvial	1 in PVC	71.7	14.6	Peristaltic	
MW-39-80	Floodplain	467.92	70 - 80	Alluvial	1 in PVC	82.6	14.6	Peristaltic	
MW-39-100	Floodplain	468.12	80 - 100	Alluvial	2 in PVC	117.7	16.0	Ded. RF	
MW-40D	I-40 Median	566.08	240 - 260	Alluvial	2 in PVC	266.0	112.2	Temp. pump	
MW-40S	I-40 Median	566.04	115 - 135	Alluvial	2 in PVC	134.0	110.9	Temp. pump	
MW-41D	Bat Cave Wash	479.42	271 - 291	Alluvial	2 in PVC	311.5	25.5	Temp. pump	

TABLE A-2

Well Construction and Sampling Summary, Fourth Quarter 2013

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

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Remarks
GMP Monitoring Wells									
MW-41M	Bat Cave Wash	479.84	170 - 190	Alluvial	2 in PVC	190.0	24.1	Temp. pump	
MW-41S	Bat Cave Wash	480.07	40 - 60	Alluvial	2 in PVC	60.0	25.4	Temp. pump	
MW-42-30	Floodplain	463.74	9.8 - 29.8	Fluvial	2 in Sch 40 PVC	30.1	10.2	Temp. pump	
MW-42-55	Floodplain	463.85	42.5 - 52.5	Fluvial	2 in PVC	52.8	10.0	Temp. pump	
MW-42-65	Floodplain	463.37	56.2 - 66.2	Fluvial	2 in PVC	80.0	9.8	Temp. pump	
MW-43-25	Floodplain	462.54	15 - 25	Fluvial	2 in PVC	25.0	8.3	Temp. pump	
MW-43-75	Floodplain	462.71	65 - 75	Fluvial	2 in PVC	75.0	8.5	Ded. RF	
MW-43-90	Floodplain	462.76	80 - 90	Fluvial	2 in PVC	97.0	8.7	Temp. pump	
MW-44-70	Floodplain	471.90	61 - 71	Fluvial	2 in PVC	70.0	18.7	Temp. pump	
MW-44-115	Floodplain	472.01	105 - 115	Alluvial	2 in PVC	113.5	18.9	Ded. RF	
MW-44-125	Floodplain	472.04	116 - 125	Alluvial	2 in PVC	128.8	18.4	Ded. RF	
MW-45-095a	Floodplain	470.03	83 - 93	Fluvial	2 in PVC	97.0	18.3	Temp. pump	pressure transducer location
MW-46-175	Floodplain	482.16	165 - 175	Alluvial	2 in PVC	175.5	29.0	Ded. RF	
MW-46-205	Floodplain	482.23	196.5 - 206.5	Alluvial	2 in PVC	206.5	30.6	Temp. pump	
MW-47-55	Floodplain	484.04	45 - 55	Alluvial	2 in PVC	55.0	30.5	Temp. pump	
MW-47-115	Floodplain	484.17	105 - 115	Alluvial	2 in PVC	115.0	30.9	Temp. pump	
MW-48	East of Station	486.22	124 - 134	Bedrock	2 in PVC	138.0	32.6	Temp. pump	low recharge well; typically purges dry at 1 casing volume
MW-49-135	Floodplain	484.02	125 - 135	Alluvial	1.5 in PVC	135.0	29.7	Temp. pump	
MW-49-275	Floodplain	483.95	255 - 275	Alluvial	2 in PVC	274.7	30.5	Temp. pump	
MW-49-365	Floodplain	484.01	346 - 366	Alluvial	2 in PVC	367.4	31.7	Temp. pump	
MW-50-095	Route 66	496.49	85 - 95	Alluvial	2 in PVC	95.0	43.2	Temp. pump	

TABLE A-2

Well Construction and Sampling Summary, Fourth Quarter 2013

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

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Remarks
GMP Monitoring Wells									
MW-50-200	Route 66	496.35	190 - 200	Alluvial	2 in PVC	204.5	44.3	Temp. pump	
MW-51	Route 66	501.56	97 - 112	Alluvial	4 in PVC	113.3	48.4	Temp. pump	
MW-52D	Floodplain	462.16	85 - 87	Fluvial	0.75 in MLABS	89.5	14.9	Peristaltic	
MW-52M	Floodplain	462.16	66 - 68	Fluvial	0.75 in MLABS	70.5	11.3	Peristaltic	
MW-52S	Floodplain	462.16	47 - 49	Fluvial	0.75 in MLABS	51.5	9.8	Peristaltic	
MW-53D	Floodplain	461.32	123.5 - 125	Fluvial	0.75 in MLABS	---	14.3	Peristaltic	
MW-53M	Floodplain	461.32	98.5 - 100	Fluvial	0.75 in MLABS	---	13.7	Peristaltic	
MW-54-85	Arizona	466.10	77 - 87	Fluvial	2 in PVC	93.2	13.2	---	
MW-54-140	Arizona	465.98	128 - 138	Fluvial	2 in PVC	138.0	12.9	---	
MW-54-195	Arizona	466.32	185 - 195	Fluvial	2 in PVC	195.0	13.8	---	
MW-55-45	Arizona	465.66	37 - 47	Fluvial	2 in PVC	54.0	11.5	---	
MW-55-120	Arizona	465.46	108 - 118	Fluvial	2 in PVC	120.3	11.4	---	
MW-56D	Arizona	461.36	103.5 - 105.5	Fluvial	0.75 in MLABS	---	16.3	---	
MW-56M	Arizona	461.36	73.5 - 75.5	Fluvial	0.75 in MLABS	---	15.2	---	
MW-56S	Arizona	461.36	33.5 - 35.5	Fluvial	0.75 in MLABS	---	14.1	---	
MW-57-050	East Ravine	508.76	40 - 50	Bedrock	2 in Sch 40 PVC	50.0	---	Temp. pump	Dry
MW-57-070	East Ravine	509.37	55 - 70	Bedrock	2 in Sch 40 PVC	70.0	54.8	Temp. pump	
MW-57-185	East Ravine	508.97	70 - 184	Bedrock	4 in Sch 40 PVC	184.7	53.3	Temp. pump	
MW-58-065	East Ravine	523.26	54 - 64	Bedrock	2 in Sch 40 PVC	66.0	66.2	Temp. pump	Dry/Damaged
MW-58BR	East Ravine	---	0 - 0	Bedrock	---	---	69.1	Temp. pump	
MW-59-100	East Ravine	541.61	86 - 101	Alluvial	2 in Sch 40 PVC	101.0	87.4	Temp. pump	

TABLE A-2

Well Construction and Sampling Summary, Fourth Quarter 2013

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

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Remarks
GMP Monitoring Wells									
MW-60-125	East Ravine	555.47	103 - 123	Bedrock	2 in Sch 40 PVC	122.5	101.1	Temp. pump	
MW-60BR-245	East Ravine	554.95	-	Bedrock	5 in	244.1	99.9	---	
MW-61-110	East Ravine	544.03	92 - 112	Bedrock	2 in Sch 40 PVC	112.5	85.6	Temp. pump	
MW-62-065	East Ravine	503.56	44.5 - 64.5	Bedrock	2 in Sch 40 PVC	67.4	48.9	Temp. pump	
MW-62-110	East Ravine	504.05	85 - 110	Bedrock	---	110.0	37.5	Flute	
MW-62-190	East Ravine	504.05	155 - 192	Bedrock	---	190.0	36.5	Flute	
MW-63-065	East Ravine	504.47	46 - 66	Bedrock	2 in Sch 40 PVC	65.6	50.0	Temp. pump	
MW-64BR	East Ravine	575.60	2 - 258	Bedrock	3 in	260.0	120.0	Temp. pump	
MW-65-160	Topock Compressor Station	596.59	150 - 160	Alluvial	2 in PVC	160.1	141.3	Temp. pump	
MW-65-225	Topock Compressor Station	596.58	215 - 225	Alluvial	2 in PVC	225.1	141.3	Temp. pump	
MW-66-165	Topock Compressor Station	586.16	142 - 162	Alluvial	2 in PVC	162.1	131.2	Temp. pump	
MW-66-230	Topock Compressor Station	586.22	218 - 228	Alluvial	2 in PVC	228.1	132.4	Temp. pump	
MW-66BR-270	Topock Compressor Station	586.15	-	Bedrock	5 in	270.6	153.0	Temp. pump	
MW-67-185	Topock Compressor Station	625.91	177 - 187	Alluvial	2 in	186.7	176.4	---	
MW-67-225	Topock Compressor Station	625.83	210 - 225	Alluvial	2 in PVC	225.0	169.8	Temp. pump	
MW-67-260	Topock Compressor Station	625.81	250 - 260	Alluvial	2 in PVC	260.0	171.1	Temp. pump	
MW-68-180	Topock Compressor Station	621.17	165 - 180	Alluvial	2 in PVC	180.1	166.9	Temp. pump	
MW-68-240	Topock Compressor Station	621.17	220 - 240	Alluvial	2 in PVC	240.1	167.9	Temp. pump	
MW-68BR-280	Topock Compressor Station	620.64	-	Bedrock	5 in	278.2	166.3	Ded. RF	
MW-69-195	Topock Compressor Station	631.36	176 - 196	Bedrock	2 in	195.5	175.7	---	
MW-70-105	East Ravine	541.47	85 - 105	Bedrock	2 in PVC	107.8	85.4	Temp. pump	

TABLE A-2

Well Construction and Sampling Summary, Fourth Quarter 2013

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

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Remarks
GMP Monitoring Wells									
MW-70BR-225	East Ravine	539.84	-	Bedrock	5 in	229.3	84.8	Temp. pump	
MW-71-035	East Ravine	483.69	26 - 36	Alluvial	2 in	36.2	29.5	---	
MW-72-080	East Ravine	513.32	60 - 80	Bedrock	2 in	80.1	58.4	---	
MW-72BR-200	East Ravine	513.79	-	Bedrock	in	200.0	58.2	Ded. RF	
MW-73-080	East Ravine	505.84	60.2 - 80.2	Bedrock	2 in	79.9	50.8	---	
MW-74-240	East Ravine	672.34	220 - 240	Bedrock	2 in	239.7	217.0	---	
OW-3D	West Mesa	558.63	242 - 262	Alluvial	2 in Sch 40 PVC	272.5	103.3	Temp. pump	
OW-3M	West Mesa	558.90	180 - 200	Alluvial	2 in Sch 40 PVC	200.3	103.6	Temp. pump	
OW-3S	West Mesa	558.58	86 - 116	Alluvial	2 in Sch 40 PVC	116.3	102.6	Temp. pump	
PGE-7BR	MW-24 Bench	---	249 - 300	Bedrock	7 in	300.0	110.2	---	
PGE-8	Station	596.01	405 - 554	Bedrock	6.75 in Steel	564.0	142.0	CD pump	inactive injection
Other Site Wells not in GMP									
MW-1	New Ponds	661.76	201 - 211	Alluvial	4 in PVC	217.0	207.0	Ded. RF	active PG&E pond monitoring well
MW-3	New Ponds	650.51	193 - 203	Alluvial	4 in PVC	205.0	194.6	Ded. RF	active PG&E pond monitoring well
MW-4	New Ponds	625.73	164.5 - 174.5	Alluvial	4 in PVC	176.3	169.1	Ded. RF	active PG&E pond monitoring well
MW-5	New Ponds	635.69	175.9 - 184.9	Alluvial	4 in PVC	186.2	178.8	Ded. RF	active PG&E pond monitoring well
MW-6	New Ponds	642.84	184.5 - 193.5	Alluvial	4 in PVC	194.9	187.6	Ded. RF	active PG&E pond monitoring well
MW-7	New Ponds	631.91	172.7 - 182.7	Alluvial	4 in PVC	185.0	177.4	Ded. RF	active PG&E pond monitoring well
MW-8	New Ponds	627.54	169 - 178	Alluvial	4 in PVC	179.9	172.4	Ded. RF	active PG&E pond monitoring well
Test and Extraction Wells									
PE-1	Floodplain	457.52	79 - 89	Fluvial	6 in Sch 40 PVC	99.0	16.4	CD pump	active IM extraction well
TW-1	Plan B Test	620.55	169 - 269	Alluvial	5 in PVC	271.0	160.0	CD pump	inactive pilot test well

TABLE A-2

Well Construction and Sampling Summary, Fourth Quarter 2013

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

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Remarks
Test and Extraction Wells									
TW-2D	MW-20 bench	493.29	113 - 148	Alluvial	6 in Sch 80 PVC	150.0	69.3	CD pump	inactive IM extraction well
TW-2S	MW-20 bench	499.05	42.5 - 92.5	Alluvial	6 in Sch 80 PVC	97.5	34.0	CD pump	inactive IM extraction well
TW-3D	MW-20 bench	498.09	111 - 156	Alluvial	8 in PVC	156.0	46.5	CD pump	active IM extraction well
TW-4	Floodplain	484.11	210 - 250	Alluvial	4 in PVC	255.0	31.1	Temp. pump	
TW-5	Route 66	496.30	110 - 150	Alluvial	4 in PVC	155.0	43.0	Temp. pump	
Water Supply Wells									
Park Moabi-3	Park Moabi	518.55	80 - 200	Alluvial	8 in Steel	252.0	61.3	active supply well	call Park Ranger to schedule sampling
Park Moabi-4	Park Moabi	---	93 - 140	Alluvial	Steel	---	---	---	

Notes:

amsl = above mean sea level.
bgs = below ground surface.
btoc = below top of casing.
CD pump = dedicated constant-discharge electric submersible pump.
Ded. RF = dedicated Redi - Flo submersible pump.
Flute = Flexible Liner Underground Technologies.
GMP = Groundwater Monitoring Program.
NA = not known or available.
PVC = polyvinyl chloride.
Redi-Flo AR = adjustable-rate electric submersible pump.
Temp pump = temporary pump.

Depth to water shown is the most recently measured depth to water.

All GMP wells except low recharge wells, active IM extraction wells, and Park Moabi wells are purged and sampled using well-volume method.

Appendix B
Lab Reports, November through December 2013
(Provided on CD-ROM Only with Hard Copy Submittal)

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

November 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 IM3PLANT-EW-212, GROUNDWATER MONITORING PROJECT, TLI NO.: 810750

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-212 groundwater-monitoring project. 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 November 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.

The samples were received at a temperature of 8.6°C. Mr. Duffy was notified and he approved the analysis of the samples.

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

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
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.: 428648.IM.CS.EX.AC

Laboratory No.: 810750
Date: November 25, 2013
Collected: November 5, 2013
Received: November 5, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 4500-H B	pH	Himani Vaishnav
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Himani Vaishnav
EPA 300.0	Anions	Giawad Ghenniwa
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810750
Date Received: November 5, 2013

Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810750-001	PE-01-212	E120.1	NONE	11/5/2013	14:00	EC	4160	umhos/cm	2.00
810750-001	PE-01-212	E200.7	LABFLT	11/5/2013	14:00	Calcium	111000	ug/L	25000
810750-001	PE-01-212	E200.7	LABFLT	11/5/2013	14:00	Iron	ND	ug/L	20.0
810750-001	PE-01-212	E200.7	LABFLT	11/5/2013	14:00	Magnesium	23100	ug/L	10000
810750-001	PE-01-212	E200.7	LABFLT	11/5/2013	14:00	Sodium	816000	ug/L	100000
810750-001	PE-01-212	E200.8	LABFLT	11/5/2013	14:00	Chromium	5.0	ug/L	1.0
810750-001	PE-01-212	E200.8	LABFLT	11/5/2013	14:00	Manganese	49.2	ug/L	1.0
810750-001	PE-01-212	E218.6	LABFLT	11/5/2013	14:00	Chromium, Hexavalent	5.2	ug/L	0.20
810750-001	PE-01-212	E300	NONE	11/5/2013	14:00	Chloride	1120	mg/L	20.0
810750-001	PE-01-212	E300	NONE	11/5/2013	14:00	Nitrate as N	ND	mg/L	0.500
810750-001	PE-01-212	E300	NONE	11/5/2013	14:00	Sulfate	405	mg/L	12.5
810750-001	PE-01-212	SM2320B	NONE	11/5/2013	14:00	Alkalinity	213	mg/L	5.00
810750-001	PE-01-212	SM2320B	NONE	11/5/2013	14:00	Alkalinity, Bicarbonate (As CaC	213	mg/L	5.00
810750-001	PE-01-212	SM2320B	NONE	11/5/2013	14:00	Alkalinity, Carbonate (As CaC(	ND	mg/L	5.00
810750-001	PE-01-212	SM2540C	NONE	11/5/2013	14:00	Total Dissolved Solids	2580	mg/L	125
810750-001	PE-01-212	SM4500HB	NONE	11/5/2013	14:00	PH	7.72	pH	4.00

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
810750-002	TW-03D-212	E120.1	NONE	11/5/2013	14:00	EC	7550	umhos/cm	2.00
810750-002	TW-03D-212	E200.7	LABFLT	11/5/2013	14:00	Calcium	210000	ug/L	50000
810750-002	TW-03D-212	E200.7	LABFLT	11/5/2013	14:00	Iron	ND	ug/L	20.0
810750-002	TW-03D-212	E200.7	LABFLT	11/5/2013	14:00	Magnesium	31600	ug/L	2000
810750-002	TW-03D-212	E200.7	LABFLT	11/5/2013	14:00	Sodium	1430000	ug/L	50000
810750-002	TW-03D-212	E200.8	LABFLT	11/5/2013	14:00	Chromium	817	ug/L	2.0
810750-002	TW-03D-212	E200.8	LABFLT	11/5/2013	14:00	Manganese	6.2	ug/L	1.0
810750-002	TW-03D-212	E300	NONE	11/5/2013	14:00	Chloride	2470	mg/L	50.0
810750-002	TW-03D-212	E300	NONE	11/5/2013	14:00	Nitrate as N	3.61	mg/L	0.500
810750-002	TW-03D-212	E300	NONE	11/5/2013	14:00	Sulfate	542	mg/L	25.0
810750-002	TW-03D-212	SM2320B	NONE	11/5/2013	14:00	Alkalinity	133	mg/L	5.00
810750-002	TW-03D-212	SM2320B	NONE	11/5/2013	14:00	Alkalinity, Bicarbonate (As CaC	133	mg/L	5.00
810750-002	TW-03D-212	SM2320B	NONE	11/5/2013	14:00	Alkalinity, Carbonate (As CaCC	ND	mg/L	5.00
810750-002	TW-03D-212	SM2540C	NONE	11/5/2013	14:00	Total Dissolved Solids	4990	mg/L	250
810750-002	TW-03D-212	SM3500-CrB	LABFLT	11/5/2013	14:00	Chromium, Hexavalent	816	ug/L	250
810750-002	TW-03D-212	SM4500HB	NONE	11/5/2013	14:00	PH	7.74	pH	4.00

ND: Non Detected (below reporting limit)

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 810750

Printed 11/25/2013

Samples Received on 11/5/2013 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-212	810750-001	11/05/2013 14:00	Water
TW-03D-212	810750-002	11/05/2013 14:00	Water

Anions By I.C. - EPA 300.0

Batch 11AN13D

Parameter		Unit	Analyzed	DF	MDL	RL	Result
810750-001	Chloride	mg/L	11/06/2013 14:35	200	6.98	20.0	1120
	Nitrate as Nitrogen	mg/L	11/06/2013 10:56	5.00	0.0415	0.500	ND
	Sulfate	mg/L	11/06/2013 14:07	25.0	0.768	12.5	405
810750-002	Chloride	mg/L	11/06/2013 14:46	500	17.4	50.0	2470
	Nitrate as Nitrogen	mg/L	11/06/2013 11:07	5.00	0.0415	0.500	3.61
	Sulfate	mg/L	11/06/2013 14:18	50.0	1.54	25.0	542

Method Blank

Parameter	Unit	DF	Result
Chloride	mg/L	1.00	ND
Fluoride	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate — Lab ID = 810741-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	72.8	72.6	0.261	0 - 20
Sulfate	mg/L	25.0	117	116	0.973	0 - 20

Duplicate — Lab ID = 810751-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	1.82	1.90	4.25	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.93	2.92	0.274	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.

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.93	4.00	98.2	90 - 110
Fluoride	mg/L	1.00	4.05	4.00	101	90 - 110
Sulfate	mg/L	1.00	19.8	20.0	99.0	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.95	4.00	98.7	90 - 110

Matrix Spike — Lab ID = 810741-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	174	173(100)	101	85 - 115
Sulfate	mg/L	25.0	381	366(250)	106	85 - 115

Matrix Spike — Lab ID = 810751-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.3	21.9(20.0)	102	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.2	22.9(20.0)	101	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.96	4.00	98.9	90 - 110
Fluoride	mg/L	1.00	4.09	4.00	102	90 - 110
Sulfate	mg/L	1.00	19.9	20.0	99.7	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.98	4.00	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.89	3.00	96.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.91	3.00	97.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.99	3.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.05	3.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.04	3.00	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 prior written authorization from Truesdail Laboratories.

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 4 of 16
Project Number: 428648.IM.CS.EX.AC Printed 11/25/2013

Alkalinity by SM 2320B

Batch 11ALK13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810750-001 Alkalinity as CaCO3	mg/L	11/06/2013	1.00	1.68	5.00	213
Bicarbonate (Calculated)	mg/L	11/06/2013	1.00	1.68	5.00	213
Carbonate (Calculated)	mg/L	11/06/2013	1.00	1.68	5.00	ND
810750-002 Alkalinity as CaCO3	mg/L	11/06/2013	1.00	1.68	5.00	133
Bicarbonate (Calculated)	mg/L	11/06/2013	1.00	1.68	5.00	133
Carbonate (Calculated)	mg/L	11/06/2013	1.00	1.68	5.00	ND

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO3	mg/L	1.00	ND

Duplicate — Lab ID = 810751-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	150	150	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	98.0	100	98.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	98.0	100	98.0	90 - 110

Matrix Spike — Lab ID = 810750-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	302	313(100)	89.0	75 - 125

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: 428648.IM.CS.EX.AC

Printed 11/25/2013

Specific Conductivity - EPA 120.1

Batch 11EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810750-001 Specific Conductivity	umhos/cm	11/06/2013	1.00	0.606	2.00	4160
810750-002 Specific Conductivity	umhos/cm	11/06/2013	1.00	0.606	2.00	7550

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 810751-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7440	7390	0.674	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	702	706	99.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	700	706	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	917	1000	91.7	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.

Chrome VI by EPA 218.6

Batch 11CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810750-001 Chromium, Hexavalent	ug/L	11/06/2013 10:42	1.00	0.00600	0.20	5.2

Method Blank

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

Duplicate — Lab ID = 810750-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.15	5.23	1.56	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.211	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.9	90 - 110

Matrix Spike — Lab ID = 810750-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.2	15.2(10.0)	100	90 - 110

Matrix Spike — Lab ID = 810751-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.25	1.24(1.00)	101	90 - 110

Matrix Spike — Lab ID = 810751-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1360	1400(750)	94.3	90 - 110

Matrix Spike — Lab ID = 810752-001

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

Matrix Spike — Lab ID = 810752-002

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

Matrix Spike — Lab ID = 810752-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.00(1.00)	99.8	90 - 110

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.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.98	10.0	99.8	95 - 105

MRCVS - Primary

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

Chromium, Hexavalent by SM 3500-Cr B

Batch 11CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810750-002 Chromium, Hexavalent	ug/L	11/05/2013 17:49	25.0	110	250	816

Method Blank

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

Duplicate — Lab ID = 810750-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	816	816	0.0122	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	91.7	100	91.7	90 - 110

Matrix Spike — Lab ID = 810750-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3300	3320(2500)	99.3	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	91.7	100	91.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	56.3	60.0	93.8	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.

pH by SM 4500-H B

Batch 11PH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810750-001 pH	pH	11/06/2013 11:17	1.00	0.0784	4.00	7.72
810750-002 pH	pH	11/06/2013 11:20	1.00	0.0784	4.00	7.74

Duplicate — Lab ID = 810750-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.77	7.74	0.387	0 - 20

Lab Control Sample

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	6.95	7.00	99.3	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 11TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810750-001 Total Dissolved Solids	mg/L	11/06/2013	1.00	1.76	125	2580
810750-002 Total Dissolved Solids	mg/L	11/06/2013	1.00	1.76	250	4990

Method Blank

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

Duplicate — Lab ID = 810751-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4460	4530	1.56	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	498	500	99.6	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 11/25/2013

Metals by EPA 200.8, Dissolved

Batch 110713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810750-001 Chromium	ug/L	11/07/2013 14:00	2.00	0.142	1.0	5.0
Manganese	ug/L	11/07/2013 14:00	2.00	0.120	1.0	49.2
810750-002 Chromium	ug/L	11/07/2013 14:12	10.0	0.710	2.0	817
Manganese	ug/L	11/07/2013 14:06	2.00	0.120	1.0	6.2

Method Blank

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

Duplicate — Lab ID = 810752-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	88.8	92.3	3.87	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.233	0.200	116	70 - 130
Manganese	ug/L	1.00	0.588	0.500	118	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.8	50.0	99.6	85 - 115
Manganese	ug/L	2.00	50.4	50.0	101	85 - 115

Matrix Spike — Lab ID = 810752-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	43.0	50.0(50.0)	86.1	75 - 125
Manganese	ug/L	2.00	130	142(50.0)	76.2	75 - 125

Matrix Spike Duplicate — Lab ID = 810752-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	43.2	50.0(50.0)	86.4	75 - 125
Manganese	ug/L	2.00	132	142(50.0)	79.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.1	90 - 110
Manganese	ug/L	1.00	19.5	20.0	97.7	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.

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.1	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104	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	21.1	20.0	106	80 - 120

Serial Dilution — Lab ID = 810750-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	802	817	1.84	0 - 10

Serial Dilution — Lab ID = 810752-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	83.8	92.3	9.68	0 - 10

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

Metals by 200.7, Dissolved

Batch 111113A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810750-001 Calcium	ug/L	11/11/2013 14:15	50.0	850	25000	111000
Iron	ug/L	11/11/2013 12:56	1.00	3.00	20.0	ND
Magnesium	ug/L	11/11/2013 13:50	10.0	4680	10000	23100
Sodium	ug/L	11/11/2013 15:14	200	12000	100000	816000
810750-002 Calcium	ug/L	11/11/2013 15:45	100	1700	50000	210000
Iron	ug/L	11/11/2013 14:39	1.00	3.00	20.0	ND
Magnesium	ug/L	11/11/2013 15:39	2.00	936	2000	31600
Sodium	ug/L	11/11/2013 15:45	100	5980	50000	1430000

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Iron	ug/L	1.00	ND
Sodium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate — Lab ID = 810750-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	50.0	113000	111000	1.61	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Sodium	ug/L	200	841000	816000	3.02	0 - 20
Magnesium	ug/L	10.0	24000	23100	4.03	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2100	2000	105	85 - 115
Iron	ug/L	1.00	2130	2000	107	85 - 115
Sodium	ug/L	1.00	1870	2000	93.4	85 - 115
Magnesium	ug/L	1.00	2140	2000	107	85 - 115

Matrix Spike — Lab ID = 810750-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	50.0	216000	211000(100000)	105	75 - 125
Iron	ug/L	1.00	1950	2000(2000)	97.6	75 - 125
Sodium	ug/L	200	1200000	1220000(40000C	97.0	75 - 125
Magnesium	ug/L	10.0	43400	43100(20000)	101	75 - 125

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.

Matrix Spike Duplicate Lab ID = 810750-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1950	2000(2000)	97.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5120	5000	102	95 - 105
Iron	ug/L	1.00	5110	5000	102	95 - 105
Sodium	ug/L	1.00	4860	5000	97.3	95 - 105
Magnesium	ug/L	1.00	5000	5000	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5000	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5000	5000	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4920	5000	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5010	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4970	5000	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5050	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5020	5000	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4860	5000	97.3	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.

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	1940	2000	97.1	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	2020	2000	101	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2020	2000	101	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2060	2000	103	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2060	2000	103	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2090	2000	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1950	2000	97.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1870	2000	93.6	80 - 120
Magnesium	ug/L	1.00	2050	2000	103	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	2160	2000	108	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

ed

10

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 11TDS13A
Date Analyzed: 11/6/13

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	49.1142	49.1142	49.1142	0.0000	No	0.0000	0.0	25.0	ND	1
810692-1	100	77.7714	77.8216	77.8215	0.0001	No	0.0501	501.0	25.0	501.0	1
810692-2	100	66.694	66.7447	66.7444	0.0003	No	0.0504	504.0	25.0	504.0	1
810692-3	100	76.6639	76.7139	76.7137	0.0002	No	0.0498	498.0	25.0	498.0	1
810692-4	100	78.7874	78.8365	78.8364	0.0001	No	0.0490	490.0	25.0	490.0	1
810691-1	100	75.2663	75.3123	75.3122	0.0001	No	0.0459	459.0	25.0	459.0	1
810691-2	100	66.8805	66.9279	66.9274	0.0005	No	0.0469	469.0	25.0	469.0	1
810708	480	166.0017	166.0042	166.0042	0.0000	No	0.0025	5.2	5.2	ND	1
810716	200	108.7362	108.7511	108.7508	0.0003	No	0.0146	73.0	12.5	73.0	1
810733-1	100	68.1097	68.1577	68.1574	0.0003	No	0.0477	477.0	25.0	477.0	1
810733-2	100	67.033	67.0838	67.0837	0.0001	No	0.0507	507.0	25.0	507.0	1
810692-4D	100	78.9054	78.9544	78.9543	0.0001	No	0.0489	489.0	25.0	489.0	1
LCS	100	67.9690	68.0189	68.0188	0.0001	No	0.0498	498.0	25.0	498.0	1
810739	100	112.3548	112.3684	112.3684	0.0000	No	0.0136	136.0	25.0	136.0	1
810741-2	100	70.3863	70.399	70.399	0.0000	No	0.0127	127.0	25.0	127.0	1
810741-4	100	75.7482	75.7845	75.7845	0.0000	No	0.0363	363.0	25.0	363.0	1
810744-9	100	74.5951	74.6496	74.6496	0.0000	No	0.0545	545.0	25.0	545.0	1
810750-1	20	29.4836	29.5353	29.5351	0.0002	No	0.0515	2575.0	125.0	2575.0	1
810750-2	10	30.5212	30.5711	30.5711	0.0000	No	0.0499	4990.0	250.0	4990.0	1
810751-1	10	29.5841	29.6288	29.6284	0.0004	No	0.0443	4430.0	250.0	4430.0	1
810751-2	10	28.6681	28.7138	28.7134	0.0004	No	0.0453	4530.0	250.0	4530.0	1
810771-1	100	78.6045	78.6487	78.6487	0.0000	No	0.0442	442.0	25.0	442.0	1
810771-2	100	78.7944	78.8404	78.8404	0.0000	No	0.0460	460.0	25.0	460.0	1
810751-2D	10	30.3841	30.4287	30.4287	0.0000	No	0.0446	4460.0	250.0	4460.0	1

Calculation as follows:

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

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	498	500	99.6%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
810692-4	0.049	0.0489	0.1%	≤5%	Yes
810751-2	0.0453	0.0446	0.8%	5%	Yes

Duplicate Determination Difference

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

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

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 11TDS13A
Date Analyzed: 11/6/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
810692-1	793	0.63	515.45	0.97
810692-2	804	0.63	522.6	0.96
810692-3	801	0.62	520.65	0.96
810692-4	800	0.61	520	0.94
810691-1	822	0.56	534.3	0.86
810691-2	751	0.62	488.15	0.96
810708	150	ND	97.5	ND
810716	112	0.65	72.8	1.00
810733-1	760	0.63	494	0.97
810733-2	725	0.70	471.25	1.08
810692-4D	800	0.61	520	0.94
LCS				
810739	201	0.68	130.65	1.04
810741-2	222	0.57	144.3	0.88
810741-4	628	0.58	408.2	0.89
810744-9	881	0.62	572.65	0.95
810750-1	4160	0.62	2704	0.95
810750-2	7550	0.66	4907.5	1.02
810751-1	7520	0.59	4888	0.91
810751-2	7390	0.61	4803.5	0.94
810771-1	716	0.62	465.4	0.95
810771-2	703	0.65	456.95	1.01
810751-2D	7390	0.60	4803.5	0.93

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B
Calculations

Analytical Batch:	11ALK13B
Matrix:	WATER
Date of Analysis:	11/6/13

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	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	5.30	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
810717-17	8.22	50	0.02		0.0	5.85		117.0	5	117.0	117.0	ND	ND	
810717-21	8.04	50	0.02		0.0	5.80		116.0	5	116.0	116.0	ND	ND	
810739	8.25	50	0.02		0.0	4.75		95.0	5	95.0	95.0	ND	ND	
810750-1	7.84	50	0.02		0.0	10.65		213.0	5	213.0	213.0	ND	ND	
810750-2	7.76	50	0.02		0.0	6.65		133.0	5	133.0	133.0	ND	ND	
810751-2	7.60	50	0.02		0.0	7.50		150.0	5	150.0	150.0	ND	ND	
810751-2 DUP	7.60	50	0.02		0.0	7.50		150.0	5	150.0	150.0	ND	ND	
LCS	10.34	50	0.02	2.1	42.0	4.90		98.0	5	98.0	14.0	84	ND	
LCSD	10.28	50	0.02	2.1	41.0	4.90		98.0	5	98.0	16.0	82	ND	
810750-1 MS	9.02	50	0.02		0.0	15.10		302.0	5	302.0	302.0	0	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:
T = Total Alkalinity, mg CaCO3/L
P = Phenolphthalein Alkalinity, mg CaCO3/L
A = mL standard acid used
N = normality of standard acid

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

Where:
B = mL titrant to first recorded pH
C = Total mL titrant to reach pH 0.3 unit lower
N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate
MS/MSD = Matrix Spike/Duplicate
ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	98	100	98.0%	90-110	Yes
LCSD	98	100	98.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
810751-2	150	150	0.0%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
810750-1	213	1	100	100	302	313.00	89%	75-125	Yes			
				0								

Himani
Analyst Printed Name

Himani
Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

110613b

034

3 of 8

810750

Rec'd 11/5/13

~~S3b~~ 810750

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-212]

TURNAROUND TIME 10 Days
DATE 11/05/13 PAGE 1 OF 1

COMPANY: CH2M HILL /E2
PROJECT NAME: PG&E Topock IM3Plant-EW
PHONE: 530-229-3303 FAX: 530-339-3303
ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER: 428648.IM.CS.LB
SAMPLERS (SIGNATURE: [signature]

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Cr, Mn (200.8) Lab filtered	Cr(VI) (3500-Cr B)	pH (150.0) EC (120.1) Cl,SO4,NO3(300.0)	TDS (160.1), Alk (SM2320B)	Cr(VI) (218.6)	Dis Ca,Mg,Na,Fe (200.7) Lab filtered									NUMBER OF CONTAINERS	COMMENTS
-1	PE-01-212	11/05/13	14:00	Ground water	X		X	X	X	X									4	pH 7 (200.7, 200.8)
-2	TW-03D-212	11/05/13	14:00	Ground water	X	X	X	X		X									4	
																			8	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	[signature]	CHRIS LEGRE	CH2M HILL	11-5-13 15:05
Signature (Received)	[signature]	THANH	TRUESDAIL	11-5-13 15:05
Signature (Relinquished)	[signature]			11-5-13 19:40
Signature (Received)	[signature]	Marichel Braly	TL 1	11/5/13 1940
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS
RECEIVED COOL ☒ WARM ☐ 8.6°C
CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

068

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
10/19/13	810527-5	9.5	N/A	N/A	N/A	NE
	-6					
	810528-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
10/23/13	810678	7.00	2ml / 100ml	9.5	8:00	NE
10/29/13	810679	7.00	2ml / 100ml	9.5	7:30	NE
10/29/13	810683-1	7.00	2ml / 100ml	9.5	12:00	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
11/5/13	810739	7.00	2ml / 100 ml	9.5	16:00	NE
11/6/13	810750-1	7.00	2ml / 100ml	9.5	7:30	NE
	-2					
	810751-1					
	-2					
	810752-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
810710-1-10	TTLC		11/11/13	DC	Yes			SOLID
810689	TCLP		↓	DC	↓			SLUDGE
810683 (1-8)	PLANT		11/1/13	ES	yes			
810723	>1	<2	11/4/13	DC	yes			
810724	<1	↓	↓	↓	↓			
810706 (1-3)	<1	<2	11/6/13	ES	yes			
810750 (1-2)	<1	>2				10:00		Filtered then acidify
810751-2		↓				↓		↓
810751 (1-2)		>2				10:00		TOTAL
810752 (4-11)	↓	<2	↓	↓	↓			
810321 (1-5)	<1	>2	11/6/13	ES	yes	10:00		Filtered then acidify
810745	<1	<2	11/6/13	DC	yes			
810730	↓							
810733-1,2	>1							
810756	<1							
810757								
810758								
810759								
810760	↓	↓	↓	↓	↓			
810739	<1	>2	11/6/13	DC	NO	15:30		
810741-1,2,4	↓	↓	↓	↓	↓	↓		
810736-6	↓	↓	↓	↓	↓			
810779 (1-2)	<1	<2	11/7/13	ES	yes			
810780 (1-5)	↓	↓	↓	↓	↓			TID
810776	>1	<2	11/8/13	DC	yes			
810777	>1	<2						
810784	<1	<2						
810771-1,2	>1	<2	↓	↓	↓			
810772-1-6	<1	<2			NO			
810766-4,5,6	<1	>2				11:40		
810773-10,11,12								
810793								
810807-24	↓	↓	↓	↓	↓	↓		
810815	<1	>2	11/11/13	DC	NO	10:40		
810818	<1	<2	↓	↓	yes			
810792-1-5	TTLC		11/11/13	DC	yes			SOLID
810828	<1	<2	11/12/13	DC	yes			
810827								
810837	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 310750

Date Delivered: 11 / 5 / 13 **Time:** 1940 **By:** ☐Mail ☐Field Service ☑Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☒Yes ☐No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☒No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 8.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒**Truesdail** ☐Client
12. Were samples pH checked? pH = See COC ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☒Ground Water ☐Waste Water
    ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☐Other_____
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Michael Brady

ALERT !!
Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

November 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810752

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 November 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.

Mr. Duffy placed a hold on all samples having a sample I.D. ending in "-EB".

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810752
Date Received: November 5, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810752-001	MW-200-194	E218.6	FLDFLT	11/4/2013	6:36	Chromium, Hexavalent	ND	ug/L	0.20
810752-002	MW-201-194	E218.6	FLDFLT	11/4/2013	6:39	Chromium, Hexavalent	ND	ug/L	0.20
810752-003	MW-202-194	E218.6	FLDFLT	11/4/2013	6:42	Chromium, Hexavalent	ND	ug/L	0.20
810752-004	MW-27-020-194	E218.6	FLDFLT	11/4/2013	10:47	Chromium, Hexavalent	ND	ug/L	0.20
810752-004	MW-27-020-194	SW6020	FLDFLT	11/4/2013	10:47	Chromium	ND	ug/L	1.0
810752-005	MW-27-060-194	E218.6	FLDFLT	11/4/2013	11:47	Chromium, Hexavalent	ND	ug/L	0.20
810752-005	MW-27-060-194	SW6020	FLDFLT	11/4/2013	11:47	Chromium	ND	ug/L	1.0
810752-006	MW-27-085-194	E218.6	FLDFLT	11/4/2013	12:47	Chromium, Hexavalent	ND	ug/L	0.20
810752-006	MW-27-085-194	SW6020	FLDFLT	11/4/2013	12:47	Chromium	ND	ug/L	1.0
810752-007	MW-30-030-194	E218.6	FLDFLT	11/4/2013	15:02	Chromium, Hexavalent	ND	ug/L	0.20
810752-007	MW-30-030-194	SW6020	FLDFLT	11/4/2013	15:02	Chromium	ND	ug/L	1.0
810752-008	MW-30-050-194	E218.6	FLDFLT	11/4/2013	16:08	Chromium, Hexavalent	ND	ug/L	0.20
810752-008	MW-30-050-194	SW6020	FLDFLT	11/4/2013	16:08	Chromium	ND	ug/L	1.0
810752-009	MW-41D-194	E218.6	FLDFLT	11/4/2013	10:47	Chromium, Hexavalent	3.8	ug/L	1.0
810752-009	MW-41D-194	SW6020	FLDFLT	11/4/2013	10:47	Chromium	4.3	ug/L	1.0
810752-010	MW-41M-194	E218.6	FLDFLT	11/4/2013	12:23	Chromium, Hexavalent	9.7	ug/L	1.0
810752-010	MW-41M-194	SW6020	FLDFLT	11/4/2013	12:23	Chromium	9.6	ug/L	1.0
810752-011	MW-41S-194	E218.6	FLDFLT	11/4/2013	12:54	Chromium, Hexavalent	17.4	ug/L	0.20
810752-011	MW-41S-194	SW6020	FLDFLT	11/4/2013	12:54	Chromium	15.3	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.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810752

Printed 11/15/2013

Samples Received on 11/5/2013 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-200-194	810752-001	11/04/2013 06:36	Water
MW-201-194	810752-002	11/04/2013 06:39	Water
MW-202-194	810752-003	11/04/2013 06:42	Water
MW-27-020-194	810752-004	11/04/2013 10:47	Water
MW-27-060-194	810752-005	11/04/2013 11:47	Water
MW-27-085-194	810752-006	11/04/2013 12:47	Water
MW-30-030-194	810752-007	11/04/2013 15:02	Water
MW-30-050-194	810752-008	11/04/2013 16:08	Water
MW-41D-194	810752-009	11/04/2013 10:47	Water
MW-41M-194	810752-010	11/04/2013 12:23	Water
MW-41S-194	810752-011	11/04/2013 12:54	Water

Chrome VI by EPA 218.6

Batch 11CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810752-001 Chromium, Hexavalent	ug/L	11/06/2013 11:14	1.00	0.00600	0.20	ND
810752-002 Chromium, Hexavalent	ug/L	11/06/2013 11:24	1.00	0.00600	0.20	ND
810752-003 Chromium, Hexavalent	ug/L	11/06/2013 11:35	1.00	0.00600	0.20	ND
810752-004 Chromium, Hexavalent	ug/L	11/06/2013 11:45	1.00	0.00600	0.20	ND
810752-005 Chromium, Hexavalent	ug/L	11/06/2013 12:27	1.00	0.00600	0.20	ND
810752-006 Chromium, Hexavalent	ug/L	11/06/2013 12:37	1.00	0.00600	0.20	ND
810752-007 Chromium, Hexavalent	ug/L	11/06/2013 12:48	1.00	0.00600	0.20	ND
810752-008 Chromium, Hexavalent	ug/L	11/06/2013 12:58	1.00	0.00600	0.20	ND
810752-009 Chromium, Hexavalent	ug/L	11/06/2013 13:50	5.00	0.0300	1.0	3.8
810752-010 Chromium, Hexavalent	ug/L	11/06/2013 14:52	5.00	0.0300	1.0	9.7
810752-011 Chromium, Hexavalent	ug/L	11/06/2013 12:29	1.00	0.00600	0.20	17.4

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.

Method Blank

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

Duplicate — Lab ID = 810750-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.15	5.23	1.56	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.211	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.9	90 - 110

Matrix Spike — Lab ID = 810750-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.2	15.2(10.0)	100	90 - 110

Matrix Spike — Lab ID = 810751-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.25	1.24(1.00)	101	90 - 110

Matrix Spike — Lab ID = 810751-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1360	1400(750)	94.3	90 - 110

Matrix Spike — Lab ID = 810752-001

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

Matrix Spike — Lab ID = 810752-002

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

Matrix Spike — Lab ID = 810752-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.00(1.00)	99.8	90 - 110

Matrix Spike — Lab ID = 810752-004

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

Matrix Spike — Lab ID = 810752-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.00(1.00)	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 prior written authorization from Truesdail Laboratories.

Matrix Spike — Lab ID = 810752-006

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

Matrix Spike — Lab ID = 810752-007

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

Matrix Spike — Lab ID = 810752-008

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

Matrix Spike — Lab ID = 810752-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	8.89	8.83(5.00)	101	90 - 110

Matrix Spike — Lab ID = 810752-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	19.7	19.7(10.0)	100	90 - 110

Matrix Spike — Lab ID = 810752-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	33.9	34.7(25.0)	96.9	90 - 110

Matrix Spike — Lab ID = 810752-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	35.9	37.4(20.0)	92.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.85	5.00	97.1	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.99	10.0	99.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.98	10.0	99.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	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.01 Printed 11/15/2013

Metals by EPA 6020A, Dissolved

Batch 110813B-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810752-004 Chromium	ug/L	11/08/2013 20:04	2.00	0.142	1.0	ND
810752-005 Chromium	ug/L	11/08/2013 20:54	2.00	0.142	1.0	ND
810752-006 Chromium	ug/L	11/08/2013 21:01	2.00	0.142	1.0	ND
810752-007 Chromium	ug/L	11/08/2013 21:08	2.00	0.142	1.0	ND
810752-008 Chromium	ug/L	11/08/2013 21:15	2.00	0.142	1.0	ND
810752-009 Chromium	ug/L	11/08/2013 21:22	2.00	0.142	1.0	4.3
810752-010 Chromium	ug/L	11/08/2013 21:30	2.00	0.142	1.0	9.6
810752-011 Chromium	ug/L	11/08/2013 21:37	2.00	0.142	1.0	15.3

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 810752-004

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.195	0.200	97.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	4.00	47.7	50.0	95.4	85 - 115

Matrix Spike — Lab ID = 810752-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	38.7	50.0(50.0)	77.4	75 - 125

Matrix Spike Duplicate — Lab ID = 810752-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	39.5	50.0(50.0)	79.1	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.8	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.01 Printed 11/15/2013

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.5	20.0	92.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.1	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

810752

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/5/2013
COC Number: 1

Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly
Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C
Filtered:	Field	Field	Field	Field
Holding Time:	28	28	180	180

	DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium	Number of Containers	COMMENTS
1 MW-200-194	11/4/2013	6:36	Water	X				1	
2 MW-201-194	11/4/2013	6:39	Water	X				1	
3 MW-202-194	11/4/2013	6:42	Water	X				1	
4 MW-27-020-194	11/4/2013	10:47	Water		X		X	4	pH-2
MW-27-020-194-EB	11/4/2013	9:59	Water	X		X		2	
5 MW-27-060-194	11/4/2013	11:47	Water		X		X	4	pH-2
MW-27-060-194-EB	11/4/2013	10:34	Water	X		X		2	
6 MW-27-085-194	11/4/2013	12:47	Water		X		X	4	pH=2
MW-27-085-194-EB	11/4/2013	12:12	Water	X		X		2	
7 MW-30-030-194	11/4/2013	15:02	Water		X		X	4	pH=2
MW-30-030-194-EB	11/4/2013	14:41	Water	X		X		2	
8 MW-30-050-194	11/4/2013	16:08	Water	X		X		2	
9 MW-41D-194	11/4/2013	10:47	Water	X		X		2	pH=2
10 MW-41M-194	11/4/2013	12:23	Water	X		X		2	

pH for 6020A

Rec'd 11/5/13
Sub 810752

ALERT !! Level III QC

For Sample Conditions See Form Attached

	Signatures	Date/Time
Approved by		
Sampled by		11-5-13 1455
Relinquished by		11-5-13 1455
Received by		
Relinquished by		11-5-13 1940
Received by		11/5/13 1940

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

ATTN:
Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

810752

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/5/2013
COC Number: 1

			Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field			
			Holding Time:	28	28	180	180			
	DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
MW-41S-194	11/4/2013	12:54	Water	X		X			2	pH2
								TOTAL NUMBER OF CONTAINERS	35	6020A

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		
Sampled by		11-5-13 1455
Relinquished by		11-5-13 14:55
Received by		11-5-13 1940
Relinquished by		11/5/13 1950
Received by		

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

ATTN:
Sample Custody

Special Instructions:

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
10/19/13	810527-5	9.5	N/A	N/A	N/A	NE
	-6					
	810528-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
10/23/13	810578	7.00	2ml / 100ml	9.5	8:00	NE
10/29/13	810679	7.00	2ml / 100ml	9.5	7:30	NE
10/29/13	810683-1	7.00	2ml / 100ml	9.5	12:00	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
11/5/13	810739	7.00	2ml / 100 ml	9.5	6:00	NE
11/6/13	810750-1	7.00	2ml / 100ml	9.5	7:30	NE
	-2					
	810751-1					
	-2					
	810752-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/6/13	810752-7	9.5	N/A	N/A	N/A	NE
	-8					
	-9					
	-10					
	-11					
11/7/13	810779-1	9.5	N/A	N/A	N/A	NE
	-2					
	810780-1					
	-2					
	-3					
	-4					
	-5					

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
810710-1-10	TTLC		11/1/13	DC	Yes			SOLID
810689	TCLP		↓	DC	↓			SLUDGE
810683 (1-8)	PLANT		11/1/13	ES	yes			
810723	>1	<2	11/4/13	DC	yes			
810724	<1	↓	↓	↓	↓			
810706 (1-3)	<1	<2	11/6/13	ES	yes			
810750 (1-2)	<1	>2				10:00		Filtered then acidify
810751-2		↓				↓		↓
810751 (1-2)		>2				10:00		TOTAL
810752 (4-11)	↓	<2	↓	↓	↓			
810321 (1-5)	<1	>2	11/6/13	ES	yes	10:00		Filtered then acidify
810745	<1	<2	11/6/13	DC	yes			
810730	↓							
810733-1,2	>1							
810756	<1							
810757								
810758								
810759								
810760	↓	↓	↓	↓	↓			
810739	<1	>2	11/6/13	DC	NO	15:30		
810741-1,2,4	↓	↓	↓	↓	↓	↓		
810736-6	↓	↓	↓	↓	↓			
810779 (1-2)	<1	<2	11/7/13	ES	yes			
810780 (1-5)	↓	↓	↓	↓	↓			TID
810776	>1	<2	11/8/13	DC	yes			
810777	>1	<2						
810784	<1	<2						
810771-1,2	>1	<2	↓	↓	↓			
810772-1-6	<1	<2			NO			
810766-4,5,6	<1	>2				11:40		
810773-10,11,12								
810793								
810807-24	↓	↓	↓	↓	↓	↓		
810815	<1	>2	11/11/13	DC	NO	10:40		
810818	<1	<2	↓	↓	yes			
810792-1-5	TTLC		11/11/13	DC	yes			SOLID
810828	<1	<2	11/12/13	DC	yes			
810827								
810837	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: CA **Lab #** 810752

Date Delivered: 11/5/13 **Time:** 1940 **By:** ☐Mail ☐Field Service ☒Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☒Yes ☐No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☒No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See COC ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☒Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☐Other_____
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Rachel Brady

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

November 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810812

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 November 7, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810812
Date Received: November 7, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810812-001	MW-27-020-194	SM4500NH3D	NONE	11/4/2013	10:47	Ammonia-N	ND	mg/L	0.500
810812-002	MW-27-060-194	SM4500NH3D	NONE	11/4/2013	11:47	Ammonia-N	ND	mg/L	0.500
810812-003	MW-27-085-194	SM4500NH3D	NONE	11/4/2013	12:47	Ammonia-N	0.946	mg/L	0.500
810812-004	MW-30-050-194	SM4500NH3D	NONE	11/4/2013	16:08	Ammonia-N	0.846	mg/L	0.500
810812-005	MW-28-025-194	SM4500NH3D	NONE	11/5/2013	8:35	Ammonia-N	ND	mg/L	0.500
810812-006	MW-28-090-194	SM4500NH3D	NONE	11/5/2013	9:15	Ammonia-N	ND	mg/L	0.500
810812-007	MW-29-194	SM4500NH3D	NONE	11/5/2013	10:50	Ammonia-N	3.39	mg/L	0.500
810812-008	MW-42-055-194	SM4500NH3D	NONE	11/5/2013	13:52	Ammonia-N	0.890	mg/L	0.500
810812-009	MW-42-065-194	SM4500NH3D	NONE	11/5/2013	14:34	Ammonia-N	1.64	mg/L	0.500
810812-010	MW-72BR-200-194	SM4500NH3D	NONE	11/5/2013	11:55	Ammonia-N	ND	mg/L	0.500
810812-011	MW-91-194	SM4500NH3D	NONE	11/5/2013	8:00	Ammonia-N	3.37	mg/L	0.500
810812-012	MW-99-194	SM4500NH3D	NONE	11/5/2013	8:47	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810812

Printed 11/29/2013

Samples Received on 11/7/2013 11:00:00 AM

Field ID	Lab ID	Collected	Matrix
MW-27-020-194	810812-001	11/04/2013 10:47	Water
MW-27-060-194	810812-002	11/04/2013 11:47	Water
MW-27-085-194	810812-003	11/04/2013 12:47	Water
MW-30-050-194	810812-004	11/04/2013 16:08	Water
MW-28-025-194	810812-005	11/05/2013 08:35	Water
MW-28-090-194	810812-006	11/05/2013 09:15	Water
MW-29-194	810812-007	11/05/2013 10:50	Water
MW-42-055-194	810812-008	11/05/2013 13:52	Water
MW-42-065-194	810812-009	11/05/2013 14:34	Water
MW-72BR-200-194	810812-010	11/05/2013 11:55	Water
MW-91-194	810812-011	11/05/2013 08:00	Water
MW-99-194	810812-012	11/05/2013 08:47	Water

Ammonia Nitrogen by SM4500-NH3D Batch 11NH313C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810812-001 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810812-002 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810812-003 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	0.946
810812-004 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	0.846
810812-005 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810812-006 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810812-007 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	3.39
810812-008 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	0.890
810812-009 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	1.64
810812-010 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810812-011 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	3.37
810812-012 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	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: CH2MHill

Project Name: PG & E Topock
Project Number: 184004.PS.02

Printed 11/29/2013

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 810812-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.31	10.0	93.1	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.49	10.0	94.9	90 - 110

Matrix Spike — Lab ID = 810812-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.6	10.0(10.0)	106	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.58	6.00	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.52	6.00	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.09	6.00	102	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Rec'd 11/8/13

S# 810812

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

06-Nov-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
-1	N011378-001C / MW-27-020-194	Water	11/4/2013 10:47:00 AM	32OZP	1		
-2	N011378-002C / MW-27-060-194	Water	11/4/2013 11:47:00 AM	32OZP	1		
-3	N011378-003C / MW-27-085-194	Water	11/4/2013 12:47:00 PM	32OZP	1		
-4	N011378-005C / MW-30-050-194	Water	11/4/2013 4:08:00 PM	32OZP	1		
-5	N011378-010C / MW-28-025-194	Water	11/5/2013 8:35:00 AM	32OZP	1		
-6	N011378-011C / MW-28-090-194	Water	11/5/2013 9:15:00 AM	32OZP	1		
-7	N011378-012C / MW-29-194	Water	11/5/2013 10:50:00 AM	32OZP	1		
-8	N011378-014C / MW-42-055-194	Water	11/5/2013 1:52:00 PM	32OZP	1		
-9	N011378-015C / MW-42-065-194	Water	11/5/2013 2:34:00 PM	32OZP	1		
-10	N011378-016C / MW-72BR-200-194	Water	11/5/2013 11:55:00 AM	32OZP	1		
-11	N011378-017C / MW-91-194	Water	11/5/2013 8:00:00 AM	32OZP	1		
-12	N011378-018C / MW-99-194	Water	11/5/2013 8:47:00 AM	32OZP	1		

ALERT !!
Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N011378 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by: Normal TAT

Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

GSO# 523161139

		Date/Time			Date/Time
Relinquished by:	Hanah Glodoviza	11/6/2013 17:00	**Received by:**		11-7-13 11:00
Relinquished by:			**Received by:**		

016

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 810812

Date Delivered: 11 / 2 / 13 **Time:** 11:00 **By:** ☒ **Mail** ☐ **Field Service** ☐ **Client**

1. *Was a Chain of Custody received and signed?* ☒ Yes ☐ No ☐ N/A
2. *Does Customer require an acknowledgement of the COC?* ☐ Yes ☒ No ☐ N/A
3. *Are there any special requirements or notes on the COC?* ☐ Yes ☒ No ☐ N/A
4. *If a letter was sent with the COC, does it match the COC?* ☐ Yes ☐ No ☒ N/A
5. *Were all requested analyses understood and acceptable?* ☒ Yes ☐ No ☐ N/A
6. *Were samples received in a chilled condition?* ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.2 °C
7. *Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?* ☒ Yes ☐ No ☐ N/A
8. *Were sample custody seals intact?* ☒ Yes ☐ No ☐ N/A
9. *Does the number of samples received agree with COC?* ☒ Yes ☐ No ☐ N/A
10. *Did sample labels correspond with the client ID's?* ☒ Yes ☐ No ☐ N/A
11. *Did sample labels indicate proper preservation?* ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☒ *Client*
12. *Were samples pH checked? pH =* _____ ☐ Yes ☐ No ☒ N/A
13. *Were all analyses within holding time at time of receipt?* ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. *Have Project due dates been checked and accepted?* ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ *Std*
15. ***Sample Matrix:*** ☐ *Liquid* ☐ *Drinking Water* ☐ *Ground Water* ☐ *Waste Water* ☐ *Sludge* ☐ *Soil* ☐ *Wipe* ☐ *Paint* ☐ *Solid* ☒ *Other* Water
16. *Comments:* _____
17. *Sample Check-In completed by* **Truesdail** *Log-In/Receiving:* Linda

ALERT!! Level IV QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

November 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810832

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 November 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 Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810832
Date Received: November 12, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810832-001	MW-32-035-194	SM4500NH3D	NONE	11/6/2013	16:51	Ammonia-N	9.08	mg/L	0.500
810832-002	MW-43-025-194	SM4500NH3D	NONE	11/6/2013	8:23	Ammonia-N	3.31	mg/L	0.500
810832-003	MW-43-075-194	SM4500NH3D	NONE	11/6/2013	9:17	Ammonia-N	0.859	mg/L	0.500
810832-004	MW-43-090-194	SM4500NH3D	NONE	11/6/2013	9:56	Ammonia-N	0.854	mg/L	0.500
810832-005	MW-49-135-194	SM4500NH3D	NONE	11/6/2013	11:06	Ammonia-N	0.521	mg/L	0.500
810832-006	MW-49-275-194	SM4500NH3D	NONE	11/6/2013	14:07	Ammonia-N	ND	mg/L	0.500
810832-007	MW-50-095-194	SM4500NH3D	NONE	11/6/2013	10:00	Ammonia-N	ND	mg/L	0.500
810832-008	MW-31-135-194	SM4500NH3D	NONE	11/7/2013	15:45	Ammonia-N	ND	mg/L	0.500
810832-009	MW-49-365-194	SM4500NH3D	NONE	11/7/2013	10:04	Ammonia-N	0.564	mg/L	0.500
810832-010	MW-57-185-194	SM4500NH3D	NONE	11/7/2013	11:08	Ammonia-N	ND	mg/L	0.500
810832-011	MW-97-194	SM4500NH3D	NONE	11/7/2013	7:35	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810832

Printed 11/29/2013

Samples Received on 11/12/2013 8:00:00 AM

Field ID	Lab ID	Collected	Matrix
MW-32-035-194	810832-001	11/06/2013 16:51	Water
MW-43-025-194	810832-002	11/06/2013 08:23	Water
MW-43-075-194	810832-003	11/06/2013 09:17	Water
MW-43-090-194	810832-004	11/06/2013 09:56	Water
MW-49-135-194	810832-005	11/06/2013 11:06	Water
MW-49-275-194	810832-006	11/06/2013 14:07	Water
MW-50-095-194	810832-007	11/06/2013 10:00	Water
MW-31-135-194	810832-008	11/07/2013 15:45	Water
MW-49-365-194	810832-009	11/07/2013 10:04	Water
MW-57-185-194	810832-010	11/07/2013 11:08	Water
MW-97-194	810832-011	11/07/2013 07:35	Water

Ammonia Nitrogen by SM4500-NH3D

Batch 11NH313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810832-001 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	9.08
810832-002 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	3.31
810832-003 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	0.859
810832-004 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	0.854
810832-005 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	0.521
810832-006 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810832-007 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810832-008 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810832-009 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	0.564
810832-010 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810832-011 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	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.GM.01 Printed 11/29/2013

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 810913-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.77	10.0	97.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.0	10.0	100	90 - 110

Matrix Spike — Lab ID = 810913-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	11.9	11.2(10.0)	108	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.31	6.00	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.21	6.00	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.56	6.00	109	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

S10 832

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler:

11-Nov-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
-1	N011402-002D / MW-32-035-194	Water	11/6/2013 4:51:00 PM	32OZP	1		
-2	N011402-004D / MW-43-025-194	Water	11/6/2013 8:23:00 AM	32OZP	1		
-3	N011402-005D / MW-43-075-194	Water	11/6/2013 9:17:00 AM	32OZP	1		
-4	N011402-006D / MW-43-090-194	Water	11/3/2013 9:56:00 AM	32OZP	1		
-5	N011402-008D / MW-49-135-194	Water	11/6/2013 11:06:00 AM	32OZP	1		
-6	N011402-009D / MW-49-275-194	Water	11/6/2013 2:07:00 PM	32OZP	1		
-7	N011402-010D / MW-50-095-194	Water	11/6/2013 10:00:00 AM	32OZP	1		
-8	N011402-012D / MW-31-135-194	Water	11/7/2013 3:45:00 PM	32OZP	1		
-9	N011402-013D / MW-49-365-194	Water	11/7/2013 10:04:00 AM	32OZP	1		
-10	N011402-014D / MW-57-185-194	Water	11/7/2013 11:08:00 AM	32OZP	1		
-11	N011402-015D / MW-97-194	Water	11/7/2013 7:35:00 AM	32OZP	1		

ALERT !!
Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N011402 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by: Normal TAT

Please analyze for Ammonia by SM 4500. Please send report to CH2M Hill. Please bill ATL Inc.

GSO# 523192692

		Date/Time			Date/Time
Relinquished by:	HERBEY SAYAS	11NOV13 1912	**Received by:**	Linda, TLI,	11-12-13 08:00
Relinquished by:			**Received by:**		

017

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 810832

Date Delivered: 11/12/13 **Time:** 08:00 **By:** ☒ **Mail** ☐ **Field Service** ☐ **Client**

1. *Was a Chain of Custody received and signed?* ☒ Yes ☐ No ☐ N/A
2. *Does Customer require an acknowledgement of the COC?* ☐ Yes ☒ No ☐ N/A
3. *Are there any special requirements or notes on the COC?* ☐ Yes ☒ No ☐ N/A
4. *If a letter was sent with the COC, does it match the COC?* ☐ Yes ☐ No ☒ N/A
5. *Were all requested analyses understood and acceptable?* ☒ Yes ☐ No ☐ N/A
6. *Were samples received in a chilled condition?* ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.3 °C
7. *Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?* ☒ Yes ☐ No ☐ N/A
8. *Were sample custody seals intact?* ☐ Yes ☐ No ☒ N/A
9. *Does the number of samples received agree with COC?* ☒ Yes ☐ No ☐ N/A
10. *Did sample labels correspond with the client ID's?* ☒ Yes ☐ No ☐ N/A
11. *Did sample labels indicate proper preservation?* ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☒ Client
12. *Were samples pH checked? pH =* _____ ☐ Yes ☐ No ☒ N/A
13. *Were all analyses within holding time at time of receipt?* ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. *Have Project due dates been checked and accepted?* ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. ***Sample Matrix:*** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
    ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. *Comments:* _____
17. *Sample Check-In completed by* **Truesdail** *Log-In/Receiving:* Linda

ALERT !! Level IV QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

December 2, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810859

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 November 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.

Mr. Duffy placed a hold on all samples having a sample I.D. ending in "-EB".

Due to the discrepancy between the Total Dissolved Chromium (2.8 ug/L) and Hexavalent Chromium (1.5 ug/L) results for sample MW-21-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.9 ug/L and 2.4 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 2.8 ug/L. After discussing the results with Mr. Duffy, the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (2.3 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-42-055-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.3 ug/L and 2.8 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 2.3 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.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810859
Date Received: November 12, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810859-001	MW-21-194	E218.6	FLDFLT	11/5/2013	15:14	Chromium, Hexavalent	1.5	ug/L	1.0
810859-001	MW-21-194	SW6020	FLDFLT	11/5/2013	15:14	Chromium	2.8	ug/L	1.0
810859-002	MW-28-025-194	E218.6	FLDFLT	11/5/2013	8:35	Chromium, Hexavalent	ND	ug/L	0.20
810859-002	MW-28-025-194	SW6020	FLDFLT	11/5/2013	8:35	Chromium	ND	ug/L	1.0
810859-003	MW-28-090-194	E218.6	FLDFLT	11/5/2013	9:15	Chromium, Hexavalent	ND	ug/L	0.20
810859-003	MW-28-090-194	SW6020	FLDFLT	11/5/2013	9:15	Chromium	ND	ug/L	1.0
810859-004	MW-29-194	E218.6	FLDFLT	11/5/2013	10:50	Chromium, Hexavalent	ND	ug/L	0.20
810859-004	MW-29-194	SW6020	FLDFLT	11/5/2013	10:50	Chromium	ND	ug/L	1.0
810859-005	MW-42-030-194	E218.6	FLDFLT	11/5/2013	13:16	Chromium, Hexavalent	ND	ug/L	0.20
810859-005	MW-42-030-194	SW6020	FLDFLT	11/5/2013	13:16	Chromium	ND	ug/L	1.0
810859-006	MW-42-055-194	E218.6	FLDFLT	11/5/2013	13:52	Chromium, Hexavalent	ND	ug/L	0.20
810859-006	MW-42-055-194	SW6020	FLDFLT	11/5/2013	13:52	Chromium	2.3	ug/L	1.0
810859-007	MW-42-065-194	E218.6	FLDFLT	11/5/2013	14:34	Chromium, Hexavalent	ND	ug/L	0.20
810859-007	MW-42-065-194	SW6020	FLDFLT	11/5/2013	14:34	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810859

Printed 12/2/2013

Samples Received on 11/12/2013 8:01:00 PM

Field ID	Lab ID	Collected	Matrix
MW-21-194	810859-001	11/05/2013 15:14	Water
MW-28-025-194	810859-002	11/05/2013 08:35	Water
MW-28-090-194	810859-003	11/05/2013 09:15	Water
MW-29-194	810859-004	11/05/2013 10:50	Water
MW-42-030-194	810859-005	11/05/2013 13:16	Water
MW-42-055-194	810859-006	11/05/2013 13:52	Water
MW-42-065-194	810859-007	11/05/2013 14:34	Water

Chrome VI by EPA 218.6

Batch 11CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810859-001 Chromium, Hexavalent	ug/L	11/13/2013 16:21	5.00	0.0300	1.0	1.5
810859-002 Chromium, Hexavalent	ug/L	11/13/2013 11:59	1.00	0.00600	0.20	ND
810859-004 Chromium, Hexavalent	ug/L	11/13/2013 12:20	1.00	0.00600	0.20	ND
810859-005 Chromium, Hexavalent	ug/L	11/13/2013 12:30	1.00	0.00600	0.20	ND
810859-006 Chromium, Hexavalent	ug/L	11/13/2013 12:40	1.00	0.00600	0.20	ND
810859-007 Chromium, Hexavalent	ug/L	11/13/2013 12:51	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 810860-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.52	8.52	0.0434	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.192	0.200	96.0	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.

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.72	5.00	94.5	90 - 110

Matrix Spike — Lab ID = 810859-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.33	6.48(5.00)	97.0	90 - 110

Matrix Spike — Lab ID = 810859-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.975	1.00(1.00)	97.5	90 - 110

Matrix Spike — Lab ID = 810859-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.952	1.00(1.00)	95.2	90 - 110

Matrix Spike — Lab ID = 810859-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.71	5.00(5.00)	94.2	90 - 110

Matrix Spike — Lab ID = 810859-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.03(1.00)	99.1	90 - 110

Matrix Spike — Lab ID = 810859-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.08(1.00)	97.2	90 - 110

Matrix Spike — Lab ID = 810859-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.919	1.00(1.00)	91.9	90 - 110

Matrix Spike — Lab ID = 810860-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	29.2	30.4(25.0)	95.2	90 - 110

Matrix Spike — Lab ID = 810860-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	29.1	30.6(25.0)	94.0	90 - 110

Matrix Spike — Lab ID = 810860-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.1	33.6(25.0)	94.0	90 - 110

Matrix Spike — Lab ID = 810860-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	18.0	18.5(10.0)	95.2	90 - 110

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

Chrome VI by EPA 218.6

Batch 11CrH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810859-003 Chromium, Hexavalent	ug/L	11/14/2013 12:36	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 810860-012

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.182	0.200	90.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.76	5.00	95.2	90 - 110

Matrix Spike — Lab ID = 810859-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.921	1.00(1.00)	92.1	90 - 110

Matrix Spike — Lab ID = 810860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.940	1.00(1.00)	94.0	90 - 110

Matrix Spike — Lab ID = 810860-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.57	5.00(5.00)	91.4	90 - 110

Matrix Spike — Lab ID = 810860-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.864	1.00(1.00)	86.4	90 - 110

Matrix Spike — Lab ID = 810860-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.61	5.00(5.00)	92.2	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.0	90 - 110

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.

Metals by EPA 6020A, Dissolved

Batch 111313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810859-001 Chromium	ug/L	11/13/2013 15:52	2.00	0.142	1.0	2.8
810859-002 Chromium	ug/L	11/13/2013 16:28	2.00	0.142	1.0	ND
810859-003 Chromium	ug/L	11/13/2013 16:34	2.00	0.142	1.0	ND
810859-004 Chromium	ug/L	11/13/2013 16:40	2.00	0.142	1.0	ND
810859-005 Chromium	ug/L	11/13/2013 16:46	2.00	0.142	1.0	ND
810859-006 Chromium	ug/L	11/13/2013 16:52	2.00	0.142	1.0	2.3
810859-007 Chromium	ug/L	11/13/2013 16:59	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 810859-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	2.56	2.85	10.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.203	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.0	50.0	97.9	85 - 115

Matrix Spike — Lab ID = 810859-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.4	52.8(50.0)	95.2	75 - 125

Matrix Spike Duplicate — Lab ID = 810859-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.9	52.8(50.0)	94.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	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 prior written authorization from Truesdail Laboratories.

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01 Printed 12/2/2013

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.3	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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.2	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.2	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

810859

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 5

Rec'd 11/12/13
Sub 810859

			Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field			
			Holding Time:	28	28	180	180			
	DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
	MW-21-194-EB	11/4/2013	15:15	Water	X		X		2	
1	MW-21-194	11/5/2013	15:14	Water		X		X	4	
2	MW-28-025-194	11/5/2013	8:35	Water		X		X	4	
	MW-28-025-194-EB	11/5/2013	8:00	Water	X		X		2	
3	MW-28-090-194	11/5/2013	9:15	Water		X		X	4	
	MW-28-090-194-EB	11/5/2013	8:24	Water	X		X		2	
4	MW-29-194	11/5/2013	10:50	Water		X		X	4	
	MW-29-194-EB	11/5/2013	10:10	Water	X		X		2	pH-2
5	MW-42-030-194	11/5/2013	13:16	Water		X		X	4	6020A
	MW-42-030-194-EB	11/5/2013	12:50	Water	X		X		2	
6	MW-42-055-194	11/5/2013	13:52	Water		X		X	4	
	MW-42-055-194-EB	11/5/2013	13:07	Water	X		X		2	
7	MW-42-065-194	11/5/2013	14:34	Water		X		X	4	
	MW-42-065-194-EB	11/5/2013	13:43	Water	X		X		2	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		
Sampled by		11-12-13 1600
Relinquished by		11-12-13 1600
Received by	Shawn Ngo	
Relinquished by	Shawn Ngo	11-12-13 2000
Received by	Michael Beach	11/12/13 2000

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

ATTN:
Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

044

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/6/13	810 752 -7	9.5	N/A	N/A	N/A	NE
	-8					
	-9					
	-10					
	-11					
	810779-1	9.5	N/A	N/A	N/A	NE
	-2					
	810780-1					
	-2					
	-3					
	-4					
	-5					
11/13/13	810858	7.0	2ml/100ml	9.5	7:30am	[illegible]
	810859-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	810860-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					

NE
11/18/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
810710-1-10	TTLC		11/1/13	DC	Yes			SOLID
810689	TCLP		↓	DC	↓			SLUDGE
810683 (1-8)	PLANT		11/1/13	ES	yes			
810723	>1	<2	11/4/13	DC	yes			
810724	<1	↓	↓	↓	↓			
810706 (1-3)	<1	<2	11/6/13	ES	yes			
810750 (1-2)	<1	>2				10:00		Filtered then acidify
810751-2		↓				↓		↓
810751 (1-2)		>2				10:00		TOTAL
810752 (4-11)	↓	<2	↓	↓	↓			
810321 (1-5)	<1	>2	11/6/13	ES	yes	10:00		Filtered then acidify
810745	<1	<2	11/6/13	DC	yes			
810730	↓							
810733-1,2	>1							
810756	<1							
810757								
810758								
810759								
810760	↓	↓	↓	↓	↓			
810739	<1	>2	11/6/13	DC	NO	15:30		
810741-1,2,4	↓	↓	↓	↓	↓	↓		
810736-6	↓	↓	↓	↓	↓	↓		
810779 (1-2)	<1	<2	11/7/13	ES	yes			
810760 (1-5)	↓	↓	↓	↓	↓			TID
810776	>1	<2	11/8/13	DC	yes			
810777	>1	<2						
810784	<1	<2						
810771-1,2	>1	<2	↓	↓	↓			
810772-1-76	<1	<2			NO			
810766-4,5,6	<1	>2				11:40		
810773-10,11,12								
810793								
810807-24	↓	↓	↓	↓	↓	↓		
810815	<1	>2	11/11/13	DC	NO	10:40		
810818	<1	<2	↓	↓	yes			
810792-1-75	TTLC		11/11/13	DC	yes			SOLID
810828	<1	<2	11/12/13	DC	yes			
810827								
810837	↓	↓	↓	↓	↓			
810811 (1-5)	<1	<2	11/13/13	ES	yes			
810858		>2				10:00		pH <2
810859 (1-7)		<2						
810860 (1-5,9-12)	↓	↓	↓	↓	↓			
810901	<1	<2	11/14/13	ES	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.

TRUESDAIL LABORATORIES, INC. ALERT !! Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 810859

Date Delivered: 11 / 12 / 13 **Time:** 20:01 **By:** ☐ Mail ☐ Field Service ☒ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☒ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☒ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☒ **Truesdail** ☐ Client
12. Were samples pH checked? pH = See C.O.C ☐ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

November 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810860

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 November 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.

Mr. Duffy placed a hold on all samples having a sample I.D. ending in "-EB".

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 810860
Date Received: November 12, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810860-001	MW-72BR-200-194	E218.6	FLDFLT	11/5/2013	11:55	Chromium, Hexavalent	5.4	ug/L	1.0
810860-001	MW-72BR-200-194	SW6020	FLDFLT	11/5/2013	11:55	Chromium	5.6	ug/L	1.0
810860-002	MW-91-194	E218.6	FLDFLT	11/5/2013	8:00	Chromium, Hexavalent	ND	ug/L	0.20
810860-002	MW-91-194	SW6020	FLDFLT	11/5/2013	8:00	Chromium	ND	ug/L	1.0
810860-003	MW-99-194	E218.6	FLDFLT	11/5/2013	8:47	Chromium, Hexavalent	5.6	ug/L	1.0
810860-003	MW-99-194	SW6020	FLDFLT	11/5/2013	8:47	Chromium	5.8	ug/L	1.0
810860-004	OW-03D-194	E218.6	FLDFLT	11/5/2013	14:30	Chromium, Hexavalent	8.6	ug/L	1.0
810860-004	OW-03D-194	SW6020	FLDFLT	11/5/2013	14:30	Chromium	8.3	ug/L	1.0
810860-005	MW-16-194	E218.6	FLDFLT	11/6/2013	14:22	Chromium, Hexavalent	8.5	ug/L	0.20
810860-005	MW-16-194	SW6020	FLDFLT	11/6/2013	14:22	Chromium	8.3	ug/L	1.0
810860-006	MW-203-194	E218.6	FLDFLT	11/6/2013	7:05	Chromium, Hexavalent	ND	ug/L	0.20
810860-007	MW-204-194	E218.6	FLDFLT	11/6/2013	7:02	Chromium, Hexavalent	ND	ug/L	0.20
810860-008	MW-205-194	E218.6	FLDFLT	11/6/2013	7:00	Chromium, Hexavalent	ND	ug/L	0.20
810860-009	MW-32-035-194	E218.6	FLDFLT	11/6/2013	16:51	Chromium, Hexavalent	ND	ug/L	1.0
810860-009	MW-32-035-194	SW6020	FLDFLT	11/6/2013	16:51	Chromium	ND	ug/L	1.0
810860-010	MW-37S-194	E218.6	FLDFLT	11/6/2013	11:50	Chromium, Hexavalent	9.8	ug/L	0.20
810860-010	MW-37S-194	SW6020	FLDFLT	11/6/2013	11:50	Chromium	9.3	ug/L	1.0
810860-011	MW-43-025-194	E218.6	FLDFLT	11/6/2013	8:23	Chromium, Hexavalent	ND	ug/L	0.20
810860-011	MW-43-025-194	SW6020	FLDFLT	11/6/2013	8:23	Chromium	ND	ug/L	1.0
810860-012	MW-43-075-194	E218.6	FLDFLT	11/6/2013	9:17	Chromium, Hexavalent	ND	ug/L	1.0
810860-012	MW-43-075-194	SW6020	FLDFLT	11/6/2013	9:17	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810860

Printed 11/26/2013

Samples Received on 11/12/2013 8:01:00 PM

Field ID	Lab ID	Collected	Matrix
MW-72BR-200-194	810860-001	11/05/2013 11:55	Water
MW-91-194	810860-002	11/05/2013 08:00	Water
MW-99-194	810860-003	11/05/2013 08:47	Water
OW-03D-194	810860-004	11/05/2013 14:30	Water
MW-16-194	810860-005	11/06/2013 14:22	Water
MW-203-194	810860-006	11/06/2013 07:05	Water
MW-204-194	810860-007	11/06/2013 07:02	Water
MW-205-194	810860-008	11/06/2013 07:00	Water
MW-32-035-194	810860-009	11/06/2013 16:51	Water
MW-37S-194	810860-010	11/06/2013 11:50	Water
MW-43-025-194	810860-011	11/06/2013 08:23	Water
MW-43-075-194	810860-012	11/06/2013 09:17	Water

Chrome VI by EPA 218.6

Batch 11CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810860-001 Chromium, Hexavalent	ug/L	11/13/2013 16:41	5.00	0.0300	1.0	5.4
810860-003 Chromium, Hexavalent	ug/L	11/13/2013 16:52	5.00	0.0300	1.0	5.6
810860-004 Chromium, Hexavalent	ug/L	11/13/2013 17:02	5.00	0.0300	1.0	8.6
810860-005 Chromium, Hexavalent	ug/L	11/13/2013 14:26	1.00	0.00600	0.20	8.5
810860-006 Chromium, Hexavalent	ug/L	11/13/2013 14:37	1.00	0.00600	0.20	ND
810860-007 Chromium, Hexavalent	ug/L	11/13/2013 14:47	1.00	0.00600	0.20	ND
810860-008 Chromium, Hexavalent	ug/L	11/13/2013 14:57	1.00	0.00600	0.20	ND
810860-010 Chromium, Hexavalent	ug/L	11/13/2013 15:18	1.00	0.00600	0.20	9.8
810860-011 Chromium, Hexavalent	ug/L	11/13/2013 15:29	1.00	0.00600	0.20	ND

Method Blank

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

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

Duplicate — Lab ID = 810860-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.52	8.52	0.0434	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.192	0.200	96.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.72	5.00	94.5	90 - 110

Matrix Spike — Lab ID = 810859-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.33	6.48(5.00)	97.0	90 - 110

Matrix Spike — Lab ID = 810859-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.975	1.00(1.00)	97.5	90 - 110

Matrix Spike — Lab ID = 810859-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.952	1.00(1.00)	95.2	90 - 110

Matrix Spike — Lab ID = 810859-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.71	5.00(5.00)	94.2	90 - 110

Matrix Spike — Lab ID = 810859-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.03(1.00)	99.1	90 - 110

Matrix Spike — Lab ID = 810859-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.08(1.00)	97.2	90 - 110

Matrix Spike — Lab ID = 810859-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.919	1.00(1.00)	91.9	90 - 110

Matrix Spike — Lab ID = 810860-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	29.2	30.4(25.0)	95.2	90 - 110

Matrix Spike — Lab ID = 810860-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	29.1	30.6(25.0)	94.0	90 - 110

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

Matrix Spike — Lab ID = 810860-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.1	33.6(25.0)	94.0	90 - 110

Matrix Spike — Lab ID = 810860-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	18.0	18.5(10.0)	95.2	90 - 110

Matrix Spike — Lab ID = 810860-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.931	1.00(1.00)	93.1	90 - 110

Matrix Spike — Lab ID = 810860-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.983	1.00(1.00)	98.3	90 - 110

Matrix Spike — Lab ID = 810860-008

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

Matrix Spike — Lab ID = 810860-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.865	1.00(1.00)	86.5	90 - 110

Matrix Spike — Lab ID = 810860-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	19.3	19.8(10.0)	95.1	90 - 110

Matrix Spike — Lab ID = 810860-011

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.0	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.80	10.0	98.0	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.81	10.0	98.1	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 Page 5 of 8
Project Number: 423575.MP.02.GM.01 Printed 11/26/2013

Chrome VI by EPA 218.6

Batch 11CrH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810860-002 Chromium, Hexavalent	ug/L	11/14/2013 12:57	1.00	0.00600	0.20	ND
810860-009 Chromium, Hexavalent	ug/L	11/14/2013 13:17	5.00	0.0300	1.0	ND
810860-012 Chromium, Hexavalent	ug/L	11/14/2013 14:36	5.00	0.0300	1.0	ND

Method Blank

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

Duplicate — Lab ID = 810860-012

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.182	0.200	90.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.76	5.00	95.2	90 - 110

Matrix Spike — Lab ID = 810859-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.921	1.00(1.00)	92.1	90 - 110

Matrix Spike — Lab ID = 810860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.940	1.00(1.00)	94.0	90 - 110

Matrix Spike — Lab ID = 810860-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.57	5.00(5.00)	91.4	90 - 110

Matrix Spike — Lab ID = 810860-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.864	1.00(1.00)	86.4	90 - 110

Matrix Spike — Lab ID = 810860-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.61	5.00(5.00)	92.2	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.0	90 - 110

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.01

Printed 11/26/2013

Metals by EPA 6020A, Dissolved

Batch 111313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810860-001 Chromium	ug/L	11/13/2013 17:05	2.00	0.142	1.0	5.6
810860-002 Chromium	ug/L	11/13/2013 17:11	2.00	0.142	1.0	ND
810860-003 Chromium	ug/L	11/13/2013 17:29	2.00	0.142	1.0	5.8
810860-004 Chromium	ug/L	11/13/2013 17:35	2.00	0.142	1.0	8.3
810860-005 Chromium	ug/L	11/13/2013 17:41	2.00	0.142	1.0	8.3
810860-009 Chromium	ug/L	11/13/2013 17:47	2.00	0.142	1.0	ND
810860-010 Chromium	ug/L	11/13/2013 17:53	2.00	0.142	1.0	9.3
810860-011 Chromium	ug/L	11/13/2013 17:59	2.00	0.142	1.0	ND
810860-012 Chromium	ug/L	11/13/2013 18:05	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 810859-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	2.56	2.85	10.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.203	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.0	50.0	97.9	85 - 115

Matrix Spike — Lab ID = 810859-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.4	52.8(50.0)	95.2	75 - 125

Matrix Spike Duplicate — Lab ID = 810859-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.9	52.8(50.0)	94.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	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 prior written authorization from Truesdail Laboratories.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.3	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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.2	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.2	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

810860

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 5

Rec'd 11/12/13
Sub 810860

				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field			
				Holding Time:	28	28	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
1	MW-72BR-200-194	11/5/2013	11:55	Water	X		X			2	
2	MW-91-194	11/5/2013	8:00	Water		X		X		4	
3	MW-99-194	11/5/2013	8:47	Water	X		X			2	pH-2
4	OW-03D-194	11/5/2013	14:30	Water	X		X			2	6020A
5	MW-16-194	11/6/2013	14:22	Water	X		X			2	
6	MW-203-194	11/6/2013	7:05	Water	X					1	
7	MW-204-194	11/6/2013	7:02	Water	X					1	
8	MW-205-194	11/6/2013	7:00	Water	X					1	
9	MW-32-035-194	11/6/2013	16:51	Water		X		X		4	
	MW-32-035-194-EB	11/6/2013	15:01	Water	X		X			2	
10	MW-37S-194	11/6/2013	11:50	Water	X		X			2	pH-2
11	MW-43-025-194	11/6/2013	8:23	Water		X		X		4	6020A
	MW-43-025-194-EB	11/6/2013	7:16	Water	X		X			2	
12	MW-43-075-194	11/6/2013	9:17	Water		X		X		4	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		
Sampled by		11-12-13 1600
Relinquished by		11-12-13 1600
Received by	Shawn Mejo	
Relinquished by	Shawn Mejo	11-12-13 200
Received by	Michael Bailey	11/12/13 2005

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

ATTN:
Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

42

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
11/6/13	810752-7	9.5	N/A	N/A	N/A	NE
	-8					
	-9					
	-10					
	-11					
	810779-1	9.5	N/A	N/A	N/A	NE
	-2					
	810780-1					
	-2					
	-3					
	-4					
	-5					
11/13/13	810858	7.0	2ml/100ml	9.5	7:30am	[illegible]
	810859-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	810860-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					

NE
11/18/13

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
11/13/13	810860-12	9.5	N/A	N/A	N/A	Fam
	810861-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	810862-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					

Fam 11/18 Jm

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
810710-1-10	TTLC		11/1/13	DC	Yes			SOLID
810689	TCLP		↓	DC	↓			SLUDGE
810683 (1-8)	PLANT		11/1/13	ES	yes			
810723	>1	<2	11/4/13	DC	yes			
810724	<1	↓	↓	↓	↓			
810706 (1-3)	<1	<2	11/6/13	ES	yes			
810750 (1-2)	<1	>2				10:00		Filtered then acidify
810751-2		↓				↓		↓
810751 (1-2)		~~>~~2				10:00		TOTAL
810752 (4-11)	↓	<2	↓	↓	↓			
810321 (1-5)	<1	>2	11/6/13	ES	yes	10:00		Filtered then acidify
810745	<1	<2	11/6/13	DC	yes			
810730	↓							
810733-1,2	>1							
810756	<1							
810757								
810758								
810759								
810760	↓	↓	↓	↓	↓			
810739	<1	>2	11/6/13	DC	NO	15:30		
810741-1,2,4	↓	↓	↓	↓	↓	↓		
810736-6	↓	↓	↓	↓	↓			
810779 (1-2)	<1	<2	11/7/13	ES	yes			
810780 (1-5)	↓	↓	↓	↓	↓			TID
810776	>1	<2	11/8/13	DC	yes			
810777	>1	<2						
810784	<1	<2						
810771-1,2	>1	<2	↓	↓	↓			
810772-1-76	<1	<2			NO			
810766-4,5,6	<1	>2				11:40		
810773-10,11,12								
810793								
810807-24	↓	↓	↓	↓	↓	↓		
810815	<1	>2	11/11/13	DC	NO	10:40		
810818	<1	<2	↓	↓	yes			
810792-1-75	TTLC		11/11/13	DC	yes			SOLID
810828	<1	<2	11/12/13	DC	yes			
810827								
810837	↓	↓	↓	↓	↓			
810811 (1-5)	<1	<2	11/13/13	ES	yes			
810858		>2				10:00		pH <2
810859 (1-7)		<2						
810860 (1-5,9-12)	↓	↓	↓	↓	↓			
810901	<1	<2	11/14/13	ES	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.

TRUESDAIL LABORATORIES, INC.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 810860

Date Delivered: 11 / 12 / 13 **Time:** 20:01 **By:** ☐ Mail ☐ Field Service ☒ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☒ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☒ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☒ **Truesdail** ☐ Client
12. Were samples pH checked? pH = see c.o.c ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
    ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

December 2, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810861

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 November 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.

Mr. Duffy placed a hold on all samples having a sample I.D. ending in "-EB".

Due to the discrepancy between the Total Dissolved Chromium (2.9 ug/L) and Hexavalent Chromium (2.0 ug/L) results for sample MW-49-275-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 3.0 ug/L and 2.7 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 3.2 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.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810861
Date Received: November 12, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810861-001	MW-43-090-194	E218.6	FLDFLT	11/6/2013	9:56	Chromium, Hexavalent	ND	ug/L	0.20
810861-001	MW-43-090-194	SW6020	FLDFLT	11/6/2013	9:56	Chromium	ND	ug/L	1.0
810861-002	MW-48-194	E218.6	FLDFLT	11/6/2013	15:05	Chromium, Hexavalent	ND	ug/L	1.0
810861-002	MW-48-194	SW6020	FLDFLT	11/6/2013	15:05	Chromium	ND	ug/L	1.0
810861-003	MW-49-135-194	E218.6	FLDFLT	11/6/2013	11:06	Chromium, Hexavalent	1.3	ug/L	1.0
810861-003	MW-49-135-194	SW6020	FLDFLT	11/6/2013	11:06	Chromium	2.0	ug/L	1.0
810861-004	MW-49-275-194	E218.6	FLDFLT	11/6/2013	14:07	Chromium, Hexavalent	2.0	ug/L	1.0
810861-004	MW-49-275-194	SW6020	FLDFLT	11/6/2013	14:07	Chromium	2.9	ug/L	1.0
810861-005	MW-50-095-194	E218.6	FLDFLT	11/6/2013	10:00	Chromium, Hexavalent	12.3	ug/L	0.20
810861-005	MW-50-095-194	SW6020	FLDFLT	11/6/2013	10:00	Chromium	11.5	ug/L	1.0
810861-006	TW-05-194	E218.6	FLDFLT	11/6/2013	8:46	Chromium, Hexavalent	10.3	ug/L	1.0
810861-006	TW-05-194	SW6020	FLDFLT	11/6/2013	8:46	Chromium	11.3	ug/L	1.0
810861-007	MW-206-194	E218.6	FLDFLT	11/7/2013	6:15	Chromium, Hexavalent	ND	ug/L	0.20
810861-008	MW-207-194	E218.6	FLDFLT	11/7/2013	6:25	Chromium, Hexavalent	ND	ug/L	0.20
810861-009	MW-208-194	E218.6	FLDFLT	11/7/2013	6:20	Chromium, Hexavalent	ND	ug/L	0.20
810861-010	MW-31-135-194	E218.6	FLDFLT	11/7/2013	15:45	Chromium, Hexavalent	11.5	ug/L	1.0
810861-010	MW-31-135-194	SW6020	FLDFLT	11/7/2013	15:45	Chromium	11.3	ug/L	1.0
810861-011	MW-49-365-194	E218.6	FLDFLT	11/7/2013	10:04	Chromium, Hexavalent	ND	ug/L	0.20
810861-011	MW-49-365-194	SW6020	FLDFLT	11/7/2013	10:04	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810861

Printed 12/2/2013

Samples Received on 11/12/2013 8:01:00 PM

Field ID	Lab ID	Collected	Matrix
MW-43-090-194	810861-001	11/06/2013 09:56	Water
MW-48-194	810861-002	11/06/2013 15:05	Water
MW-49-135-194	810861-003	11/06/2013 11:06	Water
MW-49-275-194	810861-004	11/06/2013 14:07	Water
MW-50-095-194	810861-005	11/06/2013 10:00	Water
TW-05-194	810861-006	11/06/2013 08:46	Water
MW-206-194	810861-007	11/07/2013 06:15	Water
MW-207-194	810861-008	11/07/2013 06:25	Water
MW-208-194	810861-009	11/07/2013 06:20	Water
MW-31-135-194	810861-010	11/07/2013 15:45	Water
MW-49-365-194	810861-011	11/07/2013 10:04	Water

Chrome VI by EPA 218.6

Batch 11CrH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810861-001 Chromium, Hexavalent	ug/L	11/14/2013 16:46	1.00	0.00600	0.20	ND
810861-002 Chromium, Hexavalent	ug/L	11/14/2013 11:36	5.00	0.0300	1.0	ND
810861-003 Chromium, Hexavalent	ug/L	11/14/2013 11:46	5.00	0.0300	1.0	1.3
810861-004 Chromium, Hexavalent	ug/L	11/14/2013 23:57	5.00	0.0300	1.0	2.0
810861-005 Chromium, Hexavalent	ug/L	11/14/2013 17:28	1.00	0.00600	0.20	12.3
810861-006 Chromium, Hexavalent	ug/L	11/14/2013 12:18	5.00	0.0300	1.0	10.3
810861-007 Chromium, Hexavalent	ug/L	11/14/2013 12:49	1.00	0.00600	0.20	ND
810861-008 Chromium, Hexavalent	ug/L	11/14/2013 17:59	1.00	0.00600	0.20	ND
810861-009 Chromium, Hexavalent	ug/L	11/14/2013 18:10	1.00	0.00600	0.20	ND
810861-010 Chromium, Hexavalent	ug/L	11/14/2013 12:18	5.00	0.0300	1.0	11.5
810861-011 Chromium, Hexavalent	ug/L	11/14/2013 18:51	1.00	0.00600	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.

Method Blank

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

Duplicate — Lab ID = 810861-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.433	0.469	8.05	0 - 20

Duplicate — Lab ID = 810861-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	12.2	12.3	0.505	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.194	0.200	96.8	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 810858-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.26	1.24(1.00)	102	90 - 110

Matrix Spike — Lab ID = 810861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.71	5.00(5.00)	94.2	90 - 110

Matrix Spike — Lab ID = 810861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.978	1.00(1.00)	97.8	90 - 110

Matrix Spike — Lab ID = 810861-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.35	5.47(5.00)	97.6	90 - 110

Matrix Spike — Lab ID = 810861-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.45(1.00)	62.1	90 - 110

Matrix Spike — Lab ID = 810861-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.24	6.29(5.00)	99.1	90 - 110

Matrix Spike — Lab ID = 810861-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.68	6.98(5.00)	93.9	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.

Matrix Spike — Lab ID = 810861-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.979	3.05(1.00)	-107	90 - 110

Matrix Spike — Lab ID = 810861-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	26.2	27.3(15.0)	93.0	90 - 110

Matrix Spike — Lab ID = 810861-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.4	35.3(25.0)	96.2	90 - 110

Matrix Spike — Lab ID = 810861-007

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

Matrix Spike — Lab ID = 810861-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.974	1.00(1.00)	97.4	90 - 110

Matrix Spike — Lab ID = 810861-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.930	1.00(1.00)	93.0	90 - 110

Matrix Spike — Lab ID = 810861-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.6	36.5(25.0)	96.4	90 - 110

Matrix Spike — Lab ID = 810861-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.980	1.00(1.00)	98.0	90 - 110

Matrix Spike — Lab ID = 810861-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.72	5.00(5.00)	94.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.4	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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.01 Printed 12/2/2013

Metals by EPA 6020A, Dissolved

Batch 111413A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810861-001 Chromium	ug/L	11/14/2013 16:31	2.00	0.142	1.0	ND
810861-002 Chromium	ug/L	11/14/2013 17:13	2.00	0.142	1.0	ND
810861-003 Chromium	ug/L	11/14/2013 17:19	2.00	0.142	1.0	2.0
810861-004 Chromium	ug/L	11/14/2013 17:25	2.00	0.142	1.0	2.9
810861-005 Chromium	ug/L	11/14/2013 17:31	2.00	0.142	1.0	11.5
810861-006 Chromium	ug/L	11/14/2013 17:37	2.00	0.142	1.0	11.3
810861-010 Chromium	ug/L	11/14/2013 17:43	2.00	0.142	1.0	11.3
810861-011 Chromium	ug/L	11/14/2013 17:50	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 810861-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.208	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.8	50.0	95.6	85 - 115

Matrix Spike — Lab ID = 810861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	44.8	50.0(50.0)	89.5	75 - 125

Matrix Spike Duplicate — Lab ID = 810861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	44.8	50.0(50.0)	89.6	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	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. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01 Printed 12/2/2013

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.6	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.5	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

810861

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 5

Rec'd 11/12/13 810861 S-4b

			Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field			
			Holding Time:	28	28	180	180			
				Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
	MW-43-075-194-EB	11/6/2013	7:21	Water	X		X		2	
1	MW-43-090-194	11/6/2013	9:56	Water		X		X	4	
	MW-43-090-194-EB	11/6/2013	7:26	Water	X		X		2	
2	MW-48-194	11/6/2013	15:05	Water	X		X		2	pH-7
3	MW-49-135-194	11/6/2013	11:06	Water		X		X	4	6020A
4	MW-49-275-194	11/6/2013	14:07	Water		X		X	4	
	MW-49-275-194-EB	11/6/2013	12:48	Water	X		X		2	
5	MW-50-095-194	11/6/2013	10:00	Water	X		X		2	
6	TW-05-194	11/6/2013	8:46	Water	X		X		2	
7	MW-206-194	11/7/2013	6:15	Water	X				1	
8	MW-207-194	11/7/2013	6:25	Water	X				1	
9	MW-208-194	11/7/2013	6:20	Water	X				1	
0	MW-31-135-194	11/7/2013	15:45	Water	X		X		2	pH-2
11	MW-49-365-194	11/7/2013	10:04	Water		X		X	4	6020A

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		11-12-13 1600
Relinquished by		11-12-13 1600
Received by		11-12-13 200
Relinquished by		11/12/13 2005
Received by		

Shipping Details

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

ATTN:

Sample Custody

Special Instructions:

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
11/13/13	810860-12	9.5	N/A	N/A	NA	Fam
	810861-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	810862-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					

Fam 11/18 Jm

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
810823(1-2)	>1	<2	11/14/13	ES	Yes			
810838	<1	↓	↓	↓	↓			
810841	↓	↓	↓	↓	↓			
810846	↓	↓	↓	↓	↓			
810847	↓	↓	↓	↓	↓			
810857	↓	>2	↓	↓	NO	11:00		
810869	↓	<2	↓	↓	↓			
810870	↓	↓	↓	↓	↓			
810872	↓	↓	↓	↓	↓			
810879	↓	↓	↓	↓	↓			
810891 (1-3)	↓	>2	↓	↓	NO	11:00		
810892 (1-4)	↓	↓	↓	↓	↓	↓		
810893 (1-2,4)	↓	↓	↓	↓	↓	↓		
810896	↓	<2	↓	↓	↓			
810902-1→3	<1	<2 ~~>2~~ DC	11/14/13	DC	NO			
810861 (1-6,10-11)	<1	<2	11/14/13	ES	Yes			
810862 (1-5,8-16)	↓	↓ ES 11/15/13	↓	↓	↓			
810915	<1	~~>2~~ >2	11/15/13	ES	NO	2:00		
810916	↓	ES ~~>2~~ <2	↓	↓	Yes			
810926	<1	<2	↓	↓	↓			
810928	↓	↓	↓	↓	↓			
810912 (1-7)	<1	<2	11/18/13	ES	Yes			
810939-1,2	>1	<2	11/19/13	DC	Yes			
810943	<1	↓	↓	↓	↓			
810944	<1	↓	↓	↓	↓			
810948	>1	↓	↓	↓	↓			
810957	<1	<2	11/14/13	DC	Yes			
810963-1,2,4	<1	>2	11/19/13	DC	NO	15:30		
810958	<1	<2	↓	↓	Yes			
810959	↓	↓	↓	↓	↓			
810960	↓	↓	↓	↓	↓			
810961	↓	↓	↓	↓	↓			
810962	↓	↓	↓	↓	↓			
810970	↓	↓	↓	↓	↓			
810971	<1	<2	11/20/13	ES	Yes			
810972	↓	↓	↓	↓	↓			
810937(4,5)	TTLC		↓	↓	↓			
810985 (1,3-4)	<1	>2	↓	↓	NO	10:00		
810985 (1-12)	<1	<2	11/20/13	ES	Yes			
810986 (1-11)	↓	↓	↓	↓	↓			
810950	<1	<2	11/21/13	ES	Yes			
810984	↓	>2	↓	↓	↓	11:00		pH <2
811005 (1-3,6-12,14-15)	↓	<2	↓	↓	↓			
811016 (1-3)	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 810861

Date Delivered: 11/12/13 **Time:** 20:01 **By:** ☐ Mail ☐ Field Service ☒ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☒ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☒ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.8°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☒ **Truesdail** ☐ Client
12. Were samples pH checked? pH = see c.o.c ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

November 20, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810862

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 November 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.

Mr. Duffy placed a hold on all samples having a sample I.D. ending in "-EB".

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810862
Date Received: November 12, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810862-001	MW-57-185-194	E218.6	FLDFLT	11/7/2013	11:08	Chromium, Hexavalent	9.5	ug/L	1.0
810862-001	MW-57-185-194	SW6020	FLDFLT	11/7/2013	11:08	Chromium	9.4	ug/L	1.0
810862-002	MW-97-194	E218.6	FLDFLT	11/7/2013	7:35	Chromium, Hexavalent	9.7	ug/L	1.0
810862-002	MW-97-194	SW6020	FLDFLT	11/7/2013	7:35	Chromium	9.4	ug/L	1.0
810862-003	MW-15-194	E218.6	FLDFLT	11/11/2013	12:50	Chromium, Hexavalent	10.7	ug/L	0.20
810862-003	MW-15-194	SW6020	FLDFLT	11/11/2013	12:50	Chromium	10.3	ug/L	1.0
810862-004	MW-17-194	E218.6	FLDFLT	11/11/2013	11:24	Chromium, Hexavalent	11.8	ug/L	0.20
810862-004	MW-17-194	SW6020	FLDFLT	11/11/2013	11:24	Chromium	11.6	ug/L	1.0
810862-005	MW-18-194	E218.6	FLDFLT	11/11/2013	10:22	Chromium, Hexavalent	18.6	ug/L	0.20
810862-005	MW-18-194	SW6020	FLDFLT	11/11/2013	10:22	Chromium	17.5	ug/L	1.0
810862-006	MW-209-194	E218.6	FLDFLT	11/11/2013	7:05	Chromium, Hexavalent	ND	ug/L	0.20
810862-007	MW-210-194	E218.6	FLDFLT	11/11/2013	7:00	Chromium, Hexavalent	ND	ug/L	0.20
810862-008	MW-23-060-194	E218.6	FLDFLT	11/11/2013	15:02	Chromium, Hexavalent	35.9	ug/L	2.0
810862-008	MW-23-060-194	SW6020	FLDFLT	11/11/2013	15:02	Chromium	34.9	ug/L	1.0
810862-009	MW-23-080-194	E218.6	FLDFLT	11/11/2013	16:25	Chromium, Hexavalent	11.0	ug/L	1.0
810862-009	MW-23-080-194	SW6020	FLDFLT	11/11/2013	16:25	Chromium	11.2	ug/L	1.0
810862-010	MW-36-020-194	E218.6	FLDFLT	11/11/2013	15:27	Chromium, Hexavalent	ND	ug/L	0.20
810862-010	MW-36-020-194	SW6020	FLDFLT	11/11/2013	15:27	Chromium	ND	ug/L	1.0
810862-011	MW-36-040-194	E218.6	FLDFLT	11/11/2013	11:45	Chromium, Hexavalent	ND	ug/L	0.20
810862-011	MW-36-040-194	SW6020	FLDFLT	11/11/2013	11:45	Chromium	ND	ug/L	1.0
810862-012	MW-36-050-194	E218.6	FLDFLT	11/11/2013	10:09	Chromium, Hexavalent	ND	ug/L	0.20
810862-012	MW-36-050-194	SW6020	FLDFLT	11/11/2013	10:09	Chromium	ND	ug/L	1.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810862-013	MW-36-070-194	E218.6	FLDFLT	11/11/2013	14:20	Chromium, Hexavalent	ND	ug/L	0.20
810862-013	MW-36-070-194	SW6020	FLDFLT	11/11/2013	14:20	Chromium	ND	ug/L	1.0
810862-014	MW-36-090-194	E218.6	FLDFLT	11/11/2013	13:05	Chromium, Hexavalent	ND	ug/L	0.20
810862-014	MW-36-090-194	SW6020	FLDFLT	11/11/2013	13:05	Chromium	ND	ug/L	1.0
810862-015	MW-40S-194	E218.6	FLDFLT	11/11/2013	9:04	Chromium, Hexavalent	8.2	ug/L	0.20
810862-015	MW-40S-194	SW6020	FLDFLT	11/11/2013	9:04	Chromium	8.1	ug/L	1.0
810862-016	MW-95-194	E218.6	FLDFLT	11/11/2013	7:25	Chromium, Hexavalent	ND	ug/L	0.20
810862-016	MW-95-194	SW6020	FLDFLT	11/11/2013	7:25	Chromium	ND	ug/L	1.0
810862-017	MW-211-194	E218.6	FLDFLT	11/12/2013	6:35	Chromium, Hexavalent	ND	ug/L	0.20
810862-018	MW-212-194	E218.6	FLDFLT	11/12/2013	6:30	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810862

Printed 11/20/2013

Samples Received on 11/12/2013 8:05:00 PM

Field ID	Lab ID	Collected	Matrix
MW-57-185-194	810862-001	11/07/2013 11:08	Water
MW-97-194	810862-002	11/07/2013 07:35	Water
MW-15-194	810862-003	11/11/2013 12:50	Water
MW-17-194	810862-004	11/11/2013 11:24	Water
MW-18-194	810862-005	11/11/2013 10:22	Water
MW-209-194	810862-006	11/11/2013 07:05	Water
MW-210-194	810862-007	11/11/2013 07:00	Water
MW-23-060-194	810862-008	11/11/2013 15:02	Water
MW-23-080-194	810862-009	11/11/2013 16:25	Water
MW-36-020-194	810862-010	11/11/2013 15:27	Water
MW-36-040-194	810862-011	11/11/2013 11:45	Water
MW-36-050-194	810862-012	11/11/2013 10:09	Water
MW-36-070-194	810862-013	11/11/2013 14:20	Water
MW-36-090-194	810862-014	11/11/2013 13:05	Water
MW-40S-194	810862-015	11/11/2013 09:04	Water
MW-95-194	810862-016	11/11/2013 07:25	Water
MW-211-194	810862-017	11/12/2013 06:35	Water
MW-212-194	810862-018	11/12/2013 06:30	Water

Chrome VI by EPA 218.6

Batch 11CrH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810862-001 Chromium, Hexavalent	ug/L	11/12/2013 12:31	5.00	0.0300	1.0	9.5
810862-002 Chromium, Hexavalent	ug/L	11/12/2013 12:41	5.00	0.0300	1.0	9.7
810862-003 Chromium, Hexavalent	ug/L	11/12/2013 08:52	1.00	0.00600	0.20	10.7
810862-004 Chromium, Hexavalent	ug/L	11/12/2013 09:02	1.00	0.00600	0.20	11.8
810862-005 Chromium, Hexavalent	ug/L	11/12/2013 09:13	1.00	0.00600	0.20	18.6
810862-006 Chromium, Hexavalent	ug/L	11/12/2013 09:23	1.00	0.00600	0.20	ND
810862-007 Chromium, Hexavalent	ug/L	11/12/2013 09:34	1.00	0.00600	0.20	ND
810862-008 Chromium, Hexavalent	ug/L	11/12/2013 13:29	10.0	0.0600	2.0	35.9

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.

810862-009	Chromium, Hexavalent	ug/L	11/12/2013 13:17	5.00	0.0300	1.0	11.0
810862-010	Chromium, Hexavalent	ug/L	11/12/2013 10:28	1.00	0.00600	0.20	ND
810862-011	Chromium, Hexavalent	ug/L	11/12/2013 10:36	1.00	0.00600	0.20	ND
810862-012	Chromium, Hexavalent	ug/L	11/12/2013 10:47	1.00	0.00600	0.20	ND
810862-013	Chromium, Hexavalent	ug/L	11/12/2013 10:57	1.00	0.00600	0.20	ND
810862-014	Chromium, Hexavalent	ug/L	11/12/2013 11:07	1.00	0.00600	0.20	ND
810862-015	Chromium, Hexavalent	ug/L	11/12/2013 11:18	1.00	0.00600	0.20	8.2
810862-016	Chromium, Hexavalent	ug/L	11/13/2013 08:24	1.00	0.00600	0.20	ND
810862-017	Chromium, Hexavalent	ug/L	11/12/2013 11:39	1.00	0.00600	0.20	ND
810862-018	Chromium, Hexavalent	ug/L	11/12/2013 11:49	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 810862-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.6	10.7	1.04	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	98.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.2	90 - 110

Matrix Spike — Lab ID = 810862-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.6	34.5(25.0)	92.5	90 - 110

Matrix Spike — Lab ID = 810862-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.7	34.7(25.0)	92.1	90 - 110

Matrix Spike — Lab ID = 810862-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	24.3	25.7(15.0)	90.7	90 - 110

Matrix Spike — Lab ID = 810862-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	25.4	26.8(15.0)	90.4	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.

Matrix Spike — Lab ID = 810862-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	36.7	38.6(20.0)	90.5	90 - 110

Matrix Spike — Lab ID = 810862-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	100	90 - 110

Matrix Spike — Lab ID = 810862-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.995	1.00(1.00)	99.5	90 - 110

Matrix Spike — Lab ID = 810862-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	82.4	85.9(50.0)	93.0	90 - 110

Matrix Spike — Lab ID = 810862-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.6	36.0(25.0)	94.5	90 - 110

Matrix Spike — Lab ID = 810862-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.963	1.00(1.00)	96.3	90 - 110

Matrix Spike — Lab ID = 810862-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.945	1.00(1.00)	94.5	90 - 110

Matrix Spike — Lab ID = 810862-012

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

Matrix Spike — Lab ID = 810862-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110

Matrix Spike — Lab ID = 810862-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.02(1.00)	98.7	90 - 110

Matrix Spike — Lab ID = 810862-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.5	18.2(10.0)	92.8	90 - 110

Matrix Spike — Lab ID = 810862-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110

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.

Matrix Spike — Lab ID = 810862-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.995	1.00(1.00)	99.5	90 - 110

Matrix Spike — Lab ID = 810862-018

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.85	10.0	98.5	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.85	10.0	98.5	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.80	10.0	98.0	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.83	10.0	98.3	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.90	10.0	99.0	95 - 105

MRCVS - Primary

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

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.01

Metals by EPA 6020A, Dissolved

Batch 111413B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810862-001 Chromium	ug/L	11/14/2013 19:27	2.00	0.142	1.0	9.4
810862-002 Chromium	ug/L	11/14/2013 20:03	2.00	0.142	1.0	9.4
810862-003 Chromium	ug/L	11/14/2013 20:09	2.00	0.142	1.0	10.3
810862-004 Chromium	ug/L	11/14/2013 20:15	2.00	0.142	1.0	11.6
810862-005 Chromium	ug/L	11/14/2013 20:21	2.00	0.142	1.0	17.5
810862-009 Chromium	ug/L	11/14/2013 20:33	2.00	0.142	1.0	11.2
810862-010 Chromium	ug/L	11/14/2013 20:39	2.00	0.142	1.0	ND
810862-011 Chromium	ug/L	11/14/2013 20:45	2.00	0.142	1.0	ND
810862-012 Chromium	ug/L	11/14/2013 20:52	2.00	0.142	1.0	ND
810862-013 Chromium	ug/L	11/14/2013 20:58	2.00	0.142	1.0	ND
810862-014 Chromium	ug/L	11/14/2013 21:16	2.00	0.142	1.0	ND
810862-015 Chromium	ug/L	11/14/2013 21:22	2.00	0.142	1.0	8.1
810862-016 Chromium	ug/L	11/14/2013 21:28	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 810862-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	9.70	9.36	3.63	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.215	0.200	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.7	50.0	93.4	85 - 115

Matrix Spike — Lab ID = 810862-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	56.7	59.4(50.0)	94.8	75 - 125

Matrix Spike Duplicate — Lab ID = 810862-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	54.4	59.4(50.0)	90.0	75 - 125

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.

Metals by EPA 6020A, Dissolved

Batch 111513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810862-008 Chromium	ug/L	11/15/2013 19:36	2.00	0.142	1.0	34.9

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 810862-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	9.73	9.74	0.0924	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.6	50.0	95.1	85 - 115

Matrix Spike — Lab ID = 810862-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	56.1	59.7(50.0)	92.7	75 - 125

Matrix Spike Duplicate — Lab ID = 810862-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	55.5	59.7(50.0)	91.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.1	90 - 110

MRCVS - Primary

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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.01 Printed 11/20/2013

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.3	80 - 120

Serial Dilution Lab ID = 810862-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	36.1	34.9	3.29	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

810862

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 5

Rec'd 11/12/13 810862

	Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly				
	Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C				
	Filtered:	Field	Field	Field	Field				
	Holding Time:	28	28	180	180				
		Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium			Number of Containers	COMMENTS
	DATE TIME Matrix								
	MW-49-365-194-EB 11/7/2013 8:06 Water	X		X				2	
1	MW-57-185-194 11/7/2013 11:08 Water	X		X				2	pH2
2	MW-97-194 11/7/2013 7:35 Water	X		X				2	6020A
3	MW-15-194 11/11/2013 12:50 Water	X		X				2	
4	MW-17-194 11/11/2013 11:24 Water	X		X				2	
5	MW-18-194 11/11/2013 10:22 Water	X		X				2	
6	MW-209-194 11/11/2013 7:05 Water	X						1	
7	MW-210-194 11/11/2013 7:00 Water	X						1	
8	MW-23-060-194 11/11/2013 15:02 Water	X		X				2	
9	MW-23-080-194 11/11/2013 16:25 Water	X		X				2	pH<2
10	MW-36-020-194 11/11/2013 15:27 Water	X		X				2	6020A
11	MW-36-040-194 11/11/2013 11:45 Water	X		X				2	
12	MW-36-050-194 11/11/2013 10:09 Water	X		X				2	
13	MW-36-070-194 11/11/2013 14:20 Water		X		X			4	

Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		11-12-13 1600
Relinquished by	Shawn Ngo	11-12-13 1600
Received by	Shawn Ngo	11-12-13 200
Relinquished by	Rachel Boal	11/12/13 2005
Received by		

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

ATTN: Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

810862

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 5

Rec'd 11/12/13 810862

				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field			
				Holding Time:	28	28	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
14	MW-36-090-194	11/11/2013	13:05	Water	X		X			2	10H-2
15	MW-40S-194	11/11/2013	9:04	Water	X		X			2	6020A
16	MW-95-194	11/11/2013	7:25	Water	X		X			2	
17	MW-211-194	11/12/2013	6:35	Water	X					1	
18	MW-212-194	11/12/2013	6:30	Water	X					1	
									TOTAL NUMBER OF CONTAINERS	153	

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		11-12-13 1600
Relinquished by		11-12-13 1600
Received by		11-12-13 200
Relinquished by		11/12/13 2005
Received by		

Shipping Details

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

ATTN:

Sample Custody

Special Instructions:

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
11/13/13	810860-12	9.5	N/A	N/A	N/A	FCM
	810861-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	810862-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					

FCM 11/18

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
810823(1-2)	>1	<2	11/14/13	ES	Yes			
810838	<1							
810841								
810846								
810847								
810857		>2			NO	11:00		
810869		<2						
810870								
810872								
810879								
810891 (1-3)		>2			NO	11:00		
810892 (1-4)								
810893 (1-2,4)								
810896		<2						
810902-1→3	<1	<2 ~~>2~~ DC	11/14/13	DC	NO			
810861 (1-6,10-11)	<1	<2	11/14/13	ES	Yes			
810862 (1-5,8-16)		ES 11/15/13						
810915	<1	~~>2~~ >2 11/15/13	11/15/13	ES	NO	2:00		
810916		ES ~~>2~~ <2			Yes			
810926	<1	<2						
810928								
810912 (1-7)	<1	<2	11/18/13	ES	Yes			
810939-1,2	>1	<2	11/19/13	DC	Yes			
810943	<1							
810944	<1							
810948	>1							
810957	<1	<2	11/19/13	DC	Yes			
810963-1,2,4	<1	>2	11/19/13	DC	NO	15:30		
810958	<1	<2			Yes			
810959								
810960								
810961								
810962								
810970								
810971	<1	<2	11/20/13	ES	Yes			
810972								
810937(4,5)	TTLC							
810964(1,3-4	<1	>2			NO	10:00		

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

TRUESDAIL LABORATORIES, INC.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 810862

Date Delivered: 11/12/13 **Time:** 20:01 **By:** ☐Mail ☐Field Service ☒Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☒No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☒No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.8°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see l.p.c ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

December 3, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2013-GMP-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810913

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 November 14, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810913
Date Received: November 14, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810913-001	MW-23-060-194	SM4500NH3D	NONE	11/11/2013	15:02	Ammonia-N	ND	mg/L	0.500
810913-002	MW-23-080-194	SM4500NH3D	NONE	11/11/2013	16:25	Ammonia-N	ND	mg/L	0.500
810913-003	MW-36-020-194	SM4500NH3D	NONE	11/11/2013	15:27	Ammonia-N	1.09	mg/L	0.500
810913-004	MW-36-040-194	SM4500NH3D	NONE	11/11/2013	11:45	Ammonia-N	0.913	mg/L	0.500
810913-005	MW-36-050-194	SM4500NH3D	NONE	11/11/2013	10:09	Ammonia-N	ND	mg/L	0.500
810913-006	MW-36-070-194	SM4500NH3D	NONE	11/11/2013	14:20	Ammonia-N	ND	mg/L	0.500
810913-007	MW-36-090-194	SM4500NH3D	NONE	11/11/2013	13:05	Ammonia-N	ND	mg/L	0.500
810913-008	MW-95-194	SM4500NH3D	NONE	11/11/2013	7:25	Ammonia-N	1.15	mg/L	0.500
810913-009	MW-35-060-194	SM4500NH3D	NONE	11/12/2013	14:04	Ammonia-N	ND	mg/L	0.500
810913-010	MW-35-135-194	SM4500NH3D	NONE	11/12/2013	14:52	Ammonia-N	ND	mg/L	0.500
810913-011	MW-39-050-194	SM4500NH3D	NONE	11/12/2013	14:02	Ammonia-N	ND	mg/L	0.500
810913-012	MW-39-060-194	SM4500NH3D	NONE	11/12/2013	14:57	Ammonia-N	ND	mg/L	0.500
810913-013	MW-39-070-194	SM4500NH3D	NONE	11/12/2013	9:35	Ammonia-N	ND	mg/L	0.500
810913-014	MW-39-080-194	SM4500NH3D	NONE	11/12/2013	13:20	Ammonia-N	ND	mg/L	0.500
810913-015	MW-47-055-194	SM4500NH3D	NONE	11/12/2013	10:56	Ammonia-N	ND	mg/L	0.500
810913-016	MW-47-115-194	SM4500NH3D	NONE	11/12/2013	12:10	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810913

Printed 12/3/2013

Samples Received on 11/14/2013 3:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-23-060-194	810913-001	11/11/2013 15:02	Water
MW-23-080-194	810913-002	11/11/2013 16:25	Water
MW-36-020-194	810913-003	11/11/2013 15:27	Water
MW-36-040-194	810913-004	11/11/2013 11:45	Water
MW-36-050-194	810913-005	11/11/2013 10:09	Water
MW-36-070-194	810913-006	11/11/2013 14:20	Water
MW-36-090-194	810913-007	11/11/2013 13:05	Water
MW-95-194	810913-008	11/11/2013 07:25	Water
MW-35-060-194	810913-009	11/12/2013 14:04	Water
MW-35-135-194	810913-010	11/12/2013 14:52	Water
MW-39-050-194	810913-011	11/12/2013 14:02	Water
MW-39-060-194	810913-012	11/12/2013 14:57	Water
MW-39-070-194	810913-013	11/12/2013 09:35	Water
MW-39-080-194	810913-014	11/12/2013 13:20	Water
MW-47-055-194	810913-015	11/12/2013 10:56	Water
MW-47-115-194	810913-016	11/12/2013 12:10	Water

Ammonia Nitrogen by SM4500-NH3D

Batch 11NH313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810913-001 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810913-002 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810913-003 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	1.09
810913-004 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	0.913
810913-005 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810913-006 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810913-007 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	ND
810913-008 Ammonia as N	mg/L	11/22/2013	1.00	0.0318	0.500	1.15

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.01 Printed 12/3/2013

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 810913-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.77	10.0	97.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.0	10.0	100	90 - 110

Matrix Spike — Lab ID = 810913-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	11.9	11.2(10.0)	108	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.31	6.00	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.21	6.00	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.56	6.00	109	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 3 of 4
Project Number: 423575.MP.02.GM.01 Printed 12/3/2013

Ammonia Nitrogen by SM4500-NH3D

Batch 11NH313D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810913-009 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND
810913-010 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND
810913-011 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND
810913-012 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND
810913-013 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND
810913-014 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND
810913-015 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND
810913-016 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 810913-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.30	10.0	93.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.02	10.0	90.2	90 - 110

Matrix Spike — Lab ID = 810913-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.77	10.0(10.0)	97.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.03	6.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.09	6.00	102	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.01

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

ALERT !!
Level IV QC

QC Level: Level IV

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: 810913

13-Nov-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
-1	N011442-004C / MW-23-060-194	Water	11/11/2013 3:02:00 PM	32OZP	1		
-2	N011442-005C / MW-23-080-194	Water	11/11/2013 4:25:00 PM	32OZP	1		
-3	N011442-006C / MW-36-020-194	Water	11/11/2013 3:27:00 PM	32OZP	1		
-4	N011442-007C / MW-36-040-194	Water	11/11/2013 11:45:00 AM	32OZP	1		
-5	N011442-008C / MW-36-050-194	Water	11/11/2013 10:09:00 AM	32OZP	1		
-6	N011442-009C / MW-36-070-194	Water	11/11/2013 2:20:00 PM	32OZP	1		
-7	N011442-010C / MW-36-090-194	Water	11/11/2013 1:05:00 PM	32OZP	1		
-8	N011442-012C / MW-95-194	Water	11/11/2013 7:25:00 AM	32OZP	1		
-9	N011442-013C / MW-35-060-194	Water	11/12/2013 2:04:00 PM	32OZP	1		
-10	N011442-014C / MW-35-135-194	Water	11/12/2013 2:52:00 PM	32OZP	1		
-11	N011442-016C / MW-39-050-194	Water	11/12/2013 2:02:00 PM	32OZP	1		
-12	N011442-017C / MW-39-060-194	Water	11/12/2013 2:57:00 PM	32OZP	1		
-13	N011442-018C / MW-39-070-194	Water	11/12/2013 9:35:00 AM	32OZP	1		
-14	N011442-019C / MW-39-080-194	Water	11/12/2013 1:20:00 PM	32OZP	1		
-15	N011442-020C / MW-47-055-194	Water	11/12/2013 10:56:00 AM	32OZP	1		
-16	N011442-021C / MW-47-115-194	Water	11/12/2013 12:10:00 PM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N011442 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Please analyze for Ammonia by SM 4500.Please send report to CH2M Hill. Please bill ATL Inc.

QSO# 523214535

		Date/Time			Date/Time
Relinquished by:	HERSEY SAYAS	13NOV13 1430		**Received by:**	Linda, TLI 11-14-13 15:00
Relinquished by:				**Received by:**	

024

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 810913

Date Delivered: 11 / 14 / 13 **Time:** 15:00 **By:** ☒ **Mail** ☐ **Field Service** ☐ **Client**

1. *Was a Chain of Custody received and signed?* ☒ Yes ☐ No ☐ N/A
2. *Does Customer require an acknowledgement of the COC?* ☐ Yes ☒ No ☐ N/A
3. *Are there any special requirements or notes on the COC?* ☐ Yes ☒ No ☐ N/A
4. *If a letter was sent with the COC, does it match the COC?* ☐ Yes ☐ No ☒ N/A
5. *Were all requested analyses understood and acceptable?* ☒ Yes ☐ No ☐ N/A
6. *Were samples received in a chilled condition?* ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.2 °C
7. *Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc.)?* ☒ Yes ☐ No ☐ N/A
8. *Were sample custody seals intact?* ☐ Yes ☐ No ☒ N/A
9. *Does the number of samples received agree with COC?* ☒ Yes ☐ No ☐ N/A
10. *Did sample labels correspond with the client ID's?* ☒ Yes ☐ No ☐ N/A
11. *Did sample labels indicate proper preservation?* ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☒ *Client*
12. *Were samples pH checked? pH =* _____ ☐ Yes ☐ No ☒ N/A
13. *Were all analyses within holding time at time of receipt?* ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. *Have Project due dates been checked and accepted?* ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ *Std*
15. ***Sample Matrix:*** ☐ *Liquid* ☐ *Drinking Water* ☐ *Ground Water* ☐ *Waste Water* ☐ *Sludge* ☐ *Soil* ☐ *Wipe* ☐ *Paint* ☐ *Solid* ☒ *Other* Water
16. *Comments:* _____
17. *Sample Check-In completed by* **Truesdail** *Log-In/Receiving:* [illegible]

ALERT !!
Level IV QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810951

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 November 19, 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

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

Laboratory No.: 810951
Date Received: November 19, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810951-001	MW-52D-194	SM4500NH3D	NONE	11/13/2013	8:58	Ammonia-N	ND	mg/L	0.500
810951-002	MW-52M-194	SM4500NH3D	NONE	11/13/2013	10:15	Ammonia-N	ND	mg/L	0.500
810951-003	MW-52S-194	SM4500NH3D	NONE	11/13/2013	11:28	Ammonia-N	1.12	mg/L	0.500
810951-004	MW-53D-194	SM4500NH3D	NONE	11/13/2013	13:44	Ammonia-N	ND	mg/L	0.500
810951-005	MW-53M-194	SM4500NH3D	NONE	11/13/2013	13:01	Ammonia-N	ND	mg/L	0.500
810951-006	MW-62-110-194	SM4500NH3D	NONE	11/13/2013	13:25	Ammonia-N	ND	mg/L	0.500
810951-007	MW-62-190-194	SM4500NH3D	NONE	11/13/2013	13:32	Ammonia-N	ND	mg/L	0.500
810951-008	MW-96-194	SM4500NH3D	NONE	11/13/2013	7:20	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810951

Printed 12/6/2013

Samples Received on 11/19/2013 8:30:00 AM

Field ID	Lab ID	Collected	Matrix
MW-52D-194	810951-001	11/13/2013 08:58	Water
MW-52M-194	810951-002	11/13/2013 10:15	Water
MW-52S-194	810951-003	11/13/2013 11:28	Water
MW-53D-194	810951-004	11/13/2013 13:44	Water
MW-53M-194	810951-005	11/13/2013 13:01	Water
MW-62-110-194	810951-006	11/13/2013 13:25	Water
MW-62-190-194	810951-007	11/13/2013 13:32	Water
MW-96-194	810951-008	11/13/2013 07:20	Water

Ammonia Nitrogen by SM4500-NH3D

Batch 11NH313D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810951-001 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND
810951-002 Ammonia as N	mg/L	11/27/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate

Lab ID = 810913-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.30	10.0	93.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.02	10.0	90.2	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 3 of 3
Project Number: 423575.MP.02.GM.01 Printed 12/6/2013

Ammonia Nitrogen by SM4500-NH3D

Batch 12NH313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810951-003 Ammonia as N	mg/L	12/04/2013	1.00	0.0318	0.500	1.12
810951-004 Ammonia as N	mg/L	12/04/2013	1.00	0.0318	0.500	ND
810951-005 Ammonia as N	mg/L	12/04/2013	1.00	0.0318	0.500	ND
810951-006 Ammonia as N	mg/L	12/04/2013	1.00	0.0318	0.500	ND
810951-007 Ammonia as N	mg/L	12/04/2013	1.00	0.0318	0.500	ND
810951-008 Ammonia as N	mg/L	12/04/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 810951-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.15	10.0	91.5	90 - 110

Matrix Spike — Lab ID = 810951-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.9	11.1(10.0)	98.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.81	6.00	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.09	6.00	102	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

810951

CHAIN-OF-CUSTODY RECORD

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

QC Level: Level IV

ALERT !!
Level IV QC

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

15-Nov-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
1	N011471-003C / MW-52D-194	Water	11/13/2013 8:58:00 AM	32OZP	1		
2	N011471-004C / MW-52M-194	Water	11/13/2013 10:15:00 AM	32OZP	1		
3	N011471-005C / MW-52S-194	Water	11/13/2013 11:28:00 AM	32OZP	1		
4	N011471-006C / MW-53D-194	Water	11/13/2013 1:44:00 PM	32OZP	1		
5	N011471-007C / MW-53M-194	Water	11/13/2013 1:01:00 PM	32OZP	1		
6	N011471-008C / MW-62-110-194	Water	11/13/2013 1:25:00 PM	32OZP	1		
7	N011471-009C / MW-62-190-194	Water	11/13/2013 1:32:00 PM	32OZP	1		
8	N011471-010C / MW-96-194	Water	11/13/2013 7:20:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N011471 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by: Normal TAT

Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

GSO # 523247703

		Date/Time			Date/Time
Relinquished by:	Hanah Glodoviza	11/18/2013 17:00	**Received by:**	Linda, TLI, 11-19-13	08:30
Relinquished by:			**Received by:**		

021

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 810951

Date Delivered: 11 / 19 / 13 **Time:** 08:30 **By:** ☑ Mail ☐ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☑ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☑ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☐ Yes ☐ No ☑ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. Were samples pH checked? pH = _____ ☐ Yes ☐ No ☑ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
    ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT!! Level IV QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

November 27, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810985

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 November 19, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810985
Date Received: November 19, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810985-001	MW-38D-194	E218.6	FLDFLT	11/13/2013	12:36	Chromium, Hexavalent	9.1	ug/L	1.0
810985-001	MW-38D-194	SW6020	FLDFLT	11/13/2013	12:36	Chromium	10.2	ug/L	1.0
810985-002	MW-52D-194	E218.6	FLDFLT	11/13/2013	8:58	Chromium, Hexavalent	ND	ug/L	1.0
810985-002	MW-52D-194	SW6020	FLDFLT	11/13/2013	8:58	Chromium	ND	ug/L	1.0
810985-003	MW-52M-194	E218.6	FLDFLT	11/13/2013	10:15	Chromium, Hexavalent	ND	ug/L	1.0
810985-003	MW-52M-194	SW6020	FLDFLT	11/13/2013	10:15	Chromium	ND	ug/L	1.0
810985-004	MW-52S-194	E218.6	FLDFLT	11/13/2013	11:28	Chromium, Hexavalent	ND	ug/L	0.20
810985-004	MW-52S-194	SW6020	FLDFLT	11/13/2013	11:28	Chromium	ND	ug/L	1.0
810985-005	MW-53D-194	E218.6	FLDFLT	11/13/2013	13:44	Chromium, Hexavalent	ND	ug/L	1.0
810985-005	MW-53D-194	SW6020	FLDFLT	11/13/2013	13:44	Chromium	ND	ug/L	1.0
810985-006	MW-53M-194	E218.6	FLDFLT	11/13/2013	13:01	Chromium, Hexavalent	ND	ug/L	1.0
810985-006	MW-53M-194	SW6020	FLDFLT	11/13/2013	13:01	Chromium	ND	ug/L	1.0
810985-007	MW-62-110-194	E218.6	FLDFLT	11/13/2013	13:25	Chromium, Hexavalent	910	ug/L	10.0
810985-007	MW-62-110-194	SW6020	FLDFLT	11/13/2013	13:25	Chromium	1040	ug/L	4.0
810985-008	MW-62-190-194	E218.6	FLDFLT	11/13/2013	13:32	Chromium, Hexavalent	ND	ug/L	1.0
810985-008	MW-62-190-194	SW6020	FLDFLT	11/13/2013	13:32	Chromium	ND	ug/L	1.0
810985-009	MW-96-194	E218.6	FLDFLT	11/13/2013	7:20	Chromium, Hexavalent	ND	ug/L	1.0
810985-009	MW-96-194	SW6020	FLDFLT	11/13/2013	7:20	Chromium	ND	ug/L	1.0
810985-010	OW-03M-194	E218.6	FLDFLT	11/13/2013	9:02	Chromium, Hexavalent	15.0	ug/L	1.0
810985-010	OW-03M-194	SW6020	FLDFLT	11/13/2013	9:02	Chromium	14.0	ug/L	1.0
810985-011	OW-03S-194	E218.6	FLDFLT	11/13/2013	9:24	Chromium, Hexavalent	22.3	ug/L	0.20
810985-011	OW-03S-194	SW6020	FLDFLT	11/13/2013	9:24	Chromium	22.5	ug/L	1.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810985-012	MW-22-194	E218.6	FLDFLT	11/14/2013	8:42	Chromium, Hexavalent	ND	ug/L	1.0
810985-012	MW-22-194	SW6020	FLDFLT	11/14/2013	8:42	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.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810985

Printed 11/27/2013

Samples Received on 11/19/2013 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-38D-194	810985-001	11/13/2013 12:36	Water
MW-52D-194	810985-002	11/13/2013 08:58	Water
MW-52M-194	810985-003	11/13/2013 10:15	Water
MW-52S-194	810985-004	11/13/2013 11:28	Water
MW-53D-194	810985-005	11/13/2013 13:44	Water
MW-53M-194	810985-006	11/13/2013 13:01	Water
MW-62-110-194	810985-007	11/13/2013 13:25	Water
MW-62-190-194	810985-008	11/13/2013 13:32	Water
MW-96-194	810985-009	11/13/2013 07:20	Water
OW-03M-194	810985-010	11/13/2013 09:02	Water
OW-03S-194	810985-011	11/13/2013 09:24	Water
MW-22-194	810985-012	11/14/2013 08:42	Water

Chrome VI by EPA 218.6 Batch 11CrH13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810985-001 Chromium, Hexavalent	ug/L	11/19/2013 12:08	5.00	0.0300	1.0	9.1
810985-002 Chromium, Hexavalent	ug/L	11/19/2013 12:41	5.00	0.0300	1.0	ND
810985-003 Chromium, Hexavalent	ug/L	11/19/2013 15:59	5.00	0.0300	1.0	ND
810985-004 Chromium, Hexavalent	ug/L	11/19/2013 08:48	1.00	0.00600	0.20	ND
810985-005 Chromium, Hexavalent	ug/L	11/19/2013 16:09	5.00	0.0300	1.0	ND
810985-006 Chromium, Hexavalent	ug/L	11/19/2013 16:20	5.00	0.0300	1.0	ND
810985-007 Chromium, Hexavalent	ug/L	11/19/2013 10:34	50.0	0.300	10.0	910
810985-008 Chromium, Hexavalent	ug/L	11/19/2013 16:30	5.00	0.0300	1.0	ND
810985-009 Chromium, Hexavalent	ug/L	11/19/2013 16:40	5.00	0.0300	1.0	ND
810985-010 Chromium, Hexavalent	ug/L	11/19/2013 13:22	5.00	0.0300	1.0	15.0
810985-011 Chromium, Hexavalent	ug/L	11/19/2013 11:06	1.00	0.00600	0.20	22.3
810985-012 Chromium, Hexavalent	ug/L	11/19/2013 10:34	5.00	0.0300	1.0	ND

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

Method Blank

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

Duplicate — Lab ID = 810985-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	22.5	22.3	0.886	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.9	90 - 110

Matrix Spike — Lab ID = 810985-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	33.4	34.1(25.0)	97.2	90 - 110

Matrix Spike — Lab ID = 810985-002

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

Matrix Spike — Lab ID = 810985-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.64	5.00(5.00)	92.8	90 - 110

Matrix Spike — Lab ID = 810985-003

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

Matrix Spike — Lab ID = 810985-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.74	5.00(5.00)	94.8	90 - 110

Matrix Spike — Lab ID = 810985-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.932	1.00(1.00)	93.2	90 - 110

Matrix Spike — Lab ID = 810985-005

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

Matrix Spike — Lab ID = 810985-005

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

Matrix Spike — Lab ID = 810985-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.67	5.00(5.00)	93.3	90 - 110

Matrix Spike — Lab ID = 810985-006

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

Matrix Spike — Lab ID = 810985-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1870	1910(1000)	96.2	90 - 110

Matrix Spike — Lab ID = 810985-008

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

Matrix Spike — Lab ID = 810985-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.55	5.00(5.00)	91.0	90 - 110

Matrix Spike — Lab ID = 810985-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.80	5.00(5.00)	95.9	90 - 110

Matrix Spike — Lab ID = 810985-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.948	1.00(1.00)	94.8	90 - 110

Matrix Spike — Lab ID = 810985-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	38.0	40.0(25.0)	91.9	90 - 110

Matrix Spike — Lab ID = 810985-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	47.6	47.3(25.0)	101	90 - 110

Matrix Spike — Lab ID = 810985-012

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

Matrix Spike — Lab ID = 810985-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.67	5.00(5.00)	93.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.4	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.01 Printed 11/27/2013

Metals by EPA 6020A, Dissolved

Batch 112013B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810985-001 Chromium	ug/L	11/20/2013 16:21	2.00	0.142	1.0	10.2
810985-002 Chromium	ug/L	11/20/2013 16:57	2.00	0.142	1.0	ND
810985-003 Chromium	ug/L	11/20/2013 17:09	2.00	0.142	1.0	ND
810985-004 Chromium	ug/L	11/20/2013 17:15	2.00	0.142	1.0	ND
810985-005 Chromium	ug/L	11/20/2013 17:21	2.00	0.142	1.0	ND
810985-006 Chromium	ug/L	11/20/2013 17:27	2.00	0.142	1.0	ND
810985-007 Chromium	ug/L	11/20/2013 18:22	20.0	1.42	4.0	1040
810985-008 Chromium	ug/L	11/20/2013 17:39	2.00	0.142	1.0	ND
810985-009 Chromium	ug/L	11/20/2013 17:45	2.00	0.142	1.0	ND
810985-010 Chromium	ug/L	11/20/2013 17:51	2.00	0.142	1.0	14.0
810985-011 Chromium	ug/L	11/20/2013 18:10	2.00	0.142	1.0	22.5
810985-012 Chromium	ug/L	11/20/2013 18:16	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 810985-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	9.85	10.2	3.52	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.177	0.200	88.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.4	50.0	101	85 - 115

Matrix Spike — Lab ID = 810985-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	58.3	60.2(50.0)	96.2	75 - 125

Matrix Spike Duplicate — Lab ID = 810985-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	59.8	60.2(50.0)	99.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	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.01 Printed 11/27/2013

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.5	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.5	20.0	107	80 - 120

Serial Dilution Lab ID = 810985-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	1070	1040	2.55	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

810985

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/19/2013
COC Number: 12

				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly		
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C		
				Filtered:	Field	Field	Field	Field		
				Holding Time:	28	28	180	180		
		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
1	MW-38D-194	11/13/2013	12:36	Water	X		X			2	
2	MW-52D-194	11/13/2013	8:58	Water		X		X		4	
3	MW-52M-194	11/13/2013	10:15	Water		X		X		4	
4	MW-52S-194	11/13/2013	11:28	Water		X		X		4	
5	MW-53D-194	11/13/2013	13:44	Water		X		X		4	PH=7
6	MW-53M-194	11/13/2013	13:01	Water		X		X		4	6020
7	MW-62-110-194	11/13/2013	13:25	Water	X		X			2	
8	MW-62-190-194	11/13/2013	13:32	Water	X		X			2	
9	MW-96-194	11/13/2013	7:20	Water		X		X		4	
10	OW-03M-194	11/13/2013	9:02	Water	X		X			2	
11	OW-03S-194	11/13/2013	9:24	Water	X		X			2	
12	MW-22-194	11/14/2013	8:42	Water	X		X			2	
									TOTAL NUMBER OF CONTAINERS	63	

Rec'd 11/19/13
S5a 810985

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		11-19-13 1510
Sampled by		
Relinquished by		11-19-13 1510
Received by		
Relinquished by		11-19-13 1940
Received by		11/19/13 1940

Shipping Details

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

ATTN:
Sample Custody

Special Instructions:

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
11/20/13	810984	7.00	2ml/100ml	9.5	7:30	NE
	810985-1	9.5	N/A	N/A	N/A	
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	810986-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
11/20/13	810969	9.5	N/A	N/A	N/A	NE
11/21/13	811005-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					

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

11/26/13

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
810823(1-2)	>1	<2	11/14/13	ES	Yes			
810838	<1							
810841								
810846								
810847								
810857		>2			NO	11:00		
810869		<2						
810870								
810872								
810879								
810891 (1-3)		>2			NO	11:00		
810892 (1-4)								
810893 (1-2,4)								
810896		<2						
810902-1→3	<1	<2 ~~>2~~ DC	11/14/13	DC	NO			
810861 (1-6,10-11)	<1	<2	11/14/13	ES	Yes			
810862 (1-5,8-16)		ES 11/15/13						
810915	<1	~~>2~~ >2 11/15	11/15/13	ES	NO	2:00		
810916		ES ~~>2~~ <2			Yes			
810926	<1	<2						
810928								
810912 (1-7)	<1	<2	11/18/13	ES	Yes			
810939-1,2	>1	<2	11/19/13	DC	Yes			
810943	<1							
810944	<1							
810948	>1							
810957	<1	<2	11/19/13	DC	Yes			
810963-1,2,4	<1	>2	11/19/13	DC	NO	15:30		
810958	<1	<2			Yes			
810959								
810960								
810961								
810962								
810970								
810971	<1	<2	11/20/13	ES	Yes			
810972								
810937(4,5)	TTLC							
810985 (1,3-4) 11/20/13	<1	>2			NO	10:00		
810985 (1-12)	<1	<2	11/20/13	ES	Yes			
810986 (1-11)								
810950	<1	<2	11/21/13	ES	Yes			
810984		>2				11:00		pH <2
811005 (1-3,6-12,14-15)		<2						
811016 (1-3)								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 810985

Date Delivered: 11 / 19 / 13 **Time:** 14:40 **By:** ☐ Mail ☐ Field Service ☑ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☑ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☑ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 2.3 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☑ **Truesdail** ☐ Client
12. Were samples pH checked? pH = See C.O.C ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !! Level III QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 3, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2013-GMP-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 810986

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 November 19, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for - Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 810986
Date Received: November 19, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810986-001	MW-35-060-194	E218.6	FLDFLT	11/12/2013	14:04	Chromium, Hexavalent	20.5	ug/L	0.20
810986-001	MW-35-060-194	SW6020	FLDFLT	11/12/2013	14:04	Chromium	17.2	ug/L	1.0
810986-002	MW-35-135-194	E218.6	FLDFLT	11/12/2013	14:52	Chromium, Hexavalent	29.9	ug/L	1.0
810986-002	MW-35-135-194	SW6020	FLDFLT	11/12/2013	14:52	Chromium	27.5	ug/L	1.0
810986-003	MW-39-040-194	E218.6	FLDFLT	11/12/2013	10:50	Chromium, Hexavalent	ND	ug/L	0.20
810986-003	MW-39-040-194	SW6020	FLDFLT	11/12/2013	10:50	Chromium	ND	ug/L	1.0
810986-004	MW-39-050-194	E218.6	FLDFLT	11/12/2013	14:02	Chromium, Hexavalent	ND	ug/L	0.20
810986-004	MW-39-050-194	SW6020	FLDFLT	11/12/2013	14:02	Chromium	ND	ug/L	1.0
810986-005	MW-39-060-194	E218.6	FLDFLT	11/12/2013	14:57	Chromium, Hexavalent	ND	ug/L	0.20
810986-005	MW-39-060-194	SW6020	FLDFLT	11/12/2013	14:57	Chromium	ND	ug/L	1.0
810986-006	MW-39-070-194	E218.6	FLDFLT	11/12/2013	9:35	Chromium, Hexavalent	ND	ug/L	0.20
810986-006	MW-39-070-194	SW6020	FLDFLT	11/12/2013	9:35	Chromium	ND	ug/L	1.0
810986-007	MW-39-080-194	E218.6	FLDFLT	11/12/2013	13:20	Chromium, Hexavalent	ND	ug/L	0.20
810986-007	MW-39-080-194	SW6020	FLDFLT	11/12/2013	13:20	Chromium	ND	ug/L	1.0
810986-008	MW-47-055-194	E218.6	FLDFLT	11/12/2013	10:56	Chromium, Hexavalent	17.2	ug/L	0.20
810986-008	MW-47-055-194	SW6020	FLDFLT	11/12/2013	10:56	Chromium	16.4	ug/L	5.0
810986-009	MW-47-115-194	E218.6	FLDFLT	11/12/2013	12:10	Chromium, Hexavalent	17.4	ug/L	1.0
810986-009	MW-47-115-194	SW6020	FLDFLT	11/12/2013	12:10	Chromium	14.3	ug/L	1.0
810986-010	TW-04-194	E218.6	FLDFLT	11/12/2013	10:22	Chromium, Hexavalent	7.4	ug/L	1.0
810986-010	TW-04-194	SW6020	FLDFLT	11/12/2013	10:22	Chromium	6.5	ug/L	1.0
810986-011	MW-13-194	E218.6	FLDFLT	11/13/2013	11:17	Chromium, Hexavalent	19.4	ug/L	0.20
810986-011	MW-13-194	SW6020	FLDFLT	11/13/2013	11:17	Chromium	16.9	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810986-012	MW-213-194	E218.6	FLDFLT	11/13/2013	6:37	Chromium, Hexavalent	ND	ug/L	0.20
810986-013	MW-214-194	E218.6	FLDFLT	11/13/2013	6:39	Chromium, Hexavalent	ND	ug/L	0.20
810986-014	MW-215-194	E218.6	FLDFLT	11/13/2013	13:45	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 810986

Printed 12/3/2013

Samples Received on 11/19/2013 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-35-060-194	810986-001	11/12/2013 14:04	Water
MW-35-135-194	810986-002	11/12/2013 14:52	Water
MW-39-040-194	810986-003	11/12/2013 10:50	Water
MW-39-050-194	810986-004	11/12/2013 14:02	Water
MW-39-060-194	810986-005	11/12/2013 14:57	Water
MW-39-070-194	810986-006	11/12/2013 09:35	Water
MW-39-080-194	810986-007	11/12/2013 13:20	Water
MW-47-055-194	810986-008	11/12/2013 10:56	Water
MW-47-115-194	810986-009	11/12/2013 12:10	Water
TW-04-194	810986-010	11/12/2013 10:22	Water
MW-13-194	810986-011	11/13/2013 11:17	Water
MW-213-194	810986-012	11/13/2013 06:37	Water
MW-214-194	810986-013	11/13/2013 06:39	Water
MW-215-194	810986-014	11/13/2013 13:45	Water

Chrome VI by EPA 218.6

Batch 11CrH13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810986-001 Chromium, Hexavalent	ug/L	11/20/2013 11:42	1.00	0.00600	0.20	20.5
810986-002 Chromium, Hexavalent	ug/L	11/20/2013 14:38	5.00	0.0300	1.0	29.9
810986-003 Chromium, Hexavalent	ug/L	11/20/2013 12:02	1.00	0.00600	0.20	ND
810986-004 Chromium, Hexavalent	ug/L	11/20/2013 12:13	1.00	0.00600	0.20	ND
810986-005 Chromium, Hexavalent	ug/L	11/20/2013 12:23	1.00	0.00600	0.20	ND
810986-006 Chromium, Hexavalent	ug/L	11/20/2013 12:34	1.00	0.00600	0.20	ND
810986-007 Chromium, Hexavalent	ug/L	11/20/2013 12:44	1.00	0.00600	0.20	ND
810986-008 Chromium, Hexavalent	ug/L	11/20/2013 13:15	1.00	0.00600	0.20	17.2
810986-009 Chromium, Hexavalent	ug/L	11/20/2013 15:20	5.00	0.0300	1.0	17.4
810986-010 Chromium, Hexavalent	ug/L	11/20/2013 15:30	5.00	0.0300	1.0	7.4
810986-011 Chromium, Hexavalent	ug/L	11/20/2013 13:46	1.00	0.00600	0.20	19.4

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.

810986-012 Chromium, Hexavalent	ug/L	11/20/2013 13:57	1.00	0.00600	0.20	ND
810986-013 Chromium, Hexavalent	ug/L	11/20/2013 14:07	1.00	0.00600	0.20	ND
810986-014 Chromium, Hexavalent	ug/L	11/20/2013 14:18	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 810986-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	20.4	20.5	0.688	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	98.0	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 810984-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.12(1.00)	103	90 - 110

Matrix Spike — Lab ID = 810986-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	43.4	45.5(25.0)	91.6	90 - 110

Matrix Spike — Lab ID = 810986-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	78.5	79.9(50.0)	97.1	90 - 110

Matrix Spike — Lab ID = 810986-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.00(1.00)	99.3	90 - 110

Matrix Spike — Lab ID = 810986-004

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

Matrix Spike — Lab ID = 810986-005

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

Matrix Spike — Lab ID = 810986-006

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

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.

Matrix Spike — Lab ID = 810986-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.09(1.00)	102	90 - 110

Matrix Spike — Lab ID = 810986-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	36.1	37.2(20.0)	94.7	90 - 110

Matrix Spike — Lab ID = 810986-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	42.5	42.5(25.0)	100	90 - 110

Matrix Spike — Lab ID = 810986-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.7	32.9(25.0)	95.3	90 - 110

Matrix Spike — Lab ID = 810986-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	38.1	39.4(20.0)	93.4	90 - 110

Matrix Spike — Lab ID = 810986-012

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

Matrix Spike — Lab ID = 810986-013

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

Matrix Spike — Lab ID = 810986-014

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

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.93	10.0	99.3	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	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

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.

Metals by EPA 6020A, Dissolved

Batch 112113A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810986-001 Chromium	ug/L	11/21/2013 13:22	2.00	0.142	1.0	17.2
810986-002 Chromium	ug/L	11/21/2013 13:58	2.00	0.142	1.0	27.5
810986-003 Chromium	ug/L	11/21/2013 14:04	2.00	0.142	1.0	ND
810986-004 Chromium	ug/L	11/21/2013 14:10	2.00	0.142	1.0	ND
810986-005 Chromium	ug/L	11/21/2013 14:16	2.00	0.142	1.0	ND
810986-006 Chromium	ug/L	11/21/2013 14:22	2.00	0.142	1.0	ND
810986-007 Chromium	ug/L	11/21/2013 14:28	2.00	0.142	1.0	ND
810986-008 Chromium	ug/L	11/21/2013 15:49	10.0	0.710	5.0	16.4
810986-009 Chromium	ug/L	11/21/2013 14:40	2.00	0.142	1.0	14.3
810986-010 Chromium	ug/L	11/21/2013 14:46	2.00	0.142	1.0	6.5
810986-011 Chromium	ug/L	11/21/2013 15:55	10.0	0.710	5.0	16.9

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 810986-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	18.4	17.2	7.03	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.448	0.500	89.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.6	50.0	103	85 - 115

Matrix Spike — Lab ID = 810986-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	63.5	67.2(50.0)	92.7	75 - 125

Matrix Spike Duplicate — Lab ID = 810986-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	63.6	67.2(50.0)	92.7	75 - 125

MRCCS - Secondary

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

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.7	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.3	80 - 120

Interference Check Standard AB

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

Serial Dilution — Lab ID = 810986-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	25.3	27.5	8.17	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

For Mona Nassimi
Manager, Analytical Services

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

810986

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/19/2013
COC Number: 12

Rec'd 11/19/13 810986

ALERT !! Level III QC

		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
	Container:				250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly			
	Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
	Filtered:				Field	Field	Field	Field			
	Holding Time:				28	28	180	180			
1	MW-35-060-194	11/12/2013	14:04	Water	X		X			2	
2	MW-35-135-194	11/12/2013	14:52	Water	X		X			2	
3	MW-39-040-194	11/12/2013	10:50	Water		X		X		4	
4	MW-39-050-194	11/12/2013	14:02	Water	X		X			2	
5	MW-39-060-194	11/12/2013	14:57	Water	X		X			2	
6	MW-39-070-194	11/12/2013	9:35	Water	X		X			2	pH-2
7	MW-39-080-194	11/12/2013	13:20	Water	X		X			2	6020A
8	MW-47-055-194	11/12/2013	10:56	Water	X		X			2	
9	MW-47-115-194	11/12/2013	12:10	Water	X		X			2	
10	TW-04-194	11/12/2013	10:22	Water	X		X			2	
11	MW-13-194	11/13/2013	11:17	Water	X		X			2	
12	MW-213-194	11/13/2013	6:37	Water	X					1	
13	MW-214-194	11/13/2013	6:39	Water	X					1	
14	MW-215-194	11/13/2013	13:45	Water	X					1	

	Signatures	Date/Time
Approved by		11-19-13
Sampled by		1510
Relinquished by		11-19-13
Received by		1510
Relinquished by		11-19-13 1940
Received by		11/19/13 1940

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

ATTN:
Sample Custody

Special Instructions:

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
11/20/13	810984	7.00	2ml/100ml	9.5	7:30	NE
	810985-1	9.5	N/A	N/A	N/A	
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	810986-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
11/20/13	810969	9.5	N/A	N/A	N/A	NE
11/21/13	811005-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					

NE
11/21/13

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
810823(1-2)	>1	<2	11/14/13	ES	Yes			
810838	<1	↓	↓	↓	↓			
810841	↓	↓	↓	↓	↓			
810846	↓	↓	↓	↓	↓			
810847	↓	↓	↓	↓	↓			
810857	↓	>2	↓	↓	NO	11:00		
810869	↓	<2	↓	↓	↓			
810870	↓	↓	↓	↓	↓			
810872	↓	↓	↓	↓	↓			
810879	↓	↓	↓	↓	↓			
810891 (1-3)	↓	>2	↓	↓	NO	11:00		
810892 (1-4)	↓	↓	↓	↓	↓	↓		
810893 (1-2,4)	↓	↓	↓	↓	↓	↓		
810896	↓	<2	↓	↓	↓			
810902-1→3	<1	<2 ~~>2~~ DC	11/14/13	DC	NO			
810861 (1-6,10-11)	<1	<2	11/14/13	ES	Yes			
810862 (1-5,8-16)	↓	↓ ES 11/15/13	↓	↓	↓			
810915	<1	~~>2~~ ~~ES 11/15/13~~ >2	11/15/13	ES	NO	2:00		
810916	↓	~~ES 11/15/13~~ <2	↓	↓	Yes			
810926	<1	<2	↓	↓	↓			
810928	↓	↓	↓	↓	↓			
810912 (1-7)	<1	<2	11/18/13	ES	Yes			
810939-1,2	>1	<2	11/19/13	DC	Yes			
810943	<1	↓	↓	↓	↓			
810944	<1	↓	↓	↓	↓			
810948	>1	↓	↓	↓	↓			
810957	<1	<2	11/19/13	DC	Yes			
810963-1,2,4	<1	>2	11/19/13	DC	NO	15:30		
810958	<1	<2	↓	↓	Yes			
810959	↓	↓	↓	↓	↓			
810960	↓	↓	↓	↓	↓			
810961	↓	↓	↓	↓	↓			
810962	↓	↓	↓	↓	↓			
810970	↓	↓	↓	↓	↓			
810971	<1	<2	11/20/13	ES	Yes			
810972	↓	↓	↓	↓	↓			
810937(4,5)	TTLC		↓	↓	↓			
810985-1,3-4 11/20/13	<1	>2	↓	↓	NO	10:00		
810985 (1-12)	<1	<2	11/20/13	ES	Yes			
810986 (1-11)	↓	↓	↓	↓	↓			
810950	<1	<2	11/21/13	ES	Yes			
810984	↓	>2	↓	↓	↓	11:00		pH <2
811005 (1-3,6-12,14-15)	↓	<2	↓	↓	↓			
811016 (1-3)	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 810986

Date Delivered: 11 / 19 / 13 **Time:** 19:40 **By:** ☐ Mail ☐ Field Service ☑ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☑ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☑ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 2.3 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☑ **Truesdail** ☐ Client
12. Were samples pH checked? pH = See c.o.e ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments:
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT!! Level III QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 4, 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-193, SURFACEWATER MONITORING PROJECT, TLI NO.: 811005

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-RMP-193 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 November 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.

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

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

Event 2013-RMP-193 Cr by SW 6020, Surfacewater Samples

Samples field filtered unless otherwise noted

Revision 1; December 5, 2013

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
C-BNS-D-193	2.00	No			
C-I-3-D-193	2.00	No			
C-I-3-S-193	2.00	No			
C-R22A-D-193	2.00	No			
C-R22A-S-193	2.00	No			
C-R27-D-193	2.00	No			
C-R27-S-193	2.00	No			
C-TAZ-D-193	2.00	No			
C-TAZ-S-193	2.00	No			
R63-193	2.00	No			
SW1-193	2.00	No			
SW2-193	2.00	No			

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

Event 2013-RMP-193 Cr (VI) by EPA 218.6, Surfacewater Samples

Samples field filtered unless otherwise noted

Revision 1; December 5, 2013

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-BNS-D-193	9.50	No			
C-I-3-D-193	9.50	No			
C-I-3-S-193	9.50	No			
C-MW-80-193	9.50	No			
C-MW-81-193	9.50	No			
C-R22A-D-193	9.50	No			
C-R22A-S-193	9.50	No			
C-R27-D-193	9.50	No			
C-R27-S-193	9.50	No			
C-TAZ-D-193	9.50	No			
C-TAZ-S-193	9.50	No			
R63-193	9.50	No			
RMP-AB1-193	9.50	No			
SW1-193	9.50	No			
SW2-193	9.50	No			

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 811005
Date Received: November 20, 2013
Revision 1; December 5, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811005-001	C-BNS-D-193	E120.1	NONE	11/20/2013	13:18	EC	830	umhos/cm	2.00
811005-001	C-BNS-D-193	E218.6	FLDFLT	11/20/2013	13:18	Chromium, Hexavalent	ND	ug/L	0.20
811005-001	C-BNS-D-193	SM2320B	NONE	11/20/2013	13:18	Alkalinity	125	mg/L	5.00
811005-001	C-BNS-D-193	SM2320B	NONE	11/20/2013	13:18	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
811005-001	C-BNS-D-193	SM2320B	NONE	11/20/2013	13:18	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-001	C-BNS-D-193	SM2540D	NONE	11/20/2013	13:18	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-001	C-BNS-D-193	SM4500HB	NONE	11/20/2013	13:18	PH	8.22 J	pH	4.00
811005-001	C-BNS-D-193	SW6010B	FLDFLT	11/20/2013	13:18	Iron	ND	ug/L	20.0
811005-001	C-BNS-D-193	SW6010B	NONE	11/20/2013	13:18	Iron	34.9	ug/L	20.0
811005-001	C-BNS-D-193	SW6020	FLDFLT	11/20/2013	13:18	Arsenic	2.5	ug/L	0.50
811005-001	C-BNS-D-193	SW6020	FLDFLT	11/20/2013	13:18	Barium	92.7	ug/L	5.0
811005-001	C-BNS-D-193	SW6020	FLDFLT	11/20/2013	13:18	Chromium	ND	ug/L	1.0
811005-001	C-BNS-D-193	SW6020	FLDFLT	11/20/2013	13:18	Manganese	1.5	ug/L	0.50
811005-001	C-BNS-D-193	SW6020	FLDFLT	11/20/2013	13:18	Molybdenum	3.5	ug/L	2.0
811005-001	C-BNS-D-193	SW6020	FLDFLT	11/20/2013	13:18	Selenium	ND	ug/L	5.0
811005-002	C-I-3-D-193	E120.1	NONE	11/20/2013	11:05	EC	826	umhos/cm	2.00
811005-002	C-I-3-D-193	E218.6	FLDFLT	11/20/2013	11:05	Chromium, Hexavalent	ND	ug/L	0.20
811005-002	C-I-3-D-193	SM2320B	NONE	11/20/2013	11:05	Alkalinity	127	mg/L	5.00
811005-002	C-I-3-D-193	SM2320B	NONE	11/20/2013	11:05	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
811005-002	C-I-3-D-193	SM2320B	NONE	11/20/2013	11:05	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-002	C-I-3-D-193	SM2540D	NONE	11/20/2013	11:05	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-002	C-I-3-D-193	SM4500HB	NONE	11/20/2013	11:05	PH	8.26 J	pH	4.00
811005-002	C-I-3-D-193	SW6010B	FLDFLT	11/20/2013	11:05	Iron	ND	ug/L	20.0
811005-002	C-I-3-D-193	SW6010B	NONE	11/20/2013	11:05	Iron	29.5	ug/L	20.0
811005-002	C-I-3-D-193	SW6020	FLDFLT	11/20/2013	11:05	Arsenic	2.6	ug/L	0.50
811005-002	C-I-3-D-193	SW6020	FLDFLT	11/20/2013	11:05	Barium	90.3	ug/L	5.0
811005-002	C-I-3-D-193	SW6020	FLDFLT	11/20/2013	11:05	Chromium	ND	ug/L	1.0
811005-002	C-I-3-D-193	SW6020	FLDFLT	11/20/2013	11:05	Manganese	0.86	ug/L	0.50
811005-002	C-I-3-D-193	SW6020	FLDFLT	11/20/2013	11:05	Molybdenum	3.5	ug/L	2.0
811005-002	C-I-3-D-193	SW6020	FLDFLT	11/20/2013	11:05	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811005-003	C-I-3-S-193	E120.1	NONE	11/20/2013	11:27	EC	827	umhos/cm	2.00
811005-003	C-I-3-S-193	E218.6	FLDFLT	11/20/2013	11:27	Chromium, Hexavalent	ND	ug/L	0.20
811005-003	C-I-3-S-193	SM2320B	NONE	11/20/2013	11:27	Alkalinity	129	mg/L	5.00
811005-003	C-I-3-S-193	SM2320B	NONE	11/20/2013	11:27	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
811005-003	C-I-3-S-193	SM2320B	NONE	11/20/2013	11:27	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-003	C-I-3-S-193	SM2540D	NONE	11/20/2013	11:27	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-003	C-I-3-S-193	SM4500HB	NONE	11/20/2013	11:27	PH	8.15 J	pH	4.00
811005-003	C-I-3-S-193	SW6010B	FLDFLT	11/20/2013	11:27	Iron	ND	ug/L	20.0
811005-003	C-I-3-S-193	SW6010B	NONE	11/20/2013	11:27	Iron	ND	ug/L	20.0
811005-003	C-I-3-S-193	SW6020	FLDFLT	11/20/2013	11:27	Arsenic	2.4	ug/L	0.50
811005-003	C-I-3-S-193	SW6020	FLDFLT	11/20/2013	11:27	Barium	88.5	ug/L	5.0
811005-003	C-I-3-S-193	SW6020	FLDFLT	11/20/2013	11:27	Chromium	ND	ug/L	1.0
811005-003	C-I-3-S-193	SW6020	FLDFLT	11/20/2013	11:27	Manganese	0.88	ug/L	0.50
811005-003	C-I-3-S-193	SW6020	FLDFLT	11/20/2013	11:27	Molybdenum	3.3	ug/L	2.0
811005-003	C-I-3-S-193	SW6020	FLDFLT	11/20/2013	11:27	Selenium	ND	ug/L	5.0
811005-004	C-MW-80-193	E218.6	NONE	11/20/2013	12:15	Chromium, Hexavalent	ND	ug/L	0.20
811005-005	C-MW-81-193	E218.6	NONE	11/20/2013	13:05	Chromium, Hexavalent	ND	ug/L	0.20
811005-006	C-R22A-D-193	E120.1	NONE	11/20/2013	12:24	EC	827	umhos/cm	2.00
811005-006	C-R22A-D-193	E218.6	FLDFLT	11/20/2013	12:24	Chromium, Hexavalent	ND	ug/L	0.20
811005-006	C-R22A-D-193	SM2320B	NONE	11/20/2013	12:24	Alkalinity	128	mg/L	5.00
811005-006	C-R22A-D-193	SM2320B	NONE	11/20/2013	12:24	Alkalinity, Bicarbonate (As CaCO3)	128	mg/L	5.00
811005-006	C-R22A-D-193	SM2320B	NONE	11/20/2013	12:24	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-006	C-R22A-D-193	SM2540D	NONE	11/20/2013	12:24	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-006	C-R22A-D-193	SM4500HB	NONE	11/20/2013	12:24	PH	8.23 J	pH	4.00
811005-006	C-R22A-D-193	SW6010B	FLDFLT	11/20/2013	12:24	Iron	ND	ug/L	20.0
811005-006	C-R22A-D-193	SW6010B	NONE	11/20/2013	12:24	Iron	47.7	ug/L	20.0
811005-006	C-R22A-D-193	SW6020	FLDFLT	11/20/2013	12:24	Arsenic	2.4	ug/L	0.50
811005-006	C-R22A-D-193	SW6020	FLDFLT	11/20/2013	12:24	Barium	91.2	ug/L	5.0
811005-006	C-R22A-D-193	SW6020	FLDFLT	11/20/2013	12:24	Chromium	ND	ug/L	1.0
811005-006	C-R22A-D-193	SW6020	FLDFLT	11/20/2013	12:24	Manganese	3.9	ug/L	0.50
811005-006	C-R22A-D-193	SW6020	FLDFLT	11/20/2013	12:24	Molybdenum	3.5	ug/L	2.0
811005-006	C-R22A-D-193	SW6020	FLDFLT	11/20/2013	12:24	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811005-007	C-R22A-S-193	E120.1	NONE	11/20/2013	12:45	EC	828	umhos/cm	2.00
811005-007	C-R22A-S-193	E218.6	FLDFLT	11/20/2013	12:45	Chromium, Hexavalent	ND	ug/L	0.20
811005-007	C-R22A-S-193	SM2320B	NONE	11/20/2013	12:45	Alkalinity	131	mg/L	5.00
811005-007	C-R22A-S-193	SM2320B	NONE	11/20/2013	12:45	Alkalinity, Bicarbonate (As CaCO3)	131	mg/L	5.00
811005-007	C-R22A-S-193	SM2320B	NONE	11/20/2013	12:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-007	C-R22A-S-193	SM2540D	NONE	11/20/2013	12:45	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-007	C-R22A-S-193	SM4500HB	NONE	11/20/2013	12:45	PH	8.22 J	pH	4.00
811005-007	C-R22A-S-193	SW6010B	FLDFLT	11/20/2013	12:45	Iron	ND	ug/L	20.0
811005-007	C-R22A-S-193	SW6010B	NONE	11/20/2013	12:45	Iron	76.4	ug/L	20.0
811005-007	C-R22A-S-193	SW6020	FLDFLT	11/20/2013	12:45	Arsenic	2.5	ug/L	0.50
811005-007	C-R22A-S-193	SW6020	FLDFLT	11/20/2013	12:45	Barium	93.8	ug/L	5.0
811005-007	C-R22A-S-193	SW6020	FLDFLT	11/20/2013	12:45	Chromium	ND	ug/L	1.0
811005-007	C-R22A-S-193	SW6020	FLDFLT	11/20/2013	12:45	Manganese	4.5	ug/L	0.50
811005-007	C-R22A-S-193	SW6020	FLDFLT	11/20/2013	12:45	Molybdenum	3.5	ug/L	2.0
811005-007	C-R22A-S-193	SW6020	FLDFLT	11/20/2013	12:45	Selenium	ND	ug/L	5.0
811005-008	C-R27-D-193	E120.1	NONE	11/20/2013	13:47	EC	835	umhos/cm	2.00
811005-008	C-R27-D-193	E218.6	FLDFLT	11/20/2013	13:47	Chromium, Hexavalent	ND	ug/L	0.20
811005-008	C-R27-D-193	SM2320B	NONE	11/20/2013	13:47	Alkalinity	127	mg/L	5.00
811005-008	C-R27-D-193	SM2320B	NONE	11/20/2013	13:47	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
811005-008	C-R27-D-193	SM2320B	NONE	11/20/2013	13:47	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-008	C-R27-D-193	SM2540D	NONE	11/20/2013	13:47	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-008	C-R27-D-193	SM4500HB	NONE	11/20/2013	13:47	PH	8.18 J	pH	4.00
811005-008	C-R27-D-193	SW6010B	FLDFLT	11/20/2013	13:47	Iron	ND	ug/L	20.0
811005-008	C-R27-D-193	SW6010B	NONE	11/20/2013	13:47	Iron	55.5	ug/L	20.0
811005-008	C-R27-D-193	SW6020	FLDFLT	11/20/2013	13:47	Arsenic	2.5	ug/L	0.50
811005-008	C-R27-D-193	SW6020	FLDFLT	11/20/2013	13:47	Barium	92.1	ug/L	5.0
811005-008	C-R27-D-193	SW6020	FLDFLT	11/20/2013	13:47	Chromium	ND	ug/L	1.0
811005-008	C-R27-D-193	SW6020	FLDFLT	11/20/2013	13:47	Manganese	3.8	ug/L	0.50
811005-008	C-R27-D-193	SW6020	FLDFLT	11/20/2013	13:47	Molybdenum	3.5	ug/L	2.0
811005-008	C-R27-D-193	SW6020	FLDFLT	11/20/2013	13:47	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811005-009	C-R27-S-193	E120.1	NONE	11/20/2013	14:09	EC	827	umhos/cm	2.00
811005-009	C-R27-S-193	E218.6	FLDFLT	11/20/2013	14:09	Chromium, Hexavalent	ND	ug/L	0.20
811005-009	C-R27-S-193	SM2320B	NONE	11/20/2013	14:09	Alkalinity	130	mg/L	5.00
811005-009	C-R27-S-193	SM2320B	NONE	11/20/2013	14:09	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
811005-009	C-R27-S-193	SM2320B	NONE	11/20/2013	14:09	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-009	C-R27-S-193	SM2540D	NONE	11/20/2013	14:09	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-009	C-R27-S-193	SM4500HB	NONE	11/20/2013	14:09	PH	8.11 J	pH	4.00
811005-009	C-R27-S-193	SW6010B	FLDFLT	11/20/2013	14:09	Iron	ND	ug/L	20.0
811005-009	C-R27-S-193	SW6010B	NONE	11/20/2013	14:09	Iron	42.2	ug/L	20.0
811005-009	C-R27-S-193	SW6020	FLDFLT	11/20/2013	14:09	Arsenic	2.6	ug/L	0.50
811005-009	C-R27-S-193	SW6020	FLDFLT	11/20/2013	14:09	Barium	91.7	ug/L	5.0
811005-009	C-R27-S-193	SW6020	FLDFLT	11/20/2013	14:09	Chromium	ND	ug/L	1.0
811005-009	C-R27-S-193	SW6020	FLDFLT	11/20/2013	14:09	Manganese	3.5	ug/L	0.50
811005-009	C-R27-S-193	SW6020	FLDFLT	11/20/2013	14:09	Molybdenum	3.5	ug/L	2.0
811005-009	C-R27-S-193	SW6020	FLDFLT	11/20/2013	14:09	Selenium	ND	ug/L	5
811005-010	C-TAZ-D-193	E120.1	NONE	11/20/2013	10:02	EC	817	umhos/cm	2.00
811005-010	C-TAZ-D-193	E218.6	FLDFLT	11/20/2013	10:02	Chromium, Hexavalent	ND	ug/L	0.20
811005-010	C-TAZ-D-193	SM2320B	NONE	11/20/2013	10:02	Alkalinity	129	mg/L	5.00
811005-010	C-TAZ-D-193	SM2320B	NONE	11/20/2013	10:02	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
811005-010	C-TAZ-D-193	SM2320B	NONE	11/20/2013	10:02	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-010	C-TAZ-D-193	SM2540D	NONE	11/20/2013	10:02	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-010	C-TAZ-D-193	SM4500HB	NONE	11/20/2013	10:02	PH	8.26 J	pH	4.00
811005-010	C-TAZ-D-193	SW6010B	FLDFLT	11/20/2013	10:02	Iron	ND	ug/L	20.0
811005-010	C-TAZ-D-193	SW6010B	NONE	11/20/2013	10:02	Iron	21.8	ug/L	20.0
811005-010	C-TAZ-D-193	SW6020	FLDFLT	11/20/2013	10:02	Arsenic	2.5	ug/L	0.50
811005-010	C-TAZ-D-193	SW6020	FLDFLT	11/20/2013	10:02	Barium	89.8	ug/L	5.0
811005-010	C-TAZ-D-193	SW6020	FLDFLT	11/20/2013	10:02	Chromium	ND	ug/L	1.0
811005-010	C-TAZ-D-193	SW6020	FLDFLT	11/20/2013	10:02	Manganese	1.4	ug/L	0.50
811005-010	C-TAZ-D-193	SW6020	FLDFLT	11/20/2013	10:02	Molybdenum	3.4	ug/L	2.0
811005-010	C-TAZ-D-193	SW6020	FLDFLT	11/20/2013	10:02	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811005-011	C-TAZ-S-193	E120.1	NONE	11/20/2013	10:27	EC	829	umhos/cm	2.00
811005-011	C-TAZ-S-193	E218.6	FLDFLT	11/20/2013	10:27	Chromium, Hexavalent	ND	ug/L	0.20
811005-011	C-TAZ-S-193	SM2320B	NONE	11/20/2013	10:27	Alkalinity	128	mg/L	5.00
811005-011	C-TAZ-S-193	SM2320B	NONE	11/20/2013	10:27	Alkalinity, Bicarbonate (As CaCO3)	128	mg/L	5.00
811005-011	C-TAZ-S-193	SM2320B	NONE	11/20/2013	10:27	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-011	C-TAZ-S-193	SM2540D	NONE	11/20/2013	10:27	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811005-011	C-TAZ-S-193	SM4500HB	NONE	11/20/2013	10:27	PH	8.29 J	pH	4.00
811005-011	C-TAZ-S-193	SW6010B	FLDFLT	11/20/2013	10:27	Iron	21.0	ug/L	20.0
811005-011	C-TAZ-S-193	SW6010B	NONE	11/20/2013	10:27	Iron	30.0	ug/L	20.0
811005-011	C-TAZ-S-193	SW6020	FLDFLT	11/20/2013	10:27	Arsenic	2.5	ug/L	0.50
811005-011	C-TAZ-S-193	SW6020	FLDFLT	11/20/2013	10:27	Barium	89.8	ug/L	5.0
811005-011	C-TAZ-S-193	SW6020	FLDFLT	11/20/2013	10:27	Chromium	ND	ug/L	1.0
811005-011	C-TAZ-S-193	SW6020	FLDFLT	11/20/2013	10:27	Manganese	1.6	ug/L	0.50
811005-011	C-TAZ-S-193	SW6020	FLDFLT	11/20/2013	10:27	Molybdenum	3.4	ug/L	2.0
811005-011	C-TAZ-S-193	SW6020	FLDFLT	11/20/2013	10:27	Selenium	ND	ug/L	5.0
811005-012	R63-193	E120.1	NONE	11/20/2013	11:55	EC	828	umhos/cm	2.00
811005-012	R63-193	E218.6	FLDFLT	11/20/2013	11:55	Chromium, Hexavalent	ND	ug/L	0.20
811005-012	R63-193	SM2320B	NONE	11/20/2013	11:55	Alkalinity	130	mg/L	5.00
811005-012	R63-193	SM2320B	NONE	11/20/2013	11:55	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
811005-012	R63-193	SM2320B	NONE	11/20/2013	11:55	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811005-012	R63-193	SM2540D	NONE	11/20/2013	11:55	Suspended Solids (Residue, Non-Filterable)	4.43	mg/L	4.00
811005-012	R63-193	SM4500HB	NONE	11/20/2013	11:55	PH	8.26 J	pH	4.00
811005-012	R63-193	SW6010B	FLDFLT	11/20/2013	11:55	Iron	ND	ug/L	20.0
811005-012	R63-193	SW6010B	NONE	11/20/2013	11:55	Iron	110	ug/L	20.0
811005-012	R63-193	SW6020	FLDFLT	11/20/2013	11:55	Arsenic	2.5	ug/L	0.50
811005-012	R63-193	SW6020	FLDFLT	11/20/2013	11:55	Barium	90.8	ug/L	5.0
811005-012	R63-193	SW6020	FLDFLT	11/20/2013	11:55	Chromium	ND	ug/L	1.0
811005-012	R63-193	SW6020	FLDFLT	11/20/2013	11:55	Manganese	7.0	ug/L	0.50
811005-012	R63-193	SW6020	FLDFLT	11/20/2013	11:55	Molybdenum	3.4	ug/L	2.0
811005-012	R63-193	SW6020	FLDFLT	11/20/2013	11:55	Selenium	ND	ug/L	5.0
811005-013	RMP-AB1-193	E218.6	NONE	11/20/2013	14:35	Chromium, Hexavalent	ND	ug/L	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.

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811005-014	SW1-193	E120.1	NONE	11/20/2013	7:48	EC	838	umhos/cm	2.00
811005-014	SW1-193	E218.6	FLDFLT	11/20/2013	7:48	Chromium, Hexavalent	ND	ug/L	0.20
811005-014	SW1-193	SM4500HB	NONE	11/20/2013	7:48	PH	7.63 J	pH	4.00
811005-014	SW1-193	SW6020	FLDFLT	11/20/2013	7:48	Chromium	ND	ug/L	1.0
811005-015	SW2-193	E120.1	NONE	11/20/2013	8:12	EC	850	umhos/cm	2.00
811005-015	SW2-193	E218.6	FLDFLT	11/20/2013	8:12	Chromium, Hexavalent	ND	ug/L	0.20
811005-015	SW2-193	SM4500HB	NONE	11/20/2013	8:12	PH	7.44 J	pH	4.00
811005-015	SW2-193	SW6020	FLDFLT	11/20/2013	8:12	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM
P.O. Number: 423575.MP.02.RM
Release Number:

Laboratory No. 811005

Printed 12/5/2013
Revised

Samples Received on 11/20/2013 8:10:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-193	811005-001	11/20/2013 13:18	Water
C-I-3-D-193	811005-002	11/20/2013 11:05	Water
C-I-3-S-193	811005-003	11/20/2013 11:27	Water
C-MW-80-193	811005-004	11/20/2013 12:15	Water
C-MW-81-193	811005-005	11/20/2013 13:05	Water
C-R22A-D-193	811005-006	11/20/2013 12:24	Water
C-R22A-S-193	811005-007	11/20/2013 12:45	Water
C-R27-D-193	811005-008	11/20/2013 13:47	Water
C-R27-S-193	811005-009	11/20/2013 14:09	Water
C-TAZ-D-193	811005-010	11/20/2013 10:02	Water
C-TAZ-S-193	811005-011	11/20/2013 10:27	Water
R63-193	811005-012	11/20/2013 11:55	Water
RMP-AB1-193	811005-013	11/20/2013 14:35	Water
SW1-193	811005-014	11/20/2013 07:48	Water
SW2-193	811005-015	11/20/2013 08:12	Water

Alkalinity by SM 2320B

Batch 12ALK13A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
811005-001	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	125
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	125
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-002	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	127
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	127
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-003	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	129
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	129
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-006	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	128

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.

811005-006	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	128
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-007	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	131
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	131
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-008	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	127
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	127
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-009	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	130
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	130
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-010	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	129
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	129
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-011	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	128
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	128
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811005-012	Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	130
	Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	130
	Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO3	mg/L	1.00	ND

Duplicate — Lab ID = 811005-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	130	130	0	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 Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	99.0	100	99.0	90 - 110

Matrix Spike — Lab ID = 811025-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	225	232(100)	93.0	125 - 125

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 Printed 12/4/2013

Specific Conductivity - EPA 120.1

Batch 11EC13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811005-001 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	830
811005-002 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	826
811005-003 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	827
811005-006 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	827
811005-007 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	828
811005-008 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	835
811005-009 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	827
811005-010 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	817
811005-011 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	829
811005-012 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	828
811005-014 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	838
811005-015 Specific Conductivity	umhos/cm	11/25/2013	1.00	0.606	2.00	850

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811005-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	827	827	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	702	706	99.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	698	706	98.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1050	1000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1080	1000	108	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.

Metals by EPA 6010B, Total

Batch 112113B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811005-001 Iron	ug/L	11/21/2013 20:26	1.00	3.00	20.0	34.9
811005-002 Iron	ug/L	11/21/2013 21:00	1.00	3.00	20.0	29.5
811005-003 Iron	ug/L	11/21/2013 21:24	1.00	3.00	20.0	ND
811005-006 Iron	ug/L	11/21/2013 21:31	1.00	3.00	20.0	47.7
811005-007 Iron	ug/L	11/21/2013 21:38	1.00	3.00	20.0	76.4
811005-008 Iron	ug/L	11/21/2013 21:45	1.00	3.00	20.0	55.5
811005-009 Iron	ug/L	11/21/2013 21:52	1.00	3.00	20.0	42.2
811005-010 Iron	ug/L	11/21/2013 21:58	1.00	3.00	20.0	21.8
811005-011 Iron	ug/L	11/21/2013 22:05	1.00	3.00	20.0	30.0
811005-012 Iron	ug/L	11/21/2013 22:12	1.00	3.00	20.0	110

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2080	2000	104	85 - 115

Matrix Spike — Lab ID = 811005-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2010	2030(2000)	98.6	75 - 125

Matrix Spike Duplicate — Lab ID = 811005-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2010	2030(2000)	98.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5290	5000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5020	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5060	5000	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 prior written authorization from Truesdail Laboratories.

Chrome VI by EPA 218.6

Batch 11CrH13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811005-001 Chromium, Hexavalent	ug/L	11/21/2013 11:31	1.00	0.00600	0.20	ND
811005-002 Chromium, Hexavalent	ug/L	11/21/2013 11:42	1.00	0.00600	0.20	ND
811005-003 Chromium, Hexavalent	ug/L	11/21/2013 11:52	1.00	0.00600	0.20	ND
811005-004 Chromium, Hexavalent	ug/L	11/21/2013 12:03	1.00	0.00600	0.20	ND
811005-005 Chromium, Hexavalent	ug/L	11/21/2013 12:13	1.00	0.00600	0.20	ND
811005-006 Chromium, Hexavalent	ug/L	11/21/2013 12:23	1.00	0.00600	0.20	ND
811005-007 Chromium, Hexavalent	ug/L	11/21/2013 12:34	1.00	0.00600	0.20	ND
811005-008 Chromium, Hexavalent	ug/L	11/21/2013 12:44	1.00	0.00600	0.20	ND
811005-009 Chromium, Hexavalent	ug/L	11/21/2013 13:16	1.00	0.00600	0.20	ND
811005-010 Chromium, Hexavalent	ug/L	11/21/2013 13:26	1.00	0.00600	0.20	ND
811005-011 Chromium, Hexavalent	ug/L	11/21/2013 13:38	1.00	0.00600	0.20	ND
811005-012 Chromium, Hexavalent	ug/L	11/21/2013 13:47	1.00	0.00600	0.20	ND
811005-013 Chromium, Hexavalent	ug/L	11/21/2013 13:57	1.00	0.00600	0.20	ND
811005-014 Chromium, Hexavalent	ug/L	11/21/2013 14:08	1.00	0.00600	0.20	ND
811005-015 Chromium, Hexavalent	ug/L	11/21/2013 14:18	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 811005-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0115	0.0118	2.58	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.0	90 - 110

Matrix Spike — Lab ID = 811005-001

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

Matrix Spike — Lab ID = 811005-002

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

Matrix Spike — Lab ID = 811005-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.01(1.00)	102	90 - 110

Matrix Spike — Lab ID = 811005-004

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

Matrix Spike — Lab ID = 811005-005

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

Matrix Spike — Lab ID = 811005-006

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

Matrix Spike — Lab ID = 811005-007

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

Matrix Spike — Lab ID = 811005-008

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

Matrix Spike — Lab ID = 811005-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.01(1.00)	99.2	90 - 110

Matrix Spike — Lab ID = 811005-010

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

Matrix Spike — Lab ID = 811005-011

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

Matrix Spike — Lab ID = 811005-012

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

Matrix Spike — Lab ID = 811005-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.00(1.00)	99.8	90 - 110

Matrix Spike — Lab ID = 811005-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.00(1.00)	99.8	90 - 110

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.

Matrix Spike Lab ID = 811005-015

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

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.99	10.0	99.9	95 - 105

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.98	10.0	99.8	95 - 105

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.

Metals by EPA 6020A, Dissolved Batch 112113B

Parameter		Unit	Analyzed	DF	MDL	RL	Result
811005-001	Arsenic	ug/L	11/21/2013 19:11	2.00	0.100	0.50	2.5
	Barium	ug/L	11/21/2013 19:11	2.00	0.594	5.0	92.7
	Chromium	ug/L	11/21/2013 19:11	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 19:11	2.00	0.120	0.50	1.5
	Molybdenum	ug/L	11/21/2013 19:11	2.00	0.100	2.0	3.5
	Selenium	ug/L	11/21/2013 19:11	2.00	0.424	5.0	ND
811005-002	Arsenic	ug/L	11/21/2013 19:47	2.00	0.100	0.50	2.6
	Barium	ug/L	11/21/2013 19:47	2.00	0.594	5.0	90.3
	Chromium	ug/L	11/21/2013 19:47	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 19:47	2.00	0.120	0.50	0.86
	Molybdenum	ug/L	11/21/2013 19:47	2.00	0.100	2.0	3.5
	Selenium	ug/L	11/21/2013 19:47	2.00	0.424	5.0	ND
811005-003	Arsenic	ug/L	11/21/2013 19:53	2.00	0.100	0.50	2.4
	Barium	ug/L	11/21/2013 19:53	2.00	0.594	5.0	88.5
	Chromium	ug/L	11/21/2013 19:53	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 19:53	2.00	0.120	0.50	0.88
	Molybdenum	ug/L	11/21/2013 19:53	2.00	0.100	2.0	3.3
	Selenium	ug/L	11/21/2013 19:53	2.00	0.424	5.0	ND
811005-006	Arsenic	ug/L	11/21/2013 19:59	2.00	0.100	0.50	2.4
	Barium	ug/L	11/21/2013 19:59	2.00	0.594	5.0	91.2
	Chromium	ug/L	11/21/2013 19:59	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 19:59	2.00	0.120	0.50	3.9
	Molybdenum	ug/L	11/21/2013 19:59	2.00	0.100	2.0	3.5
	Selenium	ug/L	11/21/2013 19:59	2.00	0.424	5.0	ND
811005-007	Arsenic	ug/L	11/21/2013 20:05	2.00	0.100	0.50	2.5
	Barium	ug/L	11/21/2013 20:05	2.00	0.594	5.0	93.8
	Chromium	ug/L	11/21/2013 20:05	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 20:05	2.00	0.120	0.50	4.5
	Molybdenum	ug/L	11/21/2013 20:05	2.00	0.100	2.0	3.5
	Selenium	ug/L	11/21/2013 20:05	2.00	0.424	5.0	ND
811005-008	Arsenic	ug/L	11/21/2013 20:11	2.00	0.100	0.50	2.5
	Barium	ug/L	11/21/2013 20:11	2.00	0.594	5.0	92.1
	Chromium	ug/L	11/21/2013 20:11	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 20:11	2.00	0.120	0.50	3.8

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.

811005-008	Molybdenum	ug/L	11/21/2013 20:11	2.00	0.100	2.0	3.5
	Selenium	ug/L	11/21/2013 20:11	2.00	0.424	5.0	ND
811005-009	Arsenic	ug/L	11/21/2013 20:17	2.00	0.100	0.50	2.6
	Barium	ug/L	11/21/2013 20:17	2.00	0.594	5.0	91.7
	Chromium	ug/L	11/21/2013 20:17	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 20:17	2.00	0.120	0.50	3.5
	Molybdenum	ug/L	11/21/2013 20:17	2.00	0.100	2.0	3.5
	Selenium	ug/L	11/21/2013 20:17	2.00	0.424	5.0	ND
811005-010	Arsenic	ug/L	11/21/2013 20:23	2.00	0.100	0.50	2.5
	Barium	ug/L	11/21/2013 20:23	2.00	0.594	5.0	89.8
	Chromium	ug/L	11/21/2013 20:23	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 20:23	2.00	0.120	0.50	1.4
	Molybdenum	ug/L	11/21/2013 20:23	2.00	0.100	2.0	3.4
	Selenium	ug/L	11/21/2013 20:23	2.00	0.424	5.0	ND
811005-011	Arsenic	ug/L	11/21/2013 20:29	2.00	0.100	0.50	2.5
	Barium	ug/L	11/21/2013 20:29	2.00	0.594	5.0	89.8
	Chromium	ug/L	11/21/2013 20:29	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 20:29	2.00	0.120	0.50	1.6
	Molybdenum	ug/L	11/21/2013 20:29	2.00	0.100	2.0	3.4
	Selenium	ug/L	11/21/2013 20:29	2.00	0.424	5.0	ND
811005-012	Arsenic	ug/L	11/21/2013 20:35	2.00	0.100	0.50	2.5
	Barium	ug/L	11/21/2013 20:35	2.00	0.594	5.0	90.8
	Chromium	ug/L	11/21/2013 20:35	2.00	0.142	1.0	ND
	Manganese	ug/L	11/21/2013 20:35	2.00	0.120	0.50	7.0
	Molybdenum	ug/L	11/21/2013 20:35	2.00	0.100	2.0	3.4
	Selenium	ug/L	11/21/2013 20:35	2.00	0.424	5.0	ND
811005-014	Chromium	ug/L	11/21/2013 20:41	2.00	0.142	1.0	ND
811005-015	Chromium	ug/L	11/21/2013 20:59	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	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

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

Duplicate — Lab ID = 811005-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.56	2.54	0.823	0 - 20
Barium	ug/L	2.00	92.6	92.7	0.0939	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	1.49	1.48	0.941	0 - 20
Molybdenum	ug/L	2.00	3.55	3.50	1.30	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.223	0.200	112	70 - 130
Barium	ug/L	1.00	1.92	2.00	96.0	70 - 130
Chromium	ug/L	1.00	0.213	0.200	106	70 - 130
Selenium	ug/L	1.00	1.99	2.00	99.5	70 - 130
Manganese	ug/L	1.00	0.220	0.200	110	70 - 130
Molybdenum	ug/L	1.00	0.216	0.200	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.5	50.0	101	85 - 115
Barium	ug/L	1.00	49.5	50.0	99.1	85 - 115
Chromium	ug/L	1.00	50.4	50.0	101	85 - 115
Selenium	ug/L	1.00	45.2	50.0	90.5	85 - 115
Manganese	ug/L	1.00	50.4	50.0	101	85 - 115
Molybdenum	ug/L	1.00	50.1	50.0	100	85 - 115

Matrix Spike — Lab ID = 811005-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.3	52.5(50.0)	99.5	75 - 125
Barium	ug/L	2.00	146	143(50.0)	107	75 - 125
Chromium	ug/L	2.00	47.9	50.0(50.0)	95.9	75 - 125
Selenium	ug/L	2.00	46.5	50.0(50.0)	93.0	75 - 125
Manganese	ug/L	2.00	50.4	51.5(50.0)	98.0	75 - 125
Molybdenum	ug/L	2.00	52.7	53.5(50.0)	98.5	75 - 125

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.

Matrix Spike Duplicate Lab ID = 811005-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.2	52.5(50.0)	99.3	75 - 125
Barium	ug/L	2.00	149	143(50.0)	113	75 - 125
Chromium	ug/L	2.00	47.5	50.0(50.0)	95.0	75 - 125
Selenium	ug/L	2.00	46.9	50.0(50.0)	93.8	75 - 125
Manganese	ug/L	2.00	49.0	51.5(50.0)	95.0	75 - 125
Molybdenum	ug/L	2.00	52.7	53.5(50.0)	98.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.0	20.0	100.	90 - 110
Barium	ug/L	1.00	19.8	20.0	99.2	90 - 110
Chromium	ug/L	1.00	19.6	20.0	97.9	90 - 110
Selenium	ug/L	1.00	20.2	20.0	101	90 - 110
Manganese	ug/L	1.00	19.8	20.0	99.0	90 - 110
Molybdenum	ug/L	1.00	20.3	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	98.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.4	20.0	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	21.0	20.0	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.4	20.0	97.2	90 - 110

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.4	80 - 120
Selenium	ug/L	1.00	ND	0		

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.6	80 - 120
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

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

Serial Dilution Lab ID = 811005-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	102	92.7	9.64	0 - 10

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

Metals by EPA 6010B, Dissolved

Batch 112113B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811005-001 Iron	ug/L	11/21/2013 17:55	1.00	3.00	20.0	ND
811005-002 Iron	ug/L	11/21/2013 18:40	1.00	3.00	20.0	ND
811005-003 Iron	ug/L	11/21/2013 18:47	1.00	3.00	20.0	ND
811005-006 Iron	ug/L	11/21/2013 18:54	1.00	3.00	20.0	ND
811005-007 Iron	ug/L	11/21/2013 19:01	1.00	3.00	20.0	ND
811005-008 Iron	ug/L	11/21/2013 19:07	1.00	3.00	20.0	ND
811005-009 Iron	ug/L	11/21/2013 19:14	1.00	3.00	20.0	ND
811005-010 Iron	ug/L	11/21/2013 19:21	1.00	3.00	20.0	ND
811005-011 Iron	ug/L	11/21/2013 19:28	1.00	3.00	20.0	21.0
811005-012 Iron	ug/L	11/21/2013 19:34	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 811005-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	55.6	50.0	111	85 - 115

Matrix Spike — Lab ID = 811005-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	53.9	50.0(50.0)	108	75 - 125

Matrix Spike Duplicate — Lab ID = 811005-001

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5290	5000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5000	5000	100	90 - 110

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

pH by SM 4500-H B

Batch 11PH13Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811005-001 pH	pH	11/21/2013 11:06	1.00	0.0784	4.00	8.22	J
811005-002 pH	pH	11/21/2013 11:08	1.00	0.0784	4.00	8.26	J
811005-003 pH	pH	11/21/2013 11:10	1.00	0.0784	4.00	8.15	J
811005-006 pH	pH	11/21/2013 11:12	1.00	0.0784	4.00	8.23	J
811005-007 pH	pH	11/21/2013 11:14	1.00	0.0784	4.00	8.22	J
811005-008 pH	pH	11/21/2013 11:16	1.00	0.0784	4.00	8.18	J
811005-009 pH	pH	11/21/2013 11:22	1.00	0.0784	4.00	8.11	J
811005-010 pH	pH	11/21/2013 11:24	1.00	0.0784	4.00	8.26	J
811005-011 pH	pH	11/21/2013 11:28	1.00	0.0784	4.00	8.29	J
811005-012 pH	pH	11/21/2013 11:30	1.00	0.0784	4.00	8.26	J
811005-014 pH	pH	11/21/2013 11:32	1.00	0.0784	4.00	7.63	J
811005-015 pH	pH	11/21/2013 11:34	1.00	0.0784	4.00	7.44	J

Method Blank

Parameter	Unit	DF	Result
pH	pH	1.00	ND

Duplicate — Lab ID = 811005-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.20	8.18	0.244	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.06	7.00	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 prior written authorization from Truesdail Laboratories.

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/4/2013

Total Suspended Solids by SM 2540 D

Batch 11TSS13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811005-001 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-002 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-003 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-006 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-007 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-008 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-009 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-010 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-011 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811005-012 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	4.43

Method Blank

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

Duplicate — Lab ID = 811027-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	325	298	8.67	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	91.0	100	91.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	94.0	100	94.0	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

TRUESDAIL LABORATORIES INC.

3 e2

Total Suspended Solids by SM 2540 D

Calculations

Batch: 11TSS13H

Date Analyzed: 11/25/13

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
1	BLK	1000	1.4133	1.4133	1.4133	0.0000	No	0.0000	0.0	2.5	ND
3	811005-1	700	1.4209	1.4213	1.4213	0.0000	No	0.0004	0.6	3.6	ND
4	811005-2	700	1.4174	1.4181	1.4181	0.0000	No	0.0007	1.0	3.6	ND
5	811005-3	700	1.4155	1.4159	1.4159	0.0000	No	0.0004	0.6	3.6	ND
6	811005-6	700	1.4253	1.4273	1.4273	0.0000	No	0.0020	2.9	3.6	ND
7	811005-7	700	1.4138	1.4152	1.4152	0.0000	No	0.0014	2.0	3.6	ND
8	811005-8	700	1.4192	1.4213	1.4213	0.0000	No	0.0021	3.0	3.6	ND
9	811005-9	700	1.4174	1.4188	1.4188	0.0000	No	0.0014	2.0	3.6	ND
10	811005-10	700	1.4211	1.4223	1.4223	0.0000	No	0.0012	1.7	3.6	ND
11	811005-11	700	1.4118	1.4129	1.4129	0.0000	No	0.0011	1.6	3.6	ND
12	811005-12	700	1.4176	1.4207	1.4207	0.0000	No	0.0031	4.4	3.6	4.43
13	811025-1	700	1.4186	1.4199	1.4199	0.0000	No	0.0013	1.9	3.6	ND
14	811025-2	700	1.4271	1.4283	1.4283	0.0000	No	0.0012	1.7	3.6	ND
15	811025-3	500	1.4220	1.4464	1.4464	0.0000	No	0.0244	48.8	5.0	48.8
16	811025-6	700	1.4157	1.4169	1.4169	0.0000	No	0.0012	1.7	3.6	ND
17	811025-7	700	1.4187	1.4195	1.4195	0.0000	No	0.0008	1.1	3.6	ND
18	811025-8	700	1.4170	1.4183	1.4183	0.0000	No	0.0013	1.9	3.6	ND
19	811025-9	700	1.4157	1.4171	1.4171	0.0000	No	0.0014	2.0	3.6	ND
20	811025-10	700	1.4182	1.4186	1.4186	0.0000	No	0.0004	0.6	3.6	ND
21	811027	100	1.4101	1.4399	1.4399	0.0000	No	0.0298	298.0	25.0	298.0
22	811028	200	1.4156	1.4212	1.4212	0.0000	No	0.0056	28.0	12.5	28.0
23	811027 D	100	1.4134	1.4459	1.4459	0.0000	No	0.0325	325.0	25.0	325.0
24	811028 D	200	1.4213	1.4273	1.4273	0.0000	No	0.0060	30.0	12.5	30.0
2	LCS	100	1.4263	1.4354	1.4354	0.0000	No	0.0091	91.0	25.0	91.0
29	LCSD	100	1.4275	1.4369	1.4369	0.0000	No	0.0094	94.0	25.0	94.0

Calculation as follows:

Non- Filterable residue (TSS), mg/L = $\left(\frac{A-B}{C}\right) x\ 1\ 0^6$

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	91	100	91.0%	90-110%	Yes
LCSD	94	100	94.0%	90-110%	Yes

LCS Recovery

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

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

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

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
811027	0.0298	0.0325	4.3%	5%	Yes
811028	0.0056	0.006	3.4%	5%	Yes

Himani
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

11TSS13H.xls

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Analytical Batch:	12ALK13A
Matrix:	WATER
Date of Analysis:	12/2/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	5.52	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
811005-1	8.18	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
811005-2	8.22	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
811005-3	8.23	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
811005-6	8.24	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
811005-7	8.26	50	0.02		0.0	6.55		131.0	5	131.0	131.0	ND	ND	
811005-8	8.23	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
811005-9	8.26	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
811005-10	8.26	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
811005-11	8.21	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
811005-12	8.24	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
811005-12 DUP	8.28	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
LCS	10.40	50	0.02	2.1	42.0	4.95		99.0	5	99.0	15.0	84	ND	
LCSD	10.38	50	0.02	2.1	41.0	4.95		99.0	5	99.0	17.0	82	ND	
811025-1	8.36	50	0.02	0.0	0.0	6.55		131.0	5	131.0	131.0	0	ND	
811025-2	8.28	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
811025-3	8.13	50	0.02		0.0	6.95		139.0	5	139.0	139.0	ND	ND	
811025-6	8.26	50	0.02		0.0	6.70		134.0	5	134.0	134.0	ND	ND	
811025-7	8.27	50	0.02		0.0	6.65		133.0	5	133.0	133.0	ND	ND	
811025-8	8.24	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
811025-9	8.23	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
811025-10	8.21	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
811025-11	8.22	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
811025-11 MS	9.47	50	0.02		0.0	11.25		225.0	5	225.0	225.0	0	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

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

Where:

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	99	100	99.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
811005-12	130	130	0.0%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
811025-11	132	1	100	100	225	232.00	93%	75-125	Yes			
				0								

Himani Vaishnav		Maksim Gorbunov	
Analyst Printed Name	Analyst Signature	Reviewer Printed Name	Reviewer Signature

1213A.xls

044

811005

CH2MHILL

CHAIN OF CUSTODY RECORD

11/20/2013 3:49:49 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2013-RMP-193
Turnaround Time 10 Days
Shipping Date: 11/20/2013
COC Number: 1

Rec'd 11/20/13
S 811005

ALERT !!
Level III QC

	Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
	Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C			
	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA			
	Holding Time:	28	28	180	180	180	7	7	7	7			
		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,Ba	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)		Number of Containers	COMMENTS
	DATE TIME Matrix												
1 C-BNS-D-193	11/20/2013 13:18 Water	X		X	X	X	X	X	X	X		9	
2 C-I-3-D-193	11/20/2013 11:05 Water	X		X	X	X	X	X	X	X		9	PH=7
3 C-I-3-S-193	11/20/2013 11:27 Water	X		X	X	X	X	X	X	X		9	6020A1
4 C-MW-80-193	11/20/2013 12:15 Water		X									1	6010B
5 C-MW-81-193	11/20/2013 13:05 Water		X									1	
6 C-R22A-D-193	11/20/2013 12:24 Water	X		X	X	X	X	X	X	X		9	
7 C-R22A-S-193	11/20/2013 12:45 Water	X		X	X	X	X	X	X	X		9	
8 C-R27-D-193	11/20/2013 13:47 Water	X		X	X	X	X	X	X	X		9	PH=7
9 C-R27-S-193	11/20/2013 14:09 Water	X		X	X	X	X	X	X	X		9	6020A1
10 C-TAZ-D-193	11/20/2013 10:02 Water	X		X	X	X	X	X	X	X		9	6010B
11 C-TAZ-S-193	11/20/2013 10:27 Water	X		X	X	X	X	X	X	X		9	
12 R63-193	11/20/2013 11:55 Water	X		X	X	X	X	X	X	X		9	
13 RMP-AB1-193	11/20/2013 14:35 Water		X									1	
14 SW1-193	11/20/2013 7:48 Water	X				X	X		X			7	PH=7

6020A

	Signatures	Date/Time
Approved by		11-20-13
Sampled by		1550
Relinquished by	Shawn Duffy	11-20-13
Received by		1550
Relinquished by	Shawn Duffy	11-20-13 2010
Received by	Rachel Brady	11/20/13 2010

Shipping Details

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

ATTN:
Sample Custody

Special Instructions:
Nov 4-6, 2013

Report Copy to
Shawn Duffy
(530) 229-3303

811005

CH2MHILL

CHAIN OF CUSTODY RECORD

11/20/2013 3:49:50 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2013-RMP-193
Turnaround Time 10 Days
Shipping Date: 11/20/2013
COC Number: 1

Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter
Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C
Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA
Holding Time:	28	28	180	180	180	7	7	7	7
	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,Ba	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)

Rec'd 11/20/13
S 811005

ALERT !!
Level III QC

	DATE	TIME	Matrix	Cr6	Field QC Cr6	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis)	Metals (6020A) Field Filtered Chromium	Specific Conductance	Alkalinity	PH	TSS	Number of Containers	COMMENTS
5 SW2-193	11/20/2013	8:12	Water	X				X	X		X		7	pH-2 6-20-14
												TOTAL NUMBER OF CONTAINERS	107	

	Signatures	Date/Time
Approved by		
Sampled by		11-20-13 1550
Relinquished by		11-20-13 1550
Received by		11-20-13 1550
Relinquished by		11-20-13 2010
Received by		

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

ATTN: Sample Custody

Special Instructions:
Nov 4-6, 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
11/20/13	810984	7.00	2ml/100ml	9.5	7:30	NE
	810985-1	9.5	N/A	N/A	N/A	
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	810986-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
11/20/13	810969	9.5	N/A	N/A	N/A	NE
11/21/13	811005-1	9.5	N/A	N/A	N/A	TEK
	-2					
	-3					

NE
11/25/13

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

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
11/21/13	811005-4	9.5	N/A	N/A	N/A	Fam
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
11/22/13	811024 -1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	811025-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					

NE
11/25/13

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
810823(1-2)	>1	<2	11/14/13	ES	Yes			
810838	<1	↓	↓	↓	↓			
810841	↓	↓	↓	↓	↓			
810846	↓	↓	↓	↓	↓			
810847	↓	↓	↓	↓	↓			
810857	↓	>2	↓	↓	NO	11:00		
810869	↓	<2	↓	↓	↓			
810870	↓	↓	↓	↓	↓			
810872	↓	↓	↓	↓	↓			
810879	↓	↓	↓	↓	↓			
810891 (1-3)	↓	>2	↓	↓	NO	11:00		
810892 (1-4)	↓	↓	↓	↓	↓	↓		
810893 (1-3,4)	↓	↓	↓	↓	↓	↓		
810896	↓	<2	↓	↓	↓			
810902-1→3	<1	<2 ~~<2~~ DC	11/14/13	DC	NO			
810861 (1-6,10-11)	<1	<2	11/14/13	ES	Yes			
810862 (1-5,8-16)	↓	↓ BW 11/15/13	↓	↓	↓			
810915	<1	~~<2~~ >2 11/15/13	11/15/13	ES	NO	2:00		
810916	↓	ES ~~<2~~ <2	↓	↓	Yes			
810926	<1	<2	↓	↓	↓			
810928	↓	↓	↓	↓	↓			
810912 (1-7)	<1	<2	11/18/13	ES	Yes			
810939-1,2	>1	<2	11/19/13	DC	Yes			
810943	<1	↓	↓	↓	↓			
810944	<1	↓	↓	↓	↓			
810948	>1	↓	↓	↓	↓			
810957	<1	<2	11/19/13	DC	Yes			
810963-1,2,4	<1	>2	11/19/13	DC	NO	15:30		
810958	<1	<2	↓	↓	Yes			
810959	↓	↓	↓	↓	↓			
810960	↓	↓	↓	↓	↓			
810961	↓	↓	↓	↓	↓			
810962	↓	↓	↓	↓	↓			
810970	↓	↓	↓	↓	↓			
810971	<1	<2	11/20/13	ES	Yes			
810972	↓	↓	↓	↓	↓			
810937 (4,5)	TTLC		↓	↓	↓			
810985-1,3-4	<1	>2	↓	↓	NO	10:00		
810985 (1-12)	<1	<2	11/20/13	ES	Yes			
810986 (1-11)	↓	↓	↓	↓	↓			
810950	<1	<2	11/21/13	ES	Yes			
810984	↓	>2	↓	↓	↓	11:00		pH <2
811005 (1-3,6-12,14-15)	↓	<2	↓	↓	↓			
811016 (1-3)	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 811005

Date Delivered: 11/20/13 **Time:** 20:10 **By:** ☐Mail ☐Field Service ☑Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☑No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☑No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☑Yes ☐No ☐N/A
    Preserved (if yes) by: ☑**Truesdail** ☐Client
12. Were samples pH checked? pH = See C.O.C. ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

December 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811024

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 November 21, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for - Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811024
Date Received: November 21, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811024-001	MW-34-055-194	E218.6	FLDFLT	11/20/2013	10:22	Chromium, Hexavalent	ND	ug/L	0.20
811024-001	MW-34-055-194	SW6020	FLDFLT	11/20/2013	10:22	Chromium	ND	ug/L	1.0
811024-002	MW-34-080-194	E218.6	FLDFLT	11/20/2013	11:45	Chromium, Hexavalent	ND	ug/L	1.0
811024-002	MW-34-080-194	SW6020	FLDFLT	11/20/2013	11:45	Chromium	ND	ug/L	1.0
811024-003	MW-34-100-194	E218.6	FLDFLT	11/20/2013	12:45	Chromium, Hexavalent	143	ug/L	2.0
811024-003	MW-34-100-194	SW6020	FLDFLT	11/20/2013	12:45	Chromium	136	ug/L	1.0
811024-004	MW-46-175-194	E218.6	FLDFLT	11/20/2013	14:56	Chromium, Hexavalent	34.2	ug/L	1.0
811024-004	MW-46-175-194	SW6020	FLDFLT	11/20/2013	14:56	Chromium	33.8	ug/L	1.0
811024-005	MW-46-205-194	E218.6	FLDFLT	11/20/2013	15:42	Chromium, Hexavalent	6.0	ug/L	1.0
811024-005	MW-46-205-194	SW6020	FLDFLT	11/20/2013	15:42	Chromium	5.1	ug/L	1.0
811024-006	MW-93-194	E218.6	FLDFLT	11/20/2013	7:00	Chromium, Hexavalent	ND	ug/L	1.0
811024-006	MW-93-194	SW6020	FLDFLT	11/20/2013	7:00	Chromium	ND	ug/L	1.0
811024-007	MW-94-194	E218.6	FLDFLT	11/20/2013	7:30	Chromium, Hexavalent	137	ug/L	2.0
811024-007	MW-94-194	SW6020	FLDFLT	11/20/2013	7:30	Chromium	141	ug/L	1.0
811024-008	MW-216-194	E218.6	FLDFLT	11/21/2013	6:35	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811024

Printed 12/6/2013

Samples Received on 11/21/2013 8:15:00 PM

Field ID	Lab ID	Collected	Matrix
MW-34-055-194	811024-001	11/20/2013 10:22	Water
MW-34-080-194	811024-002	11/20/2013 11:45	Water
MW-34-100-194	811024-003	11/20/2013 12:45	Water
MW-46-175-194	811024-004	11/20/2013 14:56	Water
MW-46-205-194	811024-005	11/20/2013 15:42	Water
MW-93-194	811024-006	11/20/2013 07:00	Water
MW-94-194	811024-007	11/20/2013 07:30	Water
MW-216-194	811024-008	11/21/2013 06:35	Water

Chrome VI by EPA 218.6

Batch 11CrH13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811024-001 Chromium, Hexavalent	ug/L	11/22/2013 10:37	1.00	0.0210	0.20	ND
811024-002 Chromium, Hexavalent	ug/L	11/22/2013 13:29	5.00	0.105	1.0	ND
811024-003 Chromium, Hexavalent	ug/L	11/22/2013 13:50	10.0	0.210	2.0	143
811024-004 Chromium, Hexavalent	ug/L	11/22/2013 20:52	5.00	0.105	1.0	34.2
811024-005 Chromium, Hexavalent	ug/L	11/22/2013 14:11	5.00	0.105	1.0	6.0
811024-006 Chromium, Hexavalent	ug/L	11/22/2013 14:21	5.00	0.105	1.0	ND
811024-007 Chromium, Hexavalent	ug/L	11/22/2013 14:32	10.0	0.210	2.0	137
811024-008 Chromium, Hexavalent	ug/L	11/22/2013 11:39	1.00	0.0210	0.20	ND

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.0	ND

Duplicate

Lab ID = 811024-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	138	137	0.688	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.

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.194	0.200	97.1	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.7	90 - 110

Matrix Spike — Lab ID = 811024-001

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

Matrix Spike — Lab ID = 811024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.61	5.00(5.00)	92.3	90 - 110

Matrix Spike — Lab ID = 811024-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	292	293(150)	99.5	90 - 110

Matrix Spike — Lab ID = 811024-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	81.6	84.2(50.0)	94.8	90 - 110

Matrix Spike — Lab ID = 811024-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	28.6	31.0(25.0)	90.4	90 - 110

Matrix Spike — Lab ID = 811024-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.89	5.00(5.00)	97.7	90 - 110

Matrix Spike — Lab ID = 811024-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	295	287(150)	105	90 - 110

Matrix Spike — Lab ID = 811024-008

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

MRCCS - Secondary

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

MRCVS - Primary

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

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.

Metals by EPA 6020A, Dissolved

Batch 112513B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811024-001 Chromium	ug/L	11/25/2013 23:56	2.00	0.142	1.0	ND
811024-002 Chromium	ug/L	11/26/2013 00:02	2.00	0.142	1.0	ND
811024-005 Chromium	ug/L	11/26/2013 00:20	2.00	0.142	1.0	5.1
811024-006 Chromium	ug/L	11/26/2013 00:27	2.00	0.142	1.0	ND

Method Blank

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.188	0.200	94.0	70 - 130
Barium	ug/L	1.00	0.909	1.00	90.9	70 - 130
Chromium	ug/L	1.00	0.202	0.200	101	70 - 130
Selenium	ug/L	1.00	0.999	1.00	99.9	70 - 130
Manganese	ug/L	1.00	0.183	0.200	91.5	70 - 130
Molybdenum	ug/L	1.00	0.199	0.200	99.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	48.4	50.0	96.7	85 - 115
Barium	ug/L	1.00	47.4	50.0	94.9	85 - 115
Chromium	ug/L	1.00	48.7	50.0	97.4	85 - 115
Selenium	ug/L	1.00	44.0	50.0	88.0	85 - 115
Manganese	ug/L	1.00	48.4	50.0	96.8	85 - 115
Molybdenum	ug/L	1.00	47.9	50.0	95.8	85 - 115

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

Matrix Spike — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.4	53.0(50.0)	96.8	75 - 125
Barium	ug/L	2.00	146	150(50.0)	91.7	75 - 125
Chromium	ug/L	2.00	47.6	50.0(50.0)	95.1	75 - 125
Selenium	ug/L	2.00	45.4	50.0(50.0)	90.8	75 - 125
Manganese	ug/L	2.00	48.3	51.3(50.0)	94.0	75 - 125
Molybdenum	ug/L	2.00	51.8	53.9(50.0)	95.8	75 - 125

Matrix Spike Duplicate — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.2	53.0(50.0)	94.5	75 - 125
Barium	ug/L	2.00	144	150(50.0)	89.3	75 - 125
Chromium	ug/L	2.00	46.4	50.0(50.0)	92.8	75 - 125
Selenium	ug/L	2.00	43.0	50.0(50.0)	86.0	75 - 125
Manganese	ug/L	2.00	47.0	51.3(50.0)	91.4	75 - 125
Molybdenum	ug/L	2.00	50.3	53.9(50.0)	92.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.7	20.0	98.5	90 - 110
Barium	ug/L	1.00	20.0	20.0	100	90 - 110
Chromium	ug/L	1.00	19.5	20.0	97.6	90 - 110
Selenium	ug/L	1.00	19.4	20.0	97.3	90 - 110
Manganese	ug/L	1.00	19.9	20.0	99.4	90 - 110
Molybdenum	ug/L	1.00	20.5	20.0	103	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	98.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	98.9	90 - 110
Barium	ug/L	1.00	19.7	20.0	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.3	20.0	96.7	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.

Metals by EPA 6020A, Dissolved

Batch 112613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811024-003 Chromium	ug/L	11/26/2013 15:11	2.00	0.142	1.0	136
811024-004 Chromium	ug/L	11/26/2013 15:17	2.00	0.142	1.0	33.8
811024-007 Chromium	ug/L	11/26/2013 15:23	2.00	0.142	1.0	141

Method Blank

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

Duplicate — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	1.36	1.27	6.48	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.188	0.200	94.0	70 - 130
Manganese	ug/L	1.00	0.172	0.200	86.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.9	50.0	95.8	85 - 115
Manganese	ug/L	1.00	48.0	50.0	96.0	85 - 115

Matrix Spike — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.9	50.0(50.0)	93.8	75 - 125
Manganese	ug/L	2.00	47.6	51.3(50.0)	92.6	75 - 125

Matrix Spike Duplicate — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.0	50.0(50.0)	90.0	75 - 125
Manganese	ug/L	2.00	45.9	51.3(50.0)	89.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.1	90 - 110
Manganese	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	19.7	20.0	98.7	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.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.3	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.8	20.0	98.8	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard A

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

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	19.5	20.0	97.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.0	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.4	20.0	96.8	80 - 120

Serial Dilution Lab ID = 811024-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	143	141	1.48	0 - 10

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

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 12/6/2013

Serial Dilution

Lab ID = 811025-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	59.0	56.3	4.66	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

811024

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/21/2013
COC Number: 16

Rec'd 11/21/13 S 811024

		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium	Number of Containers	COMMENTS
	Container:				250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly		
	Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C		
	Filtered:				Field	Field	Field	Field		
	Holding Time:				28	28	180	180		
1	MW-34-055-194	11/20/2013	10:22	Water		X		X	4	
2	MW-34-080-194	11/20/2013	11:45	Water		X		X	4	
	MW-34-080-194-EB	11/20/2013	9:38	Water	X		X		2	Hold
3	MW-34-100-194	11/20/2013	12:45	Water	X		X		2	
4	MW-46-175-194	11/20/2013	14:56	Water	X		X		2	
5	MW-46-205-194	11/20/2013	15:42	Water	X		X		2	
6	MW-93-194	11/20/2013	7:00	Water		X		X	4	
7	MW-94-194	11/20/2013	7:30	Water	X		X		2	
8	MW-216-194	11/21/2013	6:35	Water	X				1	
								TOTAL NUMBER OF CONTAINERS	23	

PH-2
6020A

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		11-21-13
Sampled by		1535
Relinquished by		11-21-13
Received by		1535
Relinquished by		11-21-13 2015
Received by	Marchal Brady	11/21/13 2015

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

ATTN:
Sample Custody

Special Instructions:

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
11/21/13	811005-4	9.5	N/A	N/A	N/A	FCM
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
11/22/13	811024 -1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	811025-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811020-1,2	>1	<2	11/22/13	DC	Yes			
810997-1,2	>1	<2	11/22/13	DC	↓			
811000-1,2,3	<1	>2	↓	↓	NO	13:10		
811002-10,11,12	↓	↓	↓	↓	↓	↓		
810030 (1-4)	>1	<2	11/25/13	ES	Yes			
810036 (1-3)	↓	↓	↓	↓	↓			
811040	↓	↓	↓	↓	↓			
811043 (1-2)	↓	↓	↓	↓	↓			
811048	>1	<2	11/25/13	KK	YES			
811024 (1-7)	<1	<2	11/25/13	ES	Yes			
811025 (1-3,6-13,15)	↓	↓	↓	↓	↓			T/D
811053	<1	<2	11/27/13	ES	Yes			
811065 (1-2	↓	↓	↓	↓	↓			
811076	↓	↓	↓	↓	↓			
811083	<1	>2	11/27/13	ES	Yes	1:30		pH <2
811057 (1-3)	<1	>2	11/27/13	ES	NO	3:00		
811067 (1-2,4	↓	↓	↓	↓	↓	↓		
811069 (1-2)	↓	↓	↓	↓	↓	↓		
811079 (1-2)	↓	↓	↓	↓	↓	↓		
811073	<1	<2	12/2/13	ES	Yes			
811094 (1-2)	↓	↓	↓	↓	↓			
811099 (10-12)	↓	>2	↓	↓	NO	3:00		
811104	↓	<2	↓	↓	Yes			
811106 (1-3)	↓	>2	↓	↓	NO	3:00		
811107	<1	>2	11/27/13	KK	NO	1:50		
811117	>1	<2	12/3/13	KK	Yes			
811118 (1-2)	>1	<2	↓	↓	↓			
811119 (1-3)	↓	↓	↓	↓	↓			
811123 (1-2)	↓	↓	↓	↓	↓			
811130-6	<1	>2	12/3/13	ES	NO	5:00		
811131 (1-3)	↓	↓	↓	↓	↓	↓		
811139 (1-2,4)	↓	↓	↓	↓	↓	↓		
811133	↓	>2	↓	↓	Yes			
811134	↓	↓	↓	↓	↓			
811135	↓	↓	↓	↓	↓			
811136	↓	↓	↓	↓	↓			
811137	↓	↓	↓	↓	↓			
811156	>1	<2	12/4/13	ES	Yes			
811160 (1-9)	<1	<2	12/4/13	KK	Yes			
811157	<1	>2	↓	↓	↓			
811158 (1-2)	<1	>2	↓	↓	↓			
811159 (1-2,2)	<1	>2	↓	↓	↓			
811110	<1	<2	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 811024

Date Delivered: 11 / 21 / 13 **Time:** 00:15 **By:** ☐ Mail ☐ Field Service ☑ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☑ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☑ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.3 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☑ **Truesdail** ☐ Client
12. Were samples pH checked? pH = See C.O.C ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 5, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2013-RMP-193, SURFACEWATER MONITORING PROJECT, TLI NO.: 811025

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-RMP-193 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 November 21, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

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

Event 2013-RMP-193 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-193	2.00	No			
C-CON-S-193	2.00	No			
C-MAR-S-193	2.00	No			
C-MW-82-193	2.00	No			
C-MW-83-193	2.00	No			
C-NR1-D-193	2.00	No			
C-NR1-S-193	2.00	No			
C-NR3-D-193	2.00	No			
C-NR3-S-193	2.00	No			
C-NR4-D-193	2.00	No			
C-NR4-S-193	2.00	No			
R-19-193	2.00	No			
R-28-193	2.00	No			
RMP-AB2-193	2.00	No			
RRB-193	2.00	No			

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

Event 2013-RMP-193 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-193	9.50	No			
C-CON-S-193	9.50	No			
C-MAR-S-193	9.50	No			
C-NR1-D-193	9.50	No			
C-NR1-S-193	9.50	No			
C-NR3-D-193	9.50	No			
C-NR3-S-193	9.50	No			
C-NR4-D-193	9.50	No			
C-NR4-S-193	9.50	No			
R-19-193	9.50	No			
R-28-193	9.50	No			
RRB-193	9.50	No			

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 811025
Date Received: November 21, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811025-001	C-CON-D-193	E120.1	NONE	11/21/2013	9:18	EC	851	umhos/cm	2.00
811025-001	C-CON-D-193	E218.6	FLDFLT	11/21/2013	9:18	Chromium, Hexavalent	ND	ug/L	0.20
811025-001	C-CON-D-193	SM2320B	NONE	11/21/2013	9:18	Alkalinity	131	mg/L	5.00
811025-001	C-CON-D-193	SM2320B	NONE	11/21/2013	9:18	Alkalinity, Bicarbonate (As CaCO3)	131	mg/L	5.00
811025-001	C-CON-D-193	SM2320B	NONE	11/21/2013	9:18	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-001	C-CON-D-193	SM2540D	NONE	11/21/2013	9:18	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-001	C-CON-D-193	SM4500HB	NONE	11/21/2013	9:18	PH	8.28 J	pH	4.00
811025-001	C-CON-D-193	SW6010B	NONE	11/21/2013	9:18	Iron	41.7	ug/L	20.0
811025-001	C-CON-D-193	SW6010B	FLDFLT	11/21/2013	9:18	Iron	ND	ug/L	20.0
811025-001	C-CON-D-193	SW6020	FLDFLT	11/21/2013	9:18	Arsenic	3.0	ug/L	0.50
811025-001	C-CON-D-193	SW6020	FLDFLT	11/21/2013	9:18	Barium	99.7	ug/L	5.0
811025-001	C-CON-D-193	SW6020	FLDFLT	11/21/2013	9:18	Chromium	ND	ug/L	1.0
811025-001	C-CON-D-193	SW6020	FLDFLT	11/21/2013	9:18	Manganese	1.3	ug/L	0.50
811025-001	C-CON-D-193	SW6020	FLDFLT	11/21/2013	9:18	Molybdenum	3.9	ug/L	2.0
811025-001	C-CON-D-193	SW6020	FLDFLT	11/21/2013	9:18	Selenium	ND	ug/L	5.0
811025-002	C-CON-S-193	E120.1	NONE	11/21/2013	9:38	EC	834	umhos/cm	2.00
811025-002	C-CON-S-193	E218.6	FLDFLT	11/21/2013	9:38	Chromium, Hexavalent	ND	ug/L	0.20
811025-002	C-CON-S-193	SM2320B	NONE	11/21/2013	9:38	Alkalinity	132	mg/L	5.00
811025-002	C-CON-S-193	SM2320B	NONE	11/21/2013	9:38	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
811025-002	C-CON-S-193	SM2320B	NONE	11/21/2013	9:38	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-002	C-CON-S-193	SM2540D	NONE	11/21/2013	9:38	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-002	C-CON-S-193	SM4500HB	NONE	11/21/2013	9:38	PH	8.29 J	pH	4.00
811025-002	C-CON-S-193	SW6010B	NONE	11/21/2013	9:38	Iron	23.5	ug/L	20.0
811025-002	C-CON-S-193	SW6010B	FLDFLT	11/21/2013	9:38	Iron	ND	ug/L	20.0
811025-002	C-CON-S-193	SW6020	FLDFLT	11/21/2013	9:38	Arsenic	2.8	ug/L	0.50
811025-002	C-CON-S-193	SW6020	FLDFLT	11/21/2013	9:38	Barium	99.5	ug/L	5.0
811025-002	C-CON-S-193	SW6020	FLDFLT	11/21/2013	9:38	Chromium	ND	ug/L	1.0
811025-002	C-CON-S-193	SW6020	FLDFLT	11/21/2013	9:38	Manganese	1.3	ug/L	0.50
811025-002	C-CON-S-193	SW6020	FLDFLT	11/21/2013	9:38	Molybdenum	3.8	ug/L	2.0
811025-002	C-CON-S-193	SW6020	FLDFLT	11/21/2013	9:38	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811025-003	C-MAR-S-193	E120.1	NONE	11/21/2013	7:48	EC	875	umhos/cm	2.00
811025-003	C-MAR-S-193	E218.6	FLDFLT	11/21/2013	7:48	Chromium, Hexavalent	ND	ug/L	0.20
811025-003	C-MAR-S-193	SM2320B	NONE	11/21/2013	7:48	Alkalinity	139	mg/L	5.00
811025-003	C-MAR-S-193	SM2320B	NONE	11/21/2013	7:48	Alkalinity, Bicarbonate (As CaCO3)	139	mg/L	5.00
811025-003	C-MAR-S-193	SM2320B	NONE	11/21/2013	7:48	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-003	C-MAR-S-193	SM2540D	NONE	11/21/2013	7:48	Suspended Solids (Residue, Non-Filterable)	48.8	mg/L	5.00
811025-003	C-MAR-S-193	SM4500HB	NONE	11/21/2013	7:48	PH	8.04 J	pH	4.00
811025-003	C-MAR-S-193	SW6010B	NONE	11/21/2013	7:48	Iron	1390	ug/L	20.0
811025-003	C-MAR-S-193	SW6010B	FLDFLT	11/21/2013	7:48	Iron	24.2	ug/L	20.0
811025-003	C-MAR-S-193	SW6020	FLDFLT	11/21/2013	7:48	Arsenic	2.7	ug/L	0.50
811025-003	C-MAR-S-193	SW6020	FLDFLT	11/21/2013	7:48	Barium	101	ug/L	5.0
811025-003	C-MAR-S-193	SW6020	FLDFLT	11/21/2013	7:48	Chromium	ND	ug/L	1.0
811025-003	C-MAR-S-193	SW6020	FLDFLT	11/21/2013	7:48	Manganese	56.3	ug/L	0.50
811025-003	C-MAR-S-193	SW6020	FLDFLT	11/21/2013	7:48	Molybdenum	3.8	ug/L	2.0
811025-003	C-MAR-S-193	SW6020	FLDFLT	11/21/2013	7:48	Selenium	ND	ug/L	5.0
811025-004	C-MW-82-193	E218.6	NONE	11/21/2013	8:15	Chromium, Hexavalent	ND	ug/L	0.20
811025-005	C-MW-83-193	E218.6	NONE	11/21/2013	11:15	Chromium, Hexavalent	ND	ug/L	0.20
811025-006	C-NR1-D-193	E120.1	NONE	11/21/2013	10:17	EC	834	umhos/cm	2.00
811025-006	C-NR1-D-193	E218.6	FLDFLT	11/21/2013	10:17	Chromium, Hexavalent	ND	ug/L	0.20
811025-006	C-NR1-D-193	SM2320B	NONE	11/21/2013	10:17	Alkalinity	134	mg/L	5.00
811025-006	C-NR1-D-193	SM2320B	NONE	11/21/2013	10:17	Alkalinity, Bicarbonate (As CaCO3)	134	mg/L	5.00
811025-006	C-NR1-D-193	SM2320B	NONE	11/21/2013	10:17	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-006	C-NR1-D-193	SM2540D	NONE	11/21/2013	10:17	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-006	C-NR1-D-193	SM4500HB	NONE	11/21/2013	10:17	PH	8.29 J	pH	4.00
811025-006	C-NR1-D-193	SW6010B	NONE	11/21/2013	10:17	Iron	38.5	ug/L	20.0
811025-006	C-NR1-D-193	SW6010B	FLDFLT	11/21/2013	10:17	Iron	ND	ug/L	20.0
811025-006	C-NR1-D-193	SW6020	FLDFLT	11/21/2013	10:17	Arsenic	2.9	ug/L	0.50
811025-006	C-NR1-D-193	SW6020	FLDFLT	11/21/2013	10:17	Barium	97.4	ug/L	5.0
811025-006	C-NR1-D-193	SW6020	FLDFLT	11/21/2013	10:17	Chromium	ND	ug/L	1.0
811025-006	C-NR1-D-193	SW6020	FLDFLT	11/21/2013	10:17	Manganese	1.4	ug/L	0.50
811025-006	C-NR1-D-193	SW6020	FLDFLT	11/21/2013	10:17	Molybdenum	3.7	ug/L	2.0
811025-006	C-NR1-D-193	SW6020	FLDFLT	11/21/2013	10:17	Selenium	ND	ug/L	5.0
811025-007	C-NR1-S-193	E120.1	NONE	11/21/2013	10:38	EC	837	umhos/cm	2.00

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
811025-007	C-NR1-S-193	E218.6	FLDFLT	11/21/2013	10:38	Chromium, Hexavalent	ND	ug/L	0.20
811025-007	C-NR1-S-193	SM2320B	NONE	11/21/2013	10:38	Alkalinity	133	mg/L	5.00
811025-007	C-NR1-S-193	SM2320B	NONE	11/21/2013	10:38	Alkalinity, Bicarbonate (As CaCO3)	133	mg/L	5.00
811025-007	C-NR1-S-193	SM2320B	NONE	11/21/2013	10:38	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-007	C-NR1-S-193	SM2540D	NONE	11/21/2013	10:38	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-007	C-NR1-S-193	SM4500HB	NONE	11/21/2013	10:38	PH	8.30 J	pH	4.00
811025-007	C-NR1-S-193	SW6010B	NONE	11/21/2013	10:38	Iron	ND	ug/L	20.0
811025-007	C-NR1-S-193	SW6010B	FLDFLT	11/21/2013	10:38	Iron	ND	ug/L	20.0
811025-007	C-NR1-S-193	SW6020	FLDFLT	11/21/2013	10:38	Arsenic	2.8	ug/L	0.50
811025-007	C-NR1-S-193	SW6020	FLDFLT	11/21/2013	10:38	Barium	96.7	ug/L	5.0
811025-007	C-NR1-S-193	SW6020	FLDFLT	11/21/2013	10:38	Chromium	ND	ug/L	1.0
811025-007	C-NR1-S-193	SW6020	FLDFLT	11/21/2013	10:38	Manganese	1.3	ug/L	0.50
811025-007	C-NR1-S-193	SW6020	FLDFLT	11/21/2013	10:38	Molybdenum	3.7	ug/L	2.0
811025-007	C-NR1-S-193	SW6020	FLDFLT	11/21/2013	10:38	Selenium	ND	ug/L	5.0
811025-008	C-NR3-D-193	E120.1	NONE	11/21/2013	11:25	EC	839	umhos/cm	2.00
811025-008	C-NR3-D-193	E218.6	FLDFLT	11/21/2013	11:25	Chromium, Hexavalent	ND	ug/L	0.20
811025-008	C-NR3-D-193	SM2320B	NONE	11/21/2013	11:25	Alkalinity	130	mg/L	5.00
811025-008	C-NR3-D-193	SM2320B	NONE	11/21/2013	11:25	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
811025-008	C-NR3-D-193	SM2320B	NONE	11/21/2013	11:25	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-008	C-NR3-D-193	SM2540D	NONE	11/21/2013	11:25	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-008	C-NR3-D-193	SM4500HB	NONE	11/21/2013	11:25	PH	8.28 J	pH	4.00
811025-008	C-NR3-D-193	SW6010B	NONE	11/21/2013	11:25	Iron	43.3	ug/L	20.0
811025-008	C-NR3-D-193	SW6010B	FLDFLT	11/21/2013	11:25	Iron	ND	ug/L	20.0
811025-008	C-NR3-D-193	SW6020	FLDFLT	11/21/2013	11:25	Arsenic	2.8	ug/L	0.50
811025-008	C-NR3-D-193	SW6020	FLDFLT	11/21/2013	11:25	Barium	99.3	ug/L	5.0
811025-008	C-NR3-D-193	SW6020	FLDFLT	11/21/2013	11:25	Chromium	ND	ug/L	1.0
811025-008	C-NR3-D-193	SW6020	FLDFLT	11/21/2013	11:25	Manganese	1.3	ug/L	0.50
811025-008	C-NR3-D-193	SW6020	FLDFLT	11/21/2013	11:25	Molybdenum	3.8	ug/L	2.0
811025-008	C-NR3-D-193	SW6020	FLDFLT	11/21/2013	11:25	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811025-009	C-NR3-S-193	E120.1	NONE	11/21/2013	11:45	EC	837	umhos/cm	2.00
811025-009	C-NR3-S-193	E218.6	FLDFLT	11/21/2013	11:45	Chromium, Hexavalent	ND	ug/L	0.20
811025-009	C-NR3-S-193	SM2320B	NONE	11/21/2013	11:45	Alkalinity	132	mg/L	5.00
811025-009	C-NR3-S-193	SM2320B	NONE	11/21/2013	11:45	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
811025-009	C-NR3-S-193	SM2320B	NONE	11/21/2013	11:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-009	C-NR3-S-193	SM2540D	NONE	11/21/2013	11:45	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-009	C-NR3-S-193	SM4500HB	NONE	11/21/2013	11:45	PH	8.27 J	pH	4.00
811025-009	C-NR3-S-193	SW6010B	NONE	11/21/2013	11:45	Iron	22.5	ug/L	20.0
811025-009	C-NR3-S-193	SW6010B	FLDFLT	11/21/2013	11:45	Iron	ND	ug/L	20.0
811025-009	C-NR3-S-193	SW6020	FLDFLT	11/21/2013	11:45	Arsenic	2.7	ug/L	0.50
811025-009	C-NR3-S-193	SW6020	FLDFLT	11/21/2013	11:45	Barium	92.9	ug/L	5.0
811025-009	C-NR3-S-193	SW6020	FLDFLT	11/21/2013	11:45	Chromium	ND	ug/L	1.0
811025-009	C-NR3-S-193	SW6020	FLDFLT	11/21/2013	11:45	Manganese	1.4	ug/L	0.50
811025-009	C-NR3-S-193	SW6020	FLDFLT	11/21/2013	11:45	Molybdenum	3.6	ug/L	2.0
811025-009	C-NR3-S-193	SW6020	FLDFLT	11/21/2013	11:45	Selenium	ND	ug/L	5.0
811025-010	C-NR4-D-193	E120.1	NONE	11/21/2013	12:19	EC	839	umhos/cm	2.00
811025-010	C-NR4-D-193	E218.6	FLDFLT	11/21/2013	12:19	Chromium, Hexavalent	ND	ug/L	0.20
811025-010	C-NR4-D-193	SM2320B	NONE	11/21/2013	12:19	Alkalinity	130	mg/L	5.00
811025-010	C-NR4-D-193	SM2320B	NONE	11/21/2013	12:19	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
811025-010	C-NR4-D-193	SM2320B	NONE	11/21/2013	12:19	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-010	C-NR4-D-193	SM2540D	NONE	11/21/2013	12:19	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-010	C-NR4-D-193	SM4500HB	NONE	11/21/2013	12:19	PH	8.19 J	pH	4.00
811025-010	C-NR4-D-193	SW6010B	NONE	11/21/2013	12:19	Iron	24.9	ug/L	20.0
811025-010	C-NR4-D-193	SW6010B	FLDFLT	11/21/2013	12:19	Iron	ND	ug/L	20.0
811025-010	C-NR4-D-193	SW6020	FLDFLT	11/21/2013	12:19	Arsenic	2.6	ug/L	0.50
811025-010	C-NR4-D-193	SW6020	FLDFLT	11/21/2013	12:19	Barium	94.4	ug/L	5.0
811025-010	C-NR4-D-193	SW6020	FLDFLT	11/21/2013	12:19	Chromium	ND	ug/L	1.0
811025-010	C-NR4-D-193	SW6020	FLDFLT	11/21/2013	12:19	Manganese	1.1	ug/L	0.50
811025-010	C-NR4-D-193	SW6020	FLDFLT	11/21/2013	12:19	Molybdenum	3.7	ug/L	2.0
811025-010	C-NR4-D-193	SW6020	FLDFLT	11/21/2013	12:19	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811025-011	C-NR4-S-193	E120.1	NONE	11/21/2013	12:33	EC	846	umhos/cm	2.00
811025-011	C-NR4-S-193	E218.6	FLDFLT	11/21/2013	12:33	Chromium, Hexavalent	ND	ug/L	0.20
811025-011	C-NR4-S-193	SM2320B	NONE	11/21/2013	12:33	Alkalinity	132	mg/L	5.00
811025-011	C-NR4-S-193	SM2320B	NONE	11/21/2013	12:33	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
811025-011	C-NR4-S-193	SM2320B	NONE	11/21/2013	12:33	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-011	C-NR4-S-193	SM2540D	NONE	11/21/2013	12:33	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-011	C-NR4-S-193	SM4500HB	NONE	11/21/2013	12:33	PH	8.21 J	pH	4.00
811025-011	C-NR4-S-193	SW6010B	NONE	11/21/2013	12:33	Iron	21.7	ug/L	20.0
811025-011	C-NR4-S-193	SW6010B	FLDFLT	11/21/2013	12:33	Iron	ND	ug/L	20.0
811025-011	C-NR4-S-193	SW6020	FLDFLT	11/21/2013	12:33	Arsenic	2.5	ug/L	0.50
811025-011	C-NR4-S-193	SW6020	FLDFLT	11/21/2013	12:33	Barium	93.0	ug/L	5.0
811025-011	C-NR4-S-193	SW6020	FLDFLT	11/21/2013	12:33	Chromium	ND	ug/L	1.0
811025-011	C-NR4-S-193	SW6020	FLDFLT	11/21/2013	12:33	Manganese	0.93	ug/L	0.50
811025-011	C-NR4-S-193	SW6020	FLDFLT	11/21/2013	12:33	Molybdenum	3.5	ug/L	2.0
811025-011	C-NR4-S-193	SW6020	FLDFLT	11/21/2013	12:33	Selenium	ND	ug/L	5.0
811025-012	R-19-193	E120.1	NONE	11/21/2013	8:45	EC	848	umhos/cm	2.00
811025-012	R-19-193	E218.6	FLDFLT	11/21/2013	8:45	Chromium, Hexavalent	ND	ug/L	0.20
811025-012	R-19-193	SM2320B	NONE	11/21/2013	8:45	Alkalinity	128	mg/L	5.00
811025-012	R-19-193	SM2320B	NONE	11/21/2013	8:45	Alkalinity, Bicarbonate (As CaCO3)	128	mg/L	5.00
811025-012	R-19-193	SM2320B	NONE	11/21/2013	8:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-012	R-19-193	SM2540D	NONE	11/21/2013	8:45	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-012	R-19-193	SM4500HB	NONE	11/21/2013	8:45	PH	8.31 J	pH	4.00
811025-012	R-19-193	SW6010B	NONE	11/21/2013	8:45	Iron	57.7	ug/L	20.0
811025-012	R-19-193	SW6010B	FLDFLT	11/21/2013	8:45	Iron	ND	ug/L	20.0
811025-012	R-19-193	SW6020	FLDFLT	11/21/2013	8:45	Arsenic	2.7	ug/L	0.50
811025-012	R-19-193	SW6020	FLDFLT	11/21/2013	8:45	Barium	96.3	ug/L	5.0
811025-012	R-19-193	SW6020	FLDFLT	11/21/2013	8:45	Chromium	ND	ug/L	1.0
811025-012	R-19-193	SW6020	FLDFLT	11/21/2013	8:45	Manganese	3.7	ug/L	0.50
811025-012	R-19-193	SW6020	FLDFLT	11/21/2013	8:45	Molybdenum	3.6	ug/L	2.0
811025-012	R-19-193	SW6020	FLDFLT	11/21/2013	8:45	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811025-013	R-28-193	E120.1	NONE	11/21/2013	8:23	EC	846	umhos/cm	2.00
811025-013	R-28-193	E218.6	FLDFLT	11/21/2013	8:23	Chromium, Hexavalent	ND	ug/L	0.20
811025-013	R-28-193	E300	NONE	11/21/2013	8:23	Bromide	ND	mg/L	0.500
811025-013	R-28-193	E300	NONE	11/21/2013	8:23	Chloride	80.4	mg/L	2.50
811025-013	R-28-193	E300	NONE	11/21/2013	8:23	Sulfate	220	mg/L	12.5
811025-013	R-28-193	SM2320B	NONE	11/21/2013	8:23	Alkalinity	131	mg/L	5.00
811025-013	R-28-193	SM2320B	NONE	11/21/2013	8:23	Alkalinity, Bicarbonate (As CaCO3)	131	mg/L	5.00
811025-013	R-28-193	SM2320B	NONE	11/21/2013	8:23	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-013	R-28-193	SM2540C	NONE	11/21/2013	8:23	Total Dissolved Solids	564	mg/L	25.0
811025-013	R-28-193	SM2540D	NONE	11/21/2013	8:23	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811025-013	R-28-193	SM4500HB	NONE	11/21/2013	8:23	PH	8.31 J	pH	4.00
811025-013	R-28-193	SW6010B	FLDFLT	11/21/2013	8:23	BORON	121	ug/L	20.0
811025-013	R-28-193	SW6010B	FLDFLT	11/21/2013	8:23	Calcium	73200	ug/L	10000
811025-013	R-28-193	SW6010B	NONE	11/21/2013	8:23	Iron	69.3	ug/L	20.0
811025-013	R-28-193	SW6010B	FLDFLT	11/21/2013	8:23	Iron	ND	ug/L	20.0
811025-013	R-28-193	SW6010B	FLDFLT	11/21/2013	8:23	Magnesium	26200	ug/L	20000
811025-013	R-28-193	SW6010B	FLDFLT	11/21/2013	8:23	Potassium	4440	ug/L	500
811025-013	R-28-193	SW6010B	FLDFLT	11/21/2013	8:23	Sodium	84700	ug/L	10000
811025-013	R-28-193	SW6020	FLDFLT	11/21/2013	8:23	Arsenic	2.7	ug/L	0.50
811025-013	R-28-193	SW6020	FLDFLT	11/21/2013	8:23	Barium	94.0	ug/L	5.0
811025-013	R-28-193	SW6020	FLDFLT	11/21/2013	8:23	Chromium	ND	ug/L	1.0
811025-013	R-28-193	SW6020	FLDFLT	11/21/2013	8:23	Manganese	3.5	ug/L	0.50
811025-013	R-28-193	SW6020	FLDFLT	11/21/2013	8:23	Molybdenum	3.6	ug/L	2.0
811025-013	R-28-193	SW6020	FLDFLT	11/21/2013	8:23	Selenium	ND	ug/L	5.0
811025-014	RMP-AB2-193	E218.6	NONE	11/21/2013	12:45	Chromium, Hexavalent	ND	ug/L	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.

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811025-015	RRB-193	E120.1	NONE	11/21/2013	14:24	EC	876	umhos/cm	2.00
811025-015	RRB-193	E218.6	FLDFLT	11/21/2013	14:24	Chromium, Hexavalent	ND	ug/L	0.20
811025-015	RRB-193	SM2320B	NONE	11/21/2013	14:24	Alkalinity	165	mg/L	5.00
811025-015	RRB-193	SM2320B	NONE	11/21/2013	14:24	Alkalinity, Bicarbonate (As CaCO3)	165	mg/L	5.00
811025-015	RRB-193	SM2320B	NONE	11/21/2013	14:24	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811025-015	RRB-193	SM2540D	NONE	11/21/2013	14:24	Suspended Solids (Residue, Non-Filterable)	41.3	mg/L	4.00
811025-015	RRB-193	SM4500HB	NONE	11/21/2013	14:24	PH	8.01 J	pH	4.00
811025-015	RRB-193	SW6010B	NONE	11/21/2013	14:24	Iron	504	ug/L	20.0
811025-015	RRB-193	SW6010B	FLDFLT	11/21/2013	14:24	Iron	ND	ug/L	20.0
811025-015	RRB-193	SW6020	FLDFLT	11/21/2013	14:24	Arsenic	2.5	ug/L	0.50
811025-015	RRB-193	SW6020	FLDFLT	11/21/2013	14:24	Barium	173	ug/L	5.0
811025-015	RRB-193	SW6020	FLDFLT	11/21/2013	14:24	Chromium	ND	ug/L	1.0
811025-015	RRB-193	SW6020	FLDFLT	11/21/2013	14:24	Manganese	354	ug/L	2.0
811025-015	RRB-193	SW6020	FLDFLT	11/21/2013	14:24	Molybdenum	3.1	ug/L	2.0
811025-015	RRB-193	SW6020	FLDFLT	11/21/2013	14:24	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.

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM
P.O. Number: 423575.MP.02.RM
Release Number:

Laboratory No. 811025

Printed 12/5/2013

Samples Received on 11/21/2013 8:15:00 PM

Field ID	Lab ID	Collected	Matrix
C-CON-D-193	811025-001	11/21/2013 09:18	Water
C-CON-S-193	811025-002	11/21/2013 09:38	Water
C-MAR-S-193	811025-003	11/21/2013 07:48	Water
C-MW-82-193	811025-004	11/21/2013 08:15	Water
C-MW-83-193	811025-005	11/21/2013 11:15	Water
C-NR1-D-193	811025-006	11/21/2013 10:17	Water
C-NR1-S-193	811025-007	11/21/2013 10:38	Water
C-NR3-D-193	811025-008	11/21/2013 11:25	Water
C-NR3-S-193	811025-009	11/21/2013 11:45	Water
C-NR4-D-193	811025-010	11/21/2013 12:19	Water
C-NR4-S-193	811025-011	11/21/2013 12:33	Water
R-19-193	811025-012	11/21/2013 08:45	Water
R-28-193	811025-013	11/21/2013 08:23	Water
RMP-AB2-193	811025-014	11/21/2013 12:45	Water
RRB-193	811025-015	11/21/2013 14:24	Water

Anions By I.C. - EPA 300.0

Batch 11AN13O

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-013 Bromide	mg/L	11/22/2013 22:58	1.00	0.0250	0.500	ND
Chloride	mg/L	11/22/2013 22:23	25.0	0.872	2.50	80.4
Sulfate	mg/L	11/22/2013 22:23	25.0	0.768	12.5	220

Method Blank

Parameter	Unit	DF	Result
Bromide	mg/L	1.00	ND
Chloride	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND

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

Duplicate — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Bromide	mg/L	1.00	ND	0	0	0 - 20
Chloride	mg/L	25.0	79.6	80.4	1.01	0 - 20
Sulfate	mg/L	25.0	221	220	0.297	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Bromide	mg/L	1.00	4.07	4.00	102	90 - 110
Chloride	mg/L	1.00	4.08	4.00	102	90 - 110
Sulfate	mg/L	1.00	20.8	20.0	104	90 - 110

Matrix Spike — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Bromide	mg/L	1.00	2.17	2.00(2.00)	108	85 - 115
Chloride	mg/L	25.0	185	180(100)	105	85 - 115
Sulfate	mg/L	25.0	484	470(250)	105	85 - 115

Matrix Spike Duplicate — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Bromide	mg/L	1.00	2.16	2.00(2.00)	108	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Bromide	mg/L	1.00	3.91	4.00	97.8	90 - 110
Chloride	mg/L	1.00	3.97	4.00	99.2	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Bromide	mg/L	1.00	2.99	3.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Bromide	mg/L	1.00	2.98	3.00	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Bromide	mg/L	1.00	2.96	3.00	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.13	3.00	104	90 - 110

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

Alkalinity by SM 2320B

Batch 12ALK13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-001 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	131
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	131
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811025-002 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	132
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	132
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811025-003 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	139
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	139
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811025-006 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	134
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	134
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811025-007 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	133
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	133
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811025-008 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	130
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	130
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811025-009 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	132
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	132
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811025-010 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	130
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	130
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND
811025-011 Alkalinity as CaCO3	mg/L	12/02/2013	1.00	1.68	5.00	132
Bicarbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	132
Carbonate (Calculated)	mg/L	12/02/2013	1.00	1.68	5.00	ND

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO3	mg/L	1.00	ND

Duplicate

Lab ID = 811005-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	130	130	0	0 - 20

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

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 Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	99.0	100	99.0	90 - 110

Matrix Spike Lab ID = 811025-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	225	232(100)	93.0	125 - 125

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.

Alkalinity by SM 2320B

Batch 12ALK13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-012 Alkalinity as CaCO3	mg/L	12/03/2013	1.00	1.68	5.00	128
Bicarbonate (Calculated)	mg/L	12/03/2013	1.00	1.68	5.00	128
Carbonate (Calculated)	mg/L	12/03/2013	1.00	1.68	5.00	ND
811025-013 Alkalinity as CaCO3	mg/L	12/03/2013	1.00	1.68	5.00	131
Bicarbonate (Calculated)	mg/L	12/03/2013	1.00	1.68	5.00	131
Carbonate (Calculated)	mg/L	12/03/2013	1.00	1.68	5.00	ND
811025-015 Alkalinity as CaCO3	mg/L	12/03/2013	1.00	1.68	5.00	165
Bicarbonate (Calculated)	mg/L	12/03/2013	1.00	1.68	5.00	165
Carbonate (Calculated)	mg/L	12/03/2013	1.00	1.68	5.00	ND

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO3	mg/L	1.00	ND

Duplicate — Lab ID = 811087-021

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	118	118	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	101	100	101	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	100	100	100	90 - 110

Matrix Spike — Lab ID = 811025-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	257	265(100)	92.0	75 - 125

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.

Specific Conductivity - EPA 120.1

Batch 11EC13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-001 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	851
811025-002 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	834
811025-003 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	875
811025-006 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	834
811025-007 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	837
811025-008 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	839
811025-009 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	837
811025-010 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	839
811025-011 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	846
811025-012 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	848
811025-013 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	846
811025-015 Specific Conductivity	umhos/cm	11/26/2013	1.00	0.606	2.00	876

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811025-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	842	837	0.596	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	732	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	731	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1050	1000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1040	1000	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.

Metals by EPA 6010B, Total

Batch 112613B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-001 Iron	ug/L	11/26/2013 18:33	1.00	3.00	20.0	41.7
811025-002 Iron	ug/L	11/26/2013 19:12	1.00	3.00	20.0	23.5
811025-003 Iron	ug/L	11/26/2013 19:18	1.00	3.00	20.0	1390
811025-006 Iron	ug/L	11/26/2013 19:25	1.00	3.00	20.0	38.5
811025-007 Iron	ug/L	11/26/2013 19:31	1.00	3.00	20.0	ND
811025-008 Iron	ug/L	11/26/2013 19:37	1.00	3.00	20.0	43.3
811025-009 Iron	ug/L	11/26/2013 19:44	1.00	3.00	20.0	22.5
811025-010 Iron	ug/L	11/26/2013 19:50	1.00	3.00	20.0	24.9
811025-011 Iron	ug/L	11/26/2013 19:56	1.00	3.00	20.0	21.7
811025-012 Iron	ug/L	11/26/2013 20:02	1.00	3.00	20.0	57.7
811025-013 Iron	ug/L	11/26/2013 20:09	1.00	3.00	20.0	69.3
811025-015 Iron	ug/L	11/26/2013 20:30	1.00	3.00	20.0	504

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	35.4	41.7	16.3	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2180	2000	109	85 - 115

Matrix Spike — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2040(2000)	106	75 - 125

Matrix Spike Duplicate — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2060	2040(2000)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5240	5000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5170	5000	103	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.

Chrome VI by EPA 218.6

Batch 11CrH13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-001 Chromium, Hexavalent	ug/L	11/22/2013 10:48	1.00	0.00600	0.20	ND
811025-002 Chromium, Hexavalent	ug/L	11/22/2013 11:08	1.00	0.00600	0.20	ND
811025-003 Chromium, Hexavalent	ug/L	11/22/2013 11:18	1.00	0.00600	0.20	ND
811025-004 Chromium, Hexavalent	ug/L	11/22/2013 11:29	1.00	0.00600	0.20	ND
811025-005 Chromium, Hexavalent	ug/L	11/22/2013 11:39	1.00	0.00600	0.20	ND
811025-006 Chromium, Hexavalent	ug/L	11/22/2013 11:50	1.00	0.00600	0.20	ND
811025-007 Chromium, Hexavalent	ug/L	11/22/2013 12:00	1.00	0.00600	0.20	ND
811025-008 Chromium, Hexavalent	ug/L	11/22/2013 12:10	1.00	0.00600	0.20	ND
811025-009 Chromium, Hexavalent	ug/L	11/22/2013 12:42	1.00	0.00600	0.20	ND
811025-010 Chromium, Hexavalent	ug/L	11/22/2013 12:52	1.00	0.00600	0.20	ND
811025-011 Chromium, Hexavalent	ug/L	11/22/2013 13:02	1.00	0.00600	0.20	ND
811025-012 Chromium, Hexavalent	ug/L	11/22/2013 13:13	1.00	0.00600	0.20	ND
811025-013 Chromium, Hexavalent	ug/L	11/22/2013 13:23	1.00	0.00600	0.20	ND
811025-014 Chromium, Hexavalent	ug/L	11/22/2013 13:34	1.00	0.00600	0.20	ND
811025-015 Chromium, Hexavalent	ug/L	11/22/2013 13:44	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0248	0.0247	0.404	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

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

Matrix Spike — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.02(1.00)	102	90 - 110

Matrix Spike — Lab ID = 811025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.02(1.00)	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.

Matrix Spike — Lab ID = 811025-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.999	1.02(1.00)	98.0	90 - 110

Matrix Spike — Lab ID = 811025-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.00(1.00)	97.6	90 - 110

Matrix Spike — Lab ID = 811025-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.00(1.00)	99.3	90 - 110

Matrix Spike — Lab ID = 811025-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.994	1.02(1.00)	97.0	90 - 110

Matrix Spike — Lab ID = 811025-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.02(1.00)	98.8	90 - 110

Matrix Spike — Lab ID = 811025-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.02(1.00)	99.8	90 - 110

Matrix Spike — Lab ID = 811025-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.02(1.00)	101	90 - 110

Matrix Spike — Lab ID = 811025-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.02(1.00)	101	90 - 110

Matrix Spike — Lab ID = 811025-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.02(1.00)	98.1	90 - 110

Matrix Spike — Lab ID = 811025-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.02(1.00)	99.4	90 - 110

Matrix Spike — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.02(1.00)	102	90 - 110

Matrix Spike — Lab ID = 811025-014

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

Matrix Spike Lab ID = 811025-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.01(1.00)	103	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.4	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.94	10.0	99.4	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.90	10.0	99.0	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

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.

Metals by EPA 6020A, Dissolved Batch 112513B

Parameter		Unit	Analyzed	DF	MDL	RL	Result
811025-001	Arsenic	ug/L	11/25/2013 21:56	2.00	0.100	0.50	3.0
	Barium	ug/L	11/25/2013 21:56	2.00	0.594	5.0	99.7
	Chromium	ug/L	11/25/2013 21:56	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 21:56	2.00	0.120	0.50	1.3
	Molybdenum	ug/L	11/25/2013 21:56	2.00	0.100	2.0	3.9
	Selenium	ug/L	11/25/2013 21:56	2.00	0.424	5.0	ND
811025-002	Arsenic	ug/L	11/25/2013 22:38	2.00	0.100	0.50	2.8
	Barium	ug/L	11/25/2013 22:38	2.00	0.594	5.0	99.5
	Chromium	ug/L	11/25/2013 22:38	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 22:38	2.00	0.120	0.50	1.3
	Molybdenum	ug/L	11/25/2013 22:38	2.00	0.100	2.0	3.8
	Selenium	ug/L	11/25/2013 22:38	2.00	0.424	5.0	ND
811025-003	Arsenic	ug/L	11/25/2013 22:44	2.00	0.100	0.50	2.7
	Barium	ug/L	11/25/2013 22:44	2.00	0.594	5.0	101
	Chromium	ug/L	11/25/2013 22:44	2.00	0.142	1.0	ND
	Molybdenum	ug/L	11/25/2013 22:44	2.00	0.100	2.0	3.8
	Selenium	ug/L	11/25/2013 22:44	2.00	0.424	5.0	ND
811025-006	Arsenic	ug/L	11/25/2013 22:50	2.00	0.100	0.50	2.9
	Barium	ug/L	11/25/2013 22:50	2.00	0.594	5.0	97.4
	Chromium	ug/L	11/25/2013 22:50	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 22:50	2.00	0.120	0.50	1.4
	Molybdenum	ug/L	11/25/2013 22:50	2.00	0.100	2.0	3.7
	Selenium	ug/L	11/25/2013 22:50	2.00	0.424	5.0	ND
811025-007	Arsenic	ug/L	11/25/2013 22:56	2.00	0.100	0.50	2.8
	Barium	ug/L	11/25/2013 22:56	2.00	0.594	5.0	96.7
	Chromium	ug/L	11/25/2013 22:56	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 22:56	2.00	0.120	0.50	1.3
	Molybdenum	ug/L	11/25/2013 22:56	2.00	0.100	2.0	3.7
	Selenium	ug/L	11/25/2013 22:56	2.00	0.424	5.0	ND
811025-008	Arsenic	ug/L	11/25/2013 23:02	2.00	0.100	0.50	2.8
	Barium	ug/L	11/25/2013 23:02	2.00	0.594	5.0	99.3
	Chromium	ug/L	11/25/2013 23:02	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 23:02	2.00	0.120	0.50	1.3
	Molybdenum	ug/L	11/25/2013 23:02	2.00	0.100	2.0	3.8

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.

811025-008	Selenium	ug/L	11/25/2013 23:02	2.00	0.424	5.0	ND
811025-009	Arsenic	ug/L	11/25/2013 23:08	2.00	0.100	0.50	2.7
	Barium	ug/L	11/25/2013 23:08	2.00	0.594	5.0	92.9
	Chromium	ug/L	11/25/2013 23:08	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 23:08	2.00	0.120	0.50	1.4
	Molybdenum	ug/L	11/25/2013 23:08	2.00	0.100	2.0	3.6
	Selenium	ug/L	11/25/2013 23:08	2.00	0.424	5.0	ND
811025-010	Arsenic	ug/L	11/25/2013 23:14	2.00	0.100	0.50	2.6
	Barium	ug/L	11/25/2013 23:14	2.00	0.594	5.0	94.4
	Chromium	ug/L	11/25/2013 23:14	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 23:14	2.00	0.120	0.50	1.1
	Molybdenum	ug/L	11/25/2013 23:14	2.00	0.100	2.0	3.7
	Selenium	ug/L	11/25/2013 23:14	2.00	0.424	5.0	ND
811025-011	Arsenic	ug/L	11/25/2013 23:20	2.00	0.100	0.50	2.5
	Barium	ug/L	11/25/2013 23:20	2.00	0.594	5.0	93.0
	Chromium	ug/L	11/25/2013 23:20	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 23:20	2.00	0.120	0.50	0.93
	Molybdenum	ug/L	11/25/2013 23:20	2.00	0.100	2.0	3.5
	Selenium	ug/L	11/25/2013 23:20	2.00	0.424	5.0	ND
811025-012	Arsenic	ug/L	11/25/2013 23:26	2.00	0.100	0.50	2.7
	Barium	ug/L	11/25/2013 23:26	2.00	0.594	5.0	96.3
	Chromium	ug/L	11/25/2013 23:26	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 23:26	2.00	0.120	0.50	3.7
	Molybdenum	ug/L	11/25/2013 23:26	2.00	0.100	2.0	3.6
	Selenium	ug/L	11/25/2013 23:26	2.00	0.424	5.0	ND
811025-013	Arsenic	ug/L	11/25/2013 23:44	2.00	0.100	0.50	2.7
	Barium	ug/L	11/25/2013 23:44	2.00	0.594	5.0	94.0
	Chromium	ug/L	11/25/2013 23:44	2.00	0.142	1.0	ND
	Manganese	ug/L	11/25/2013 23:44	2.00	0.120	0.50	3.5
	Molybdenum	ug/L	11/25/2013 23:44	2.00	0.100	2.0	3.6
	Selenium	ug/L	11/25/2013 23:44	2.00	0.424	5.0	ND
811025-015	Arsenic	ug/L	11/25/2013 23:50	2.00	0.100	0.50	2.5
	Barium	ug/L	11/25/2013 23:50	2.00	0.594	5.0	173
	Chromium	ug/L	11/25/2013 23:50	2.00	0.142	1.0	ND
	Molybdenum	ug/L	11/25/2013 23:50	2.00	0.100	2.0	3.1
	Selenium	ug/L	11/25/2013 23:50	2.00	0.424	5.0	ND

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

Method Blank

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.188	0.200	94.0	70 - 130
Barium	ug/L	1.00	0.909	1.00	90.9	70 - 130
Chromium	ug/L	1.00	0.202	0.200	101	70 - 130
Selenium	ug/L	1.00	0.999	1.00	99.9	70 - 130
Manganese	ug/L	1.00	0.183	0.200	91.5	70 - 130
Molybdenum	ug/L	1.00	0.199	0.200	99.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	48.4	50.0	96.7	85 - 115
Barium	ug/L	1.00	47.4	50.0	94.9	85 - 115
Chromium	ug/L	1.00	48.7	50.0	97.4	85 - 115
Selenium	ug/L	1.00	44.0	50.0	88.0	85 - 115
Manganese	ug/L	1.00	48.4	50.0	96.8	85 - 115
Molybdenum	ug/L	1.00	47.9	50.0	95.8	85 - 115

Matrix Spike Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.4	53.0(50.0)	96.8	75 - 125
Barium	ug/L	2.00	146	150(50.0)	91.7	75 - 125
Chromium	ug/L	2.00	47.6	50.0(50.0)	95.1	75 - 125
Selenium	ug/L	2.00	45.4	50.0(50.0)	90.8	75 - 125
Manganese	ug/L	2.00	48.3	51.3(50.0)	94.0	75 - 125
Molybdenum	ug/L	2.00	51.8	53.9(50.0)	95.8	75 - 125

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.

Matrix Spike Duplicate Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.2	53.0(50.0)	94.5	75 - 125
Barium	ug/L	2.00	144	150(50.0)	89.3	75 - 125
Chromium	ug/L	2.00	46.4	50.0(50.0)	92.8	75 - 125
Selenium	ug/L	2.00	43.0	50.0(50.0)	86.0	75 - 125
Manganese	ug/L	2.00	47.0	51.3(50.0)	91.4	75 - 125
Molybdenum	ug/L	2.00	50.3	53.9(50.0)	92.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.7	20.0	98.5	90 - 110
Barium	ug/L	1.00	20.0	20.0	100	90 - 110
Chromium	ug/L	1.00	19.5	20.0	97.6	90 - 110
Selenium	ug/L	1.00	19.4	20.0	97.3	90 - 110
Manganese	ug/L	1.00	19.9	20.0	99.4	90 - 110
Molybdenum	ug/L	1.00	20.5	20.0	103	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	98.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	98.9	90 - 110
Barium	ug/L	1.00	19.7	20.0	98.3	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	20.5	20.0	102	90 - 110
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

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

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.7	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	102	99.7	2.66	0 - 10

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

Metals by EPA 6020A, Dissolved

Batch 112613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-003 Manganese	ug/L	11/26/2013 14:53	2.00	0.120	0.50	56.3
811025-015 Manganese	ug/L	11/26/2013 15:05	10.0	0.600	2.0	354

Method Blank

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

Duplicate — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	1.36	1.27	6.48	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.188	0.200	94.0	70 - 130
Manganese	ug/L	1.00	0.172	0.200	86.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.9	50.0	95.8	85 - 115
Manganese	ug/L	1.00	48.0	50.0	96.0	85 - 115

Matrix Spike — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.9	50.0(50.0)	93.8	75 - 125
Manganese	ug/L	2.00	47.6	51.3(50.0)	92.6	75 - 125

Matrix Spike Duplicate — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.0	50.0(50.0)	90.0	75 - 125
Manganese	ug/L	2.00	45.9	51.3(50.0)	89.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.1	90 - 110
Manganese	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	19.7	20.0	98.7	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM Printed 12/5/2013

Serial Dilution Lab ID = 811025-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	59.0	56.3	4.66	0 - 10

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

Metals by EPA 6010B, Dissolved

Batch 112613B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-013 Boron	ug/L	11/26/2013 21:28	1.00	4.10	20.0	121
Magnesium	ug/L	11/26/2013 21:03	20.0	9360	20000	26200
Potassium	ug/L	11/26/2013 21:28	1.00	95.2	500	4440
Sodium	ug/L	11/26/2013 21:03	20.0	1200	10000	84700

Method Blank

Parameter	Unit	DF	Result
Potassium	ug/L	1.00	ND
Sodium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND
Boron	ug/L	1.00	ND

Duplicate — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Potassium	ug/L	1.00	4440	4440	0.0901	0 - 20
Sodium	ug/L	20.0	82200	84700	2.95	0 - 20
Magnesium	ug/L	20.0	25300	26200	3.53	0 - 20
Boron	ug/L	1.00	118	121	2.76	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Potassium	ug/L	1.00	2150	2000	108	85 - 115
Sodium	ug/L	1.00	2060	2000	103	85 - 115
Magnesium	ug/L	1.00	2070	2000	104	85 - 115
Boron	ug/L	1.00	2000	2000	99.8	85 - 115

Matrix Spike — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Potassium	ug/L	1.00	6570	6440(2000)	107	75 - 125
Sodium	ug/L	20.0	125000	125000(40000)	100	75 - 125
Magnesium	ug/L	20.0	66100	66200(40000)	99.7	75 - 125
Boron	ug/L	1.00	2090	2120(2000)	98.4	75 - 125

Matrix Spike Duplicate — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Potassium	ug/L	1.00	6260	6440(2000)	90.9	75 - 125
Boron	ug/L	1.00	2050	2120(2000)	96.3	75 - 125

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.

Metals by EPA 6010B, Dissolved

Batch 112713A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-001 Iron	ug/L	11/27/2013 13:55	1.00	3.00	20.0	ND
811025-002 Iron	ug/L	11/27/2013 14:20	1.00	3.00	20.0	ND
811025-003 Iron	ug/L	11/27/2013 14:41	1.00	3.00	20.0	24.2
811025-006 Iron	ug/L	11/27/2013 14:47	1.00	3.00	20.0	ND
811025-007 Iron	ug/L	11/27/2013 14:53	1.00	3.00	20.0	ND
811025-008 Iron	ug/L	11/27/2013 14:59	1.00	3.00	20.0	ND
811025-009 Iron	ug/L	11/27/2013 15:05	1.00	3.00	20.0	ND
811025-010 Iron	ug/L	11/27/2013 15:12	1.00	3.00	20.0	ND
811025-011 Iron	ug/L	11/27/2013 15:18	1.00	3.00	20.0	ND
811025-012 Iron	ug/L	11/27/2013 15:24	1.00	3.00	20.0	ND
811025-013 Iron	ug/L	11/27/2013 15:30	1.00	3.00	20.0	ND
811025-015 Iron	ug/L	11/27/2013 16:45	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 811025-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	51.4	50.0	103	85 - 115

Matrix Spike — Lab ID = 811025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	51.9	50.0(50.0)	104	75 - 125

Matrix Spike Duplicate — Lab ID = 811025-001

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	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.

Metals by EPA 6010B, Dissolved

Batch 112713A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-013 Calcium	ug/L	11/27/2013 12:42	20.0	340	10000	73200

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND

Duplicate — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	20.0	70800	73200	3.40	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2060	2000	103	85 - 115

Matrix Spike — Lab ID = 811025-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	20.0	114000	113000(40000)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5000	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4930	5000	98.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5000	5000	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5050	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5060	5000	101	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	1980	2000	98.9	80 - 120

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.

pH by SM 4500-H B

Batch 11PH13R

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811025-001 pH	pH	11/22/2013 10:55	1.00	0.0250	4.00	8.28	J
811025-002 pH	pH	11/22/2013 10:57	1.00	0.0250	4.00	8.29	J
811025-003 pH	pH	11/22/2013 10:59	1.00	0.0250	4.00	8.04	J
811025-006 pH	pH	11/22/2013 11:01	1.00	0.0250	4.00	8.29	J
811025-007 pH	pH	11/22/2013 11:03	1.00	0.0250	4.00	8.30	J
811025-008 pH	pH	11/22/2013 11:05	1.00	0.0250	4.00	8.28	J
811025-009 pH	pH	11/22/2013 11:11	1.00	0.0250	4.00	8.27	J
811025-010 pH	pH	11/22/2013 11:13	1.00	0.0250	4.00	8.19	J
811025-011 pH	pH	11/22/2013 11:15	1.00	0.0250	4.00	8.21	J
811025-012 pH	pH	11/22/2013 11:17	1.00	0.0250	4.00	8.31	J
811025-013 pH	pH	11/22/2013 11:19	1.00	0.0250	4.00	8.31	J
811025-015 pH	pH	11/22/2013 11:21	1.00	0.0250	4.00	8.01	J

Duplicate — Lab ID = 811025-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.27	8.28	0.121	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	6.99	7.00	99.8	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.06	7.00	101	90 - 110

MRCVS - Primary

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

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.

Total Dissolved Solids by SM 2540 C

Batch 11TDS13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-013 Total Dissolved Solids	mg/L	11/27/2013	1.00	1.76	25.0	564

Method Blank

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

Duplicate — Lab ID = 811067-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	141	139	1.43	0 - 10

Duplicate — Lab ID = 811083-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	5.00	4280	4340	1.28	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	502	500	100	90 - 110

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

Total Suspended Solids by SM 2540 D

Batch 11TSS13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-001 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811025-002 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811025-003 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	5.00	48.8
811025-006 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811025-007 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811025-008 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811025-009 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND
811025-010 Total Suspended Solids	mg/L	11/25/2013	1.00	0.349	4.00	ND

Method Blank

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

Duplicate — Lab ID = 811027-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	325	298	8.67	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	91.0	100	91.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	94.0	100	94.0	90 - 110

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

Total Suspended Solids by SM 2540 D

Batch 11TSS13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811025-011 Total Suspended Solids	mg/L	11/26/2013	1.00	0.349	4.00	ND
811025-012 Total Suspended Solids	mg/L	11/26/2013	1.00	0.349	4.00	ND
811025-013 Total Suspended Solids	mg/L	11/26/2013	1.00	0.349	4.00	ND
811025-015 Total Suspended Solids	mg/L	11/26/2013	1.00	0.349	4.00	41.3

Method Blank

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

Duplicate — Lab ID = 811031-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	20.5	22.5	9.30	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	98.0	100	98.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	95.0	100	95.0	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 11TDS13E
Date Analyzed: 11/27/13

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	78.3923	78.3925	78.3925	0.0000	No	0.0002	2.0	25.0	ND	1
811021-2	100	66.6933	66.7238	66.7238	0.0000	No	0.0305	305.0	25.0	305.0	1
811021-3	100	78.7933	78.8087	78.8087	0.0000	No	0.0154	154.0	25.0	154.0	1
811065-1	100	77.7693	77.8099	77.8096	0.0003	No	0.0403	403.0	25.0	403.0	1
811065-2	100	75.7454	75.7887	75.7886	0.0001	No	0.0432	432.0	25.0	432.0	1
811067-2	100	78.9026	78.9165	78.9165	0.0000	No	0.0139	139.0	25.0	139.0	1
811067-4	100	75.2636	75.2995	75.2991	0.0004	No	0.0355	355.0	25.0	355.0	1
811090-1	100	78.7828	78.8305	78.8301	0.0004	No	0.0473	473.0	25.0	473.0	1
811090-2	100	71.2955	71.3424	71.3423	0.0001	No	0.0468	468.0	25.0	468.0	1
811090-3	100	76.5008	76.5476	76.5475	0.0001	No	0.0467	467.0	25.0	467.0	1
811090-4	100	67.0324	67.0798	67.0795	0.0003	No	0.0471	471.0	25.0	471.0	1
811067-2D	100	74.5927	74.6069	74.6068	0.0001	No	0.0141	141.0	25.0	141.0	1
LCS	100	70.3818	70.432	70.432	0.0000	No	0.0502	502.0	25.0	502.0	1
811083	20	29.2830	29.3701	29.3697	0.0004	No	0.0867	4335.0	125.0	4335.0	1
811094-1	100	72.7580	72.8021	72.8017	0.0004	No	0.0437	437.0	25.0	437.0	1
811094-2	100	75.7496	75.7951	75.7948	0.0003	No	0.0452	452.0	25.0	452.0	1
811025-13	100	72.5225	72.5791	72.5789	0.0002	No	0.0564	564.0	25.0	564.0	1
811083D	20	28.8874	28.9734	28.9731	0.0003	No	0.0857	4285.0	125.0	4285.0	1

Calculation as follows:

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

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	502	501	100.2%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
811067-2	0.0139	0.0141	0.7%	≤5%	Yes
811083	0.0867	0.0857	0.6%	5%	Yes

Duplicate Determination Difference

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

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

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 11TDS13E
Date Analyzed: 11/27/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
811021-2	419	0.73	272.35	1.12
811021-3	216	0.71	140.4	1.10
811065-1	722	0.56	469.3	0.86
811065-2	691	0.63	449.15	0.96
811067-2	236	0.59	153.4	0.91
811067-4	561	0.63	364.65	0.97
811090-1	715	0.66	464.75	1.02
811090-2	704	0.66	457.6	1.02
811090-3	736	0.63	478.4	0.98
811090-4	706	0.67	458.9	1.03
811067-2D	236	0.60	153.4	0.92
LCS				
811083	6680	0.65	4342	1.00
811094-1	693	0.63	450.45	0.97
811094-2	658	0.69	427.7	1.06
811025-13	846	0.67	549.9	1.03
811083D	6680	0.64	4342	0.99

e2

TRUESDAIL LABORATORIES INC.

3

Total Suspended Solids by SM 2540 D

Calculations

Batch: 11TSS13H

Date Analyzed: 11/25/13

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
1	BLK	1000	1.4133	1.4133	1.4133	0.0000	No	0.0000	0.0	2.5	ND
3	811005-1	700	1.4209	1.4213	1.4213	0.0000	No	0.0004	0.6	3.6	ND
4	811005-2	700	1.4174	1.4181	1.4181	0.0000	No	0.0007	1.0	3.6	ND
5	811005-3	700	1.4155	1.4159	1.4159	0.0000	No	0.0004	0.6	3.6	ND
6	811005-6	700	1.4253	1.4273	1.4273	0.0000	No	0.0020	2.9	3.6	ND
7	811005-7	700	1.4138	1.4152	1.4152	0.0000	No	0.0014	2.0	3.6	ND
8	811005-8	700	1.4192	1.4213	1.4213	0.0000	No	0.0021	3.0	3.6	ND
9	811005-9	700	1.4174	1.4188	1.4188	0.0000	No	0.0014	2.0	3.6	ND
10	811005-10	700	1.4211	1.4223	1.4223	0.0000	No	0.0012	1.7	3.6	ND
11	811005-11	700	1.4118	1.4129	1.4129	0.0000	No	0.0011	1.6	3.6	ND
12	811005-12	700	1.4176	1.4207	1.4207	0.0000	No	0.0031	4.4	3.6	4.4
13	811025-1	700	1.4186	1.4199	1.4199	0.0000	No	0.0013	1.9	3.6	ND
14	811025-2	700	1.4271	1.4283	1.4283	0.0000	No	0.0012	1.7	3.6	ND
15	811025-3	500	1.4220	1.4464	1.4464	0.0000	No	0.0244	48.8	5.0	48.8
16	811025-6	700	1.4157	1.4169	1.4169	0.0000	No	0.0012	1.7	3.6	ND
17	811025-7	700	1.4187	1.4195	1.4195	0.0000	No	0.0008	1.1	3.6	ND
18	811025-8	700	1.4170	1.4183	1.4183	0.0000	No	0.0013	1.9	3.6	ND
19	811025-9	700	1.4157	1.4171	1.4171	0.0000	No	0.0014	2.0	3.6	ND
20	811025-10	700	1.4182	1.4186	1.4186	0.0000	No	0.0004	0.6	3.6	ND
21	811027	100	1.4101	1.4399	1.4399	0.0000	No	0.0298	298.0	25.0	298.0
22	811028	200	1.4156	1.4212	1.4212	0.0000	No	0.0056	28.0	12.5	28.0
23	811027 D	100	1.4134	1.4459	1.4459	0.0000	No	0.0325	325.0	25.0	325.0
24	811028 D	200	1.4213	1.4273	1.4273	0.0000	No	0.0060	30.0	12.5	30.0
2	LCS	100	1.4263	1.4354	1.4354	0.0000	No	0.0091	91.0	25.0	91.0
29	LCSD	100	1.4275	1.4369	1.4369	0.0000	No	0.0094	94.0	25.0	94.0

Calculation as follows:

Non- Filterable residue (TSS), mg/L = $\left(\frac{A-B}{C}\right) x\ 1\ 0^6$

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	91	100	91.0%	90-110%	Yes
LCSD	94	100	94.0%	90-110%	Yes

LCS Recovery

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

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

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

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
811027	0.0298	0.0325	4.3%	5%	Yes
811028	0.0056	0.006	3.4%	5%	Yes

Himani
Analyst Printed Name

Himani
Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

TRUESDAIL LABORATORIES INC.

Total Suspended Solids by SM 2540 D

Calculations

Batch: 11TSS13I

Date Analyzed: 11/26/13

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
25	BLANK	1000	1.4167	1.4167	1.4167	0.0000	No	0.0000	0.0	2.5	ND
26	LCS	100	1.4151	1.4249	1.4249	0.0000	No	0.0098	98.0	25.0	98.0
27	811025-11	700	1.4189	1.4189	1.4189	0.0000	No	0.0000	0.0	3.6	ND
28	811025-12	700	1.4161	1.4171	1.4171	0.0000	No	0.0010	1.4	3.6	ND
29	811025-13	700	1.4188	1.4191	1.4191	0.0000	No	0.0003	0.4	3.6	ND
30	811025-15	700	1.4211	1.4500	1.4500	0.0000	No	0.0289	41.3	3.6	41.3
31	811030-1	200	1.4190	1.4611	1.4611	0.0000	No	0.0421	210.5	12.5	210.5
32	811030-2	400	1.4242	1.4385	1.4385	0.0000	No	0.0143	35.8	6.3	35.8
33	811030-3	400	1.4221	1.4832	1.4832	0.0000	No	0.0611	152.8	6.3	152.8
34	811030-4	500	1.4159	1.4326	1.4326	0.0000	No	0.0167	33.4	5.0	33.4
35	811031-1	200	1.4181	1.4226	1.4226	0.0000	No	0.0045	22.5	12.5	22.5
36	811031-2	500	1.4071	1.4442	1.4442	0.0000	No	0.0371	74.2	5.0	74.2
37	811031-3	700	1.4197	1.4308	1.4308	0.0000	No	0.0111	15.9	3.6	15.9
38	811034-1	300	1.4169	1.4377	1.4377	0.0000	No	0.0208	69.3	8.3	69.3
39	811034-2	200	1.4217	1.5350	1.5350	0.0000	No	0.1133	566.5	12.5	566.5
40	811036-1	100	1.4245	1.4440	1.4440	0.0000	No	0.0195	195.0	25.0	195.0
41	811036-2	100	1.4172	1.4322	1.4322	0.0000	No	0.0150	150.0	25.0	150.0
42	811036-3	300	1.4126	1.4217	1.4217	0.0000	No	0.0091	30.3	8.3	30.3
43	811037	300	1.4247	1.4478	1.4478	0.0000	No	0.0231	77.0	8.3	77.0
44	811038-1	300	1.4220	1.4653	1.4653	0.0000	No	0.0433	144.3	8.3	144.3
45	811038-2	50	1.4208	1.4580	1.458	0.0000	No	0.0372	744.0	50.0	744.0
46	811040	200	1.4233	1.4247	1.4247	0.0000	No	0.0014	7.0	12.5	ND
47	811031-1 D	200	1.4220	1.4261	1.4261	0.0000	No	0.0041	20.5	12.5	20.5
48	811036-2 D	100	1.4168	1.4331	1.4331	0.0000	No	0.0163	163.0	25.0	163.0
49	LCSD	100	1.4178	1.4273	1.4273	0.0000	No	0.0095	95.0	25.0	95.0

Calculation as follows:

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

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	98	100	98.0%	90-110%	Yes
LCSD	95	100	95.0%	90-110%	Yes

LCS Recovery

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

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

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

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
811031-1	0.0045	0.0041	4.7%	5%	Yes
811036-2	0.015	0.0163	4.2%	5%	Yes

Himani
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B
Calculations

Analytical Batch:	12ALK13A
Matrix:	WATER
Date of Analysis:	12/2/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	5.52	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
811005-1	8.18	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
811005-2	8.22	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
811005-3	8.23	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
811005-6	8.24	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
811005-7	8.26	50	0.02		0.0	6.55		131.0	5	131.0	131.0	ND	ND	
811005-8	8.23	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
811005-9	8.26	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
811005-10	8.26	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
811005-11	8.21	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
811005-12	8.24	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
811005-12 DUP	8.28	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
LCS	10.40	50	0.02	2.1	42.0	4.95		99.0	5	99.0	15.0	84	ND	
LCSD	10.38	50	0.02	2.1	41.0	4.95		99.0	5	99.0	17.0	82	ND	
811025-1	8.36	50	0.02	0.0	0.0	6.55		131.0	5	131.0	131.0	0	ND	
811025-2	8.28	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
811025-3	8.13	50	0.02		0.0	6.95		139.0	5	139.0	139.0	ND	ND	
811025-6	8.26	50	0.02		0.0	6.70		134.0	5	134.0	134.0	ND	ND	
811025-7	8.27	50	0.02		0.0	6.65		133.0	5	133.0	133.0	ND	ND	
811025-8	8.24	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
811025-9	8.23	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
811025-10	8.21	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
811025-11	8.22	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
811025-11 MS	9.47	50	0.02		0.0	11.25		225.0	5	225.0	225.0	0	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

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

Where:

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	99	100	99.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
811005-12	130	130	0.0%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
811025-11	132	1	100	100	225	232.00	93%	75-125	Yes			
				0								

Himani Vaishnav
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

1213A.xls

064

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Analytical Batch:	12ALK13B
Matrix:	WATER
Date of Analysis:	12/3/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	5.90	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
811025-12	8.12	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
811025-13	8.27	50	0.02		0.0	6.55		131.0	5	131.0	131.0	ND	ND	
811025-15	8.07	50	0.02		0.0	8.25		165.0	5	165.0	165.0	ND	ND	
811022-21	8.00	50	0.02		0.0	5.85		117.0	5	117.0	117.0	ND	ND	
811087-21	8.00	50	0.02		0.0	5.90		118.0	5	118.0	118.0	ND	ND	
811131-1	7.19	50	0.02		0.0	15.25		305.0	5	305.0	305.0	ND	ND	
811131-2	7.16	50	0.02		0.0	10.75		215.0	5	215.0	215.0	ND	ND	
811131-3	7.15	50	0.02		0.0	11.20		224.0	5	224.0	224.0	ND	ND	
811087-21 DUP	8.00	50	0.02		0.0	5.90		118.0	5	118.0	118.0	ND	ND	
LCS	10.48	50	0.02	2.10	42.0	5.05		101.0	5	101.0	17.0	84	ND	
LCSD	10.45	50	0.02	2.05	41.0	5.00		100.0	5	100.0	18.0	82	ND	
811025-15 MS	9.26	50	0.02		0.0	12.85		257.0	5	257.0	257.0	0	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

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

Where:

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

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

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
811087-21	118	118	0.0%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
811025-15	165	1	100	100	257	265.00	92%	75-125	Yes			
				0								

Himani Vaishnav
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

1213B.xls

811025

Rec'd 11/21/13
S 811025

CH2MHILL

CHAIN OF CUSTODY RECORD

11/21/2013 3:28:46 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2013-RMP-193
Turnaround Time 10 Days
Shipping Date: 10/22/2013
COC Number: TLI-RMP193

			Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C			
			Filtered:	Field	NA	NA	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	28	28	180	180	180	180	7	7	7	7	7	7			
				Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6–river)	Metals (6010B) Total Fe	Metals (6010BFF) Field Filtered Dissolved Ca,Mg,K,Na,B	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo,Ba	Metals (6020A) Field Filtered Chromium	Anions (E300.0) Br,Cl,SO4	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)		Number of Containers	COMMENTS
	DATE	TIME	Matrix															
1	C-CON-D-193	11/21/2013	9:18	Water	X		X		X	X		X		X	X	X	9	
2	C-CON-S-193	11/21/2013	9:38	Water	X		X		X	X		X		X	X	X	9	
3	C-MAR-S-193	11/21/2013	7:48	Water	X		X		X	X		X		X	X	X	9	
4	C-MW-82-193	11/21/2013	8:15	Water		X											1	
5	C-MW-83-193	11/21/2013	11:15	Water		X											1	
6	C-NR1-D-193	11/21/2013	10:17	Water	X		X		X	X		X		X	X	X	9	
7	C-NR1-S-193	11/21/2013	10:38	Water	X		X		X	X		X		X	X	X	9	
8	C-NR3-D-193	11/21/2013	11:25	Water	X		X		X	X		X		X	X	X	9	
9	C-NR3-S-193	11/21/2013	11:45	Water	X		X		X	X		X		X	X	X	9	
10	C-NR4-D-193	11/21/2013	12:19	Water	X		X		X	X		X		X	X	X	9	
11	C-NR4-S-193	11/21/2013	12:33	Water	X		X		X	X		X		X	X	X	9	
12	R-19-193	11/21/2013	8:45	Water	X		X		X	X		X		X	X	X	9	
13	R-28-193	11/21/2013	8:23	Water	X		X	X	X	X	X	X	X	X	X	X	9	
14	RMP-AB2-193	11/21/2013	12:45	Water		X											1	

*Where provided w/ mult. Cr6 + metals bottles please analyze 1 + hold 2

For Sample Conditions See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		11-21-13
Sampled by		1535
Relinquished by		11-21-13
Received by		1535
Relinquished by		11-21-13 2015
Received by		11/21/13 2015

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

ATTN:
Sample Custody

Special Instructions:
Nov 4-6, 2013

Report Copy to
Shawn Duffy
(530) 229-3303

20

811025

Rec'd 11/21/13 811025

S

CH2MHILL

CHAIN OF CUSTODY RECORD

11/21/2013 3:28:47 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2013-RMP-193
Turnaround Time 10 Days
Shipping Date: 10/22/2013
COC Number: TLI-RMP193

				Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6--river)	Metals (6010B) Total Fe	Metals (6010BFF) Field Filtered Dissolved Ca,Mg,K,Na,B	Metals (SW6010B,SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo,Ba	Metals (6020A) Field Filtered Chromium	Anions (E300.0) Br,Cl,SO4	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)		Number of Containers	COMMENTS
Container:				3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C			
Filtered:				Field	NA	NA	Field	Field	Field	NA	NA	NA	NA	NA	NA			
Holding Time:				28	28	180	180	180	180	7	7	7	7	7	7			
5	RRB-193	11/21/2013	14:24	Water	X		X		X	X		X		X	X	X	9	
																TOTAL NUMBER OF CONTAINERS	111	

* Where provided w/mult. Cr6 + metals bottles please analyze 1 + hold 2

ALERT !!
Level III QC

For Sample Conditions See Form Attached

	Signatures	Date/Time
Approved by		
Sampled by		11-21-13 1535
Relinquished by		11-21-13 1535
Received by	Eleach Ngo	11-21-13 1535
Relinquished by	Eleach Ngo	11-21-13 2015
Received by	Andrew Brady	11/21/13 2015

Shipping Details

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

ATTN:
Sample Custody

Special Instructions:
Nov 4-6, 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
11/21/13	811005-4	9.5	N/A	N/A	N/A	Fom
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
11/22/13	811024 -1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	811025-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					

11/25/13

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

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
11/22/13	811025-12	9.5	N/A	N/A	N/A	NR
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓
↓	↓ -15	↓	↓	↓	↓	↓

NE 11/25/13

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811020-1,2	>1	<2	11/22/13	DC	Yes			
810997-1,2	>1	<2	11/22/13	DC	↓			
811000-1,2,3	<1	>2	↓	↓	NO	13:10		
811002-10,11,12	↓	↓	↓	↓	↓	↓		
810030 (1-4)	>1	<2	11/25/13	ES	Yes			
810036 (1-3)	↓	↓	↓	↓	↓			
811040	↓	↓	↓	↓	↓			
811043 (1-2)	↓	↓	↓	↓	↓			
811048	>1	<2	11/25/13	KK	YES			
811024 (1-7)	<1	<2	11/25/13	ES	Yes			
811025 (1-3,6-13,15)	↓	↓	↓	↓	↓			T/D
811053	<1	<2	11/27/13	ES	Yes			
811065 (1-2	↓	↓	↓	↓	↓			
811076	↓	↓	↓	↓	↓			
811083	<1	>2	11/27/13	ES	Yes	1:30		pH <2
811057 (1-3)	<1	>2	11/27/13	ES	NO	3:00		
811067 (1-2,4	↓	↓	↓	↓	↓	↓		
811069 (1-2)	↓	↓	↓	↓	↓	↓		
811079 (1-2)	↓	↓	↓	↓	↓	↓		
811073	<1	<2	12/2/13	ES	Yes			
811094 (1-2)	↓	↓	↓	↓	↓			
811099 (10-12)	↓	>2	↓	↓	NO	3:00		
811104	↓	<2	↓	↓	Yes			
811106 (1-3)	↓	>2	↓	↓	NO	3:00		
811107	<1	>2	11/27/13	KK	NO	1:50		
811117	>1	<2	12/3/13	KK	Yes			
811118 (1-2)	>1	<2	↓	↓	↓			
811119 (1-3)	↓	↓	↓	↓	↓			
811123 (1-2)	↓	↓	↓	↓	↓			
811130-6	<1	>2	12/3/13	ES	NO	5:00		
811131 (1-3)	↓	↓	↓	↓	↓	↓		
811139 (1-2,4)	↓	↓	↓	↓	↓	↓		
811133	↓	>2	↓	↓	Yes			
811134	↓	↓	↓	↓	↓			
811135	↓	↓	↓	↓	↓			
811136	↓	↓	↓	↓	↓			
811137	↓	↓	↓	↓	↓			
811156	>1	<2	12/4/13	ES	Yes			
811160 (1-9)	<1	<2	12/4/13	KK	Yes			
811157	<1	>2	↓	↓	↓			
811158 (1-2)	<1	>2	↓	↓	↓			
811159 (1-2,2)	<1	>2	↓	↓	↓			
811110	<1	<2	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 811025

Date Delivered: 11 / 21 / 13 **Time:** 10:15 **By:** ☐ Mail ☐ Field Service ☑ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☑ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☑ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.3 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☑ **Truesdail** ☐ Client
12. Were samples pH checked? pH = See C.O.C ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
    ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT II Level III QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 12, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811072

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 November 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.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811072
Date Received: November 26, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811072-001	MW-34-055-194	SM4500NH3D	NONE	11/20/2013	10:22	Ammonia-N	ND	mg/L	0.500
811072-002	MW-34-080-194	SM4500NH3D	NONE	11/20/2013	11:45	Ammonia-N	ND	mg/L	0.500
811072-003	MW-34-100-194	SM4500NH3D	NONE	11/20/2013	12:45	Ammonia-N	ND	mg/L	0.500
811072-004	MW-46-175-194	SM4500NH3D	NONE	11/20/2013	14:56	Ammonia-N	ND	mg/L	0.500
811072-005	MW-46-205-194	SM4500NH3D	NONE	11/20/2013	15:42	Ammonia-N	ND	mg/L	0.500
811072-006	MW-93-194	SM4500NH3D	NONE	11/20/2013	7:00	Ammonia-N	ND	mg/L	0.500
811072-007	MW-94-194	SM4500NH3D	NONE	11/20/2013	7:30	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811072

Printed 12/12/2013

Samples Received on 11/26/2013 12:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-34-055-194	811072-001	11/20/2013 10:22	Water
MW-34-080-194	811072-002	11/20/2013 11:45	Water
MW-34-100-194	811072-003	11/20/2013 12:45	Water
MW-46-175-194	811072-004	11/20/2013 14:56	Water
MW-46-205-194	811072-005	11/20/2013 15:42	Water
MW-93-194	811072-006	11/20/2013 07:00	Water
MW-94-194	811072-007	11/20/2013 07:30	Water

Ammonia Nitrogen by SM4500-NH3D Batch 12NH313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811072-001 Ammonia as N	mg/L	12/11/2013	1.00	0.0318	0.500	ND
811072-002 Ammonia as N	mg/L	12/11/2013	1.00	0.0318	0.500	ND
811072-003 Ammonia as N	mg/L	12/11/2013	1.00	0.0318	0.500	ND
811072-004 Ammonia as N	mg/L	12/11/2013	1.00	0.0318	0.500	ND
811072-005 Ammonia as N	mg/L	12/11/2013	1.00	0.0318	0.500	ND
811072-006 Ammonia as N	mg/L	12/11/2013	1.00	0.0318	0.500	ND
811072-007 Ammonia as N	mg/L	12/11/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 811072-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 0

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.35	8.00	104	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 12/12/2013

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.45	8.00	106	90 - 110

Matrix Spike — Lab ID = 811072-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.7	10.0(10.0)	107	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.47	6.00	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.52	6.00	109	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

811072

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

25-Nov-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
-1	N011508-001C / MW-34-055-194	Water	11/20/2013 10:22:00 AM	32OZP	1		
-2	N011508-002C / MW-34-080-194	Water	11/20/2013 11:45:00 AM	32OZP	1		
-3	N011508-003C / MW-34-100-194	Water	11/20/2013 12:45:00 PM	32OZP	1		
-4	N011508-004C / MW-46-175-194	Water	11/20/2013 2:56:00 PM	32OZP	1		
-5	N011508-005C / MW-46-205-194	Water	11/20/2013 3:42:00 PM	32OZP	1		
-6	N011508-006C / MW-93-194	Water	11/20/2013 7:00:00 AM	32OZP	1		
-7	N011508-007C / MW-94-194		11/20/2013 7:30:00 AM	32OZP	1		

ALERT !!
Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N011508 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Pleas analyze for Ammonia by SM 4500. Please send report to CH2M Hill. Please bill ATL Inc.

GSO # 523864962

		Date/Time			Date/Time
Relinquished by:	HERSEY SAYAS	25NOV13 1007	**Received by:**		11-26-13 12:00 pm
Relinquished by:			**Received by:**		

016

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 811072

Date Delivered: 11 / 26 / 13 **Time:** 12:00 **By:** ☒ **Mail** ☐ **Field Service** ☐ **Client**

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☒ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☒ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.4 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☒ Client
12. Were samples pH checked? pH = _____ ☐ Yes ☐ No ☒ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
    ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level IV QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

December 20, 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-213, GROUNDWATER MONITORING PROJECT, TLI NO.: 811158

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-213 groundwater-monitoring project. 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 December 3, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

Due to instrument problems, the samples for Nitrate as N by EPA 300.0 were analyzed approximately four hours past the method specified holding time. Mr. Duffy was notified.

Due to analyst error, the samples for Alkalinity by SM 2320B were analyzed two days past the method specified holding time. Mr. Duffy was notified.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for - Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 811158
Date: October 20, 2013
Collected: December 3, 2013
Received: December 3, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 4500-H B	pH	Himani Vaishnav
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Himani Vaishnav
EPA 300.0	Anions	Giawad Ghenniwa
EPA 200.7	Metals by ICP	Ethel Suico
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811158
Date Received: December 3, 2013

Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811158-001	PE-01-213	E120.1	NONE	12/3/2013	13:45	EC	3950	umhos/cm	2.00
811158-001	PE-01-213	E200.7	LABFLT	12/3/2013	13:45	Calcium	115000	ug/L	25000
811158-001	PE-01-213	E200.7	LABFLT	12/3/2013	13:45	Iron	ND	ug/L	20.0
811158-001	PE-01-213	E200.7	LABFLT	12/3/2013	13:45	Magnesium	23500	ug/L	2000
811158-001	PE-01-213	E200.7	LABFLT	12/3/2013	13:45	Sodium	890000	ug/L	25000
811158-001	PE-01-213	E200.8	LABFLT	12/3/2013	13:45	Chromium	6.0	ug/L	1.0
811158-001	PE-01-213	E200.8	LABFLT	12/3/2013	13:45	Manganese	56.3	ug/L	0.50
811158-001	PE-01-213	E218.6	LABFLT	12/3/2013	13:45	Chromium, Hexavalent	5.5	ug/L	0.20
811158-001	PE-01-213	E300	NONE	12/3/2013	13:45	Chloride	1160	mg/L	50.0
811158-001	PE-01-213	E300	NONE	12/3/2013	13:45	Nitrate as N	ND J	mg/L	0.500
811158-001	PE-01-213	E300	NONE	12/3/2013	13:45	Sulfate	408	mg/L	25.0
811158-001	PE-01-213	SM2320B	NONE	12/3/2013	13:45	Alkalinity	238 J	mg/L	5.00
811158-001	PE-01-213	SM2320B	NONE	12/3/2013	13:45	Alkalinity, Bicarbonate (As CaC	238 J	mg/L	5.00
811158-001	PE-01-213	SM2320B	NONE	12/3/2013	13:45	Alkalinity, Carbonate (As CaC(	ND J	mg/L	5.00
811158-001	PE-01-213	SM2540C	NONE	12/3/2013	13:45	Total Dissolved Solids	2560	mg/L	125
811158-001	PE-01-213	SM4500HB	NONE	12/3/2013	13:45	PH	7.52 J	pH	4.00

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
811158-002	TW-03D-213	E120.1	NONE	12/3/2013	13:45	EC	7410	umhos/cm	2.00
811158-002	TW-03D-213	E200.7	LABFLT	12/3/2013	13:45	Calcium	231000	ug/L	25000
811158-002	TW-03D-213	E200.7	LABFLT	12/3/2013	13:45	Iron	ND	ug/L	20.0
811158-002	TW-03D-213	E200.7	LABFLT	12/3/2013	13:45	Magnesium	32300	ug/L	2000
811158-002	TW-03D-213	E200.7	LABFLT	12/3/2013	13:45	Sodium	1620000	ug/L	50000
811158-002	TW-03D-213	E200.8	LABFLT	12/3/2013	13:45	Chromium	832	ug/L	10.0
811158-002	TW-03D-213	E200.8	LABFLT	12/3/2013	13:45	Manganese	7.5	ug/L	0.50
811158-002	TW-03D-213	E300	NONE	12/3/2013	13:45	Chloride	2470	mg/L	2.50
811158-002	TW-03D-213	E300	NONE	12/3/2013	13:45	Nitrate as N	3.68 J	mg/L	0.500
811158-002	TW-03D-213	E300	NONE	12/3/2013	13:45	Sulfate	550	mg/L	25.0
811158-002	TW-03D-213	SM2320B	NONE	12/3/2013	13:45	Alkalinity	148 J	mg/L	5.00
811158-002	TW-03D-213	SM2320B	NONE	12/3/2013	13:45	Alkalinity, Bicarbonate (As CaC	148 J	mg/L	5.00
811158-002	TW-03D-213	SM2320B	NONE	12/3/2013	13:45	Alkalinity, Carbonate (As CaC(	ND J	mg/L	5.00
811158-002	TW-03D-213	SM2540C	NONE	12/3/2013	13:45	Total Dissolved Solids	4860	mg/L	250
811158-002	TW-03D-213	SM3500-CrB	LABFLT	12/3/2013	13:45	Chromium, Hexavalent	934	ug/L	250
811158-002	TW-03D-213	SM4500HB	NONE	12/3/2013	13:45	PH	7.44 J	pH	4.00

ND: Non Detected (below reporting limit)

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

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 811158

Printed 12/20/2013

Samples Received on 12/3/2013 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-213	811158-001	12/03/2013 13:45	Water
TW-03D-213	811158-002	12/03/2013 13:45	Water

Anions By I.C. - EPA 300.0

Batch 12AN13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811158-001 Nitrate as Nitrogen	mg/L	12/05/2013 16:55	5.00	0.0415	0.500	ND	J
Sulfate	mg/L	12/05/2013 22:15	50.0	1.54	25.0	408	
811158-002 Nitrate as Nitrogen	mg/L	12/05/2013 17:07	5.00	0.0415	0.500	3.68	J
Sulfate	mg/L	12/05/2013 22:26	50.0	1.54	25.0	550	

Method Blank

Parameter	Unit	DF	Result
Fluoride	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate — Lab ID = 811159-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.29	2.32	1.17	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.91	2.93	0.822	0 - 20

Duplicate — Lab ID = 811185-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	5.00	42.5	43.1	1.31	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.86	4.00	96.5	90 - 110
Sulfate	mg/L	1.00	19.9	20.0	99.4	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.97	4.00	99.2	90 - 110

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

Anions By I.C. - EPA 300.0

Batch 12AN13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-001 Chloride	mg/L	12/07/2013 18:49	500	17.4	50.0	1160
811158-002 Chloride	mg/L	12/07/2013 19:00	25.0	0.872	2.50	2470

Method Blank

Parameter	Unit	DF	Result
Chloride	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND

Duplicate

Lab ID = 811060-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	46.0	47.2	2.63	0 - 20
Sulfate	mg/L	25.0	68.2	69.6	2.00	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.99	4.00	99.7	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	99.8	90 - 110

Matrix Spike

Lab ID = 811060-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	147	147(100)	100	85 - 115
Sulfate	mg/L	25.0	168	170(100)	98.4	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.08	3.00	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.15	3.00	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.98	3.00	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.96	3.00	98.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.0	15.0	99.7	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.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.2	15.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	14.9	15.0	99.5	90 - 110

Alkalinity by SM 2320B

Batch 12ALK13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811158-001 Alkalinity as CaCO3	mg/L	12/19/2013	1.00	1.68	5.00	238	J
Bicarbonate (Calculated)	mg/L	12/19/2013	1.00	1.68	5.00	238	J
Carbonate (Calculated)	mg/L	12/19/2013	1.00	1.68	5.00	ND	J
811158-002 Alkalinity as CaCO3	mg/L	12/19/2013	1.00	1.68	5.00	148	J
Bicarbonate (Calculated)	mg/L	12/19/2013	1.00	1.68	5.00	148	J
Carbonate (Calculated)	mg/L	12/19/2013	1.00	1.68	5.00	ND	J

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO3	mg/L	1.00	ND

Duplicate — Lab ID = 811158-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	239	238	0.419	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	106	100	106	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	105	100	105	90 - 110

Matrix Spike — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	248	248(100)	100	75 - 125

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: 428648.IM.CS.EX.AC

Specific Conductivity - EPA 120.1

Batch 12EC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-001 Specific Conductivity	umhos/cm	12/05/2013	1.00	0.606	2.00	3950
811158-002 Specific Conductivity	umhos/cm	12/05/2013	1.00	0.606	2.00	7410

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811193-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	699	696	0.430	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	737	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	736	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1030	1000	103	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.

Chrome VI by EPA 218.6

Batch 12CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-001 Chromium, Hexavalent	ug/L	12/04/2013 11:12	1.00	0.00600	0.20	5.5

Method Blank

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

Duplicate — Lab ID = 811157-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.55	3.60	1.33	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	101	90 - 110

Matrix Spike — Lab ID = 811157-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.65	8.60(5.00)	101	90 - 110

Matrix Spike — Lab ID = 811158-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.4	15.5(10.0)	99.6	90 - 110

Matrix Spike — Lab ID = 811159-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.13	1.14(1.00)	99.6	90 - 110

Matrix Spike — Lab ID = 811159-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1390	1400(750)	98.8	90 - 110

Matrix Spike — Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.00(1.00)	99.3	90 - 110

Matrix Spike — Lab ID = 811160-004

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

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.

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

Chromium, Hexavalent by SM 3500-Cr B

Batch 12CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-002 Chromium, Hexavalent	ug/L	12/17/2013 15:53	25.0	110	250	934

Method Blank

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

Duplicate — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	934	934	0.0321	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

Matrix Spike — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3430(2500)	98.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	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.

pH by SM 4500-H B

Batch 12PH13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811158-001 pH	pH	12/04/2013 07:12	1.00	0.0784	4.00	7.52	J
811158-002 pH	pH	12/04/2013 07:14	1.00	0.0784	4.00	7.44	J

Duplicate — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.47	7.44	0.402	0 - 20

Lab Control Sample

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.06	7.00	101	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 12TDS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-001 Total Dissolved Solids	mg/L	12/06/2013	1.00	1.76	125	2560
811158-002 Total Dissolved Solids	mg/L	12/06/2013	1.00	1.76	250	4860

Method Blank

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

Duplicate — Lab ID = 811186-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	496	506	2.00	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	497	500	99.4	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: 428648.IM.CS.EX.AC Printed 12/20/2013

Metals by EPA 200.8, Dissolved

Batch 120513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-001 Chromium	ug/L	12/05/2013 15:38	2.00	0.142	1.0	6.0
811158-002 Chromium	ug/L	12/05/2013 16:02	20.0	1.42	10.0	832

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	4.61	4.83	4.60	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.562	0.500	112	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.8	50.0	102	85 - 115

Matrix Spike — Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.8	54.8(50.0)	94.0	75 - 125

Matrix Spike Duplicate — Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.8	54.8(50.0)	95.9	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.5	90 - 110

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

Metals by EPA 200.8, Dissolved

Batch 120613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-001 Manganese	ug/L	12/06/2013 16:06	1.00	0.0600	0.50	56.3
811158-002 Manganese	ug/L	12/06/2013 16:12	1.00	0.0600	0.50	7.5

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate — Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	20.0	611	610	0.155	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.524	0.500	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	49.1	50.0	98.2	85 - 115

Matrix Spike — Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	20.0	1540	1610(1000)	93.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.3	20.0	96.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.4	20.0	96.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.5	20.0	97.7	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	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.

Metals by 200.7, Dissolved

Batch 120613A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-001 Calcium	ug/L	12/06/2013 16:52	50.0	850	25000	115000
Magnesium	ug/L	12/06/2013 17:20	2.00	936	2000	23500
Sodium	ug/L	12/06/2013 16:52	50.0	2990	25000	890000
811158-002 Calcium	ug/L	12/06/2013 16:58	50.0	850	25000	231000
Magnesium	ug/L	12/06/2013 17:26	2.00	936	2000	32300
Sodium	ug/L	12/06/2013 17:33	100	5980	50000	1620000

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 = 811160-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	25.0	113000	116000	2.53	0 - 20
Sodium	ug/L	500	2530000	2570000	1.57	0 - 20
Magnesium	ug/L	2.00	10500	9970	5.56	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2110	2000	105	85 - 115
Sodium	ug/L	1.00	2180	2000	109	85 - 115
Magnesium	ug/L	1.00	2040	2000	102	85 - 115

Matrix Spike

Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	25.0	169000	166000(50000)	105	75 - 125
Sodium	ug/L	500	3640000	3570000(10000C	107	75 - 125
Magnesium	ug/L	2.00	13200	14000(4000)	82.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5080	5000	102	95 - 105
Sodium	ug/L	1.00	4880	5000	97.7	95 - 105
Magnesium	ug/L	1.00	4980	5000	99.5	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4930	5000	98.5	90 - 110

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

Metals by 200.7, Dissolved

Batch 120513A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811158-001 Iron	ug/L	12/05/2013 18:29	1.00	3.00	20.0	ND
811158-002 Iron	ug/L	12/05/2013 18:35	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	697	690	1.02	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	1980	2000	98.8	85 - 115

Matrix Spike

Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2450	2690(2000)	87.8	75 - 125

Matrix Spike Duplicate

Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2550	2690(2000)	93.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4920	5000	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4820	5000	96.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	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: 428648.IM.CS.EX.AC

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5020	5000	100	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2060	2000	103	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2080	2000	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2060	2000	103	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2100	2000	105	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

e2

8

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 12TDS13B
Date Analyzed: 12/6/13

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	106.1683	106.1689	106.1687	0.0002	No	0.0004	4.0	25.0	ND	1
811158-1	20	29.3785	29.4297	29.4297	0.0000	No	0.0512	2560.0	125.0	2560.0	1
811158-2	10	29.3206	29.3692	29.3692	0.0000	No	0.0486	4860.0	250.0	4860.0	1
811159-1	20	29.4879	29.5761	29.5761	0.0000	No	0.0882	4410.0	125.0	4410.0	1
811159-2	20	28.7593	28.8502	28.8502	0.0000	No	0.0909	4545.0	125.0	4545.0	1
811169-1	495	173.2202	173.2224	173.2223	0.0001	No	0.0021	4.2	5.1	ND	1
811176-7	100	77.4786	77.5304	77.5300	0.0004	No	0.0514	514.0	25.0	514.0	1
811186-1	100	77.2304	77.2909	77.2909	0.0000	No	0.0605	605.0	25.0	605.0	1
811186-2	100	80.8559	80.9068	80.9066	0.0002	No	0.0507	507.0	25.0	507.0	1
811186-3	100	73.5693	73.6192	73.6192	0.0000	No	0.0499	499.0	25.0	499.0	1
811186-4	100	79.4407	79.4914	79.4913	0.0001	No	0.0506	506.0	25.0	506.0	1
811186-4 Dup	100	76.5299	76.5795	76.5795	0.0000	No	0.0496	496.0	25.0	496.0	1
LCS	100	66.7877	66.8376	66.8374	0.0002	No	0.0497	497.0	25.0	497.0	1
811187-1	50	51.9142	51.9625	51.9624	0.0001	No	0.0482	964.0	50.0	964.0	1
811187-2	100	78.6036	78.6550	78.6549	0.0001	No	0.0513	513.0	25.0	513.0	1
811187-3	100	79.4941	79.5513	79.5511	0.0002	No	0.0570	570.0	25.0	570.0	1
811187-4	100	78.2903	78.3510	78.3510	0.0000	No	0.0607	607.0	25.0	607.0	1
811194-1	100	79.7951	79.8205	79.8201	0.0004	No	0.0250	250.0	25.0	250.0	1
811205-17	50	50.8135	50.8494	50.8493	0.0001	No	0.0358	716.0	50.0	716.0	1
811219	100	79.0554	79.1049	79.1045	0.0004	No	0.0491	491.0	25.0	491.0	1
811205-17 Dup	50	51.7878	51.8246	51.8246	0.0000	No	0.0368	736.0	50.0	736.0	1

Calculation as follows:

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

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	497.0	500	99.4%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
811186-4	0.0506	0.0496	1.0%	≤5%	Yes
811205-17	0.0358	0.0368	1.4%	5%	Yes

Duplicate Determination Difference

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

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

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 12TDS13B
Date Analyzed: 12/6/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
811158-1	3950	0.65	2567.5	1.00
811158-2	7410	0.66	4816.5	1.01
811159-1	6640	0.66	4316	1.02
811159-2	6760	0.67	4394	1.03
811169-1	6.3	ND	4.095	ND
811176-7	759	0.68	493.35	1.04
811186-1	806	0.75	523.9	1.15
811186-2	811	0.63	527.15	0.96
811186-3	805	0.62	523.25	0.95
811186-4	806	0.63	523.9	0.97
811186-4 Dup	806	0.62	523.9	0.95
LCS				
811187-1	1535	0.63	997.75	0.97
811187-2	785	0.65	510.25	1.01
811187-3	850	0.67	552.5	1.03
811187-4	935	0.65	607.75	1.00
811194-1	343	0.73	222.95	1.12
811205-17	1079	0.66	701.35	1.02
811219	725	0.68	471.25	1.04
811205-17 Dup	1079	0.68	701.35	1.05

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B
Calculations

Analytical Batch:	12ALK13E
Matrix:	WATER
Date of Analysis:	12/19/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	5.60	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
811158-1	7.69	50	0.02	0.00	0.0	11.90		238.0	5	238.0	238.0	ND	ND	
811158-2	7.60	50	0.02	0.00	0.0	7.40		148.0	5	148.0	148.0	ND	ND	
811158-1 DUP	7.68	50	0.02	0.00	0.0	11.95		239.0	5	239.0	239.0	ND	ND	
811158-2 MS	9.20	50	0.02	0.00	0.0	12.40		248.0	5	248.0	248.0	0	ND	
LCS	10.33	50	0.02	2.25	45.0	5.30		106.0	5	106.0	16.0	90	ND	
LCSD	10.34	50	0.02	2.20	44.0	5.25		105.0	5	105.0	17.0	88	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

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

Where:

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	106	100	106.0%	90-110	Yes
LCSD	105	100	105.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
811158-1	238	239	0.4%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
811158-2	148	1	100	100	248	248.00	100%	75-125	Yes			
				0								

Himani Vaishnav
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

1213e.xls

038

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-213]

811158

TURNAROUND TIME 10 Days
DATE 12/03/13 PAGE 1 OF 1

COMPANY: CH2M HILL /E2
PROJECT NAME: PG&E Topock IM3Plant-EW
PHONE: 530-229-3303 FAX: 530-339-3303
ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER: 428648.IM.CS.EX.AC
SAMPLERS (SIGNATURE): Chris Lentz

ALERT !! Level III QC

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Cr, Mn (200.8) Lab filtered	Cr(VI) (3500-Cr B)	pH (150.0) EC (120.1) Cl,SO4,NO3(300.0)	TDS (160.1), Alk (SM2320B)	Cr(VI) (218.6)	Dis Ca,Mg,Na,Fe (200.7) Lab filtered									NUMBER OF CONTAINERS	COMMENTS
-1	PE-01-213	12/03/13	13:45	Ground water	X		X	X	X	X									4	pH=7 (200.7,200.8)
-2	TW-03D-213	12/03/13	13:45	Ground water	X	X	X	X		X									4	pH=7 (200.7,200.8)
																			8	TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Chris Lentz	CHRIS LENTZ	CH2M HILL	12-3-13 1337
Signature (Received)	Thanh Ngo	THANH NGO	TRUESDAIL	12-3-13 1837
Signature (Relinquished)	Thanh Ngo			12.3.13 2300
Signature (Received)	J.B. David	JAY B. DAVID	TLI	12/3/13 2300
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.9 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

180

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
11/22/13	811025-12	9.5	N/A	N/A	N/A	NR
	-13					
	-14					
	-15					
11/27/13	811083	7.0	2ml / 100ml	9.5	8:30	NE
12/3/13	811131-1	7.0	2ml / 100ml	9.5	12:00	NE
	-2					
	-3					
12/4/13	811157	7.0	2ml / 100ml	9.5	8:30	[illegible]
	811158-1					
	-2					
	811159-1					
	-2					
	811160-1	9.5	N/A	N/A	N/A	[illegible]
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					

NE
12/5/13

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811020-1,2	>1	<2	11/22/13	DC	Yes			
810997-1,2	>1	<2	11/22/13	DC	↓			
811000-1,2,3	<1	>2	↓	↓	NO	13:10		
811002-10,11,12	↓	↓	↓	↓	↓	↓		
810030 (1-4)	>1	<2	11/25/13	ES	yes			
810036 (1-3)	↓	↓	↓	↓	↓			
811040	↓	↓	↓	↓	↓			
811043 (1-2)	↓	↓	↓	↓	↓			
811048	>1	<2	11/25/13	KK	yes			
811024 (1-7)	<1	<2	11/25/13	ES	yes			
811025 (1-3,6-13,15)	↓	↓	↓	↓	↓			T/D
811053	<1	<2	11/27/13	ES	yes			
811065 (1-2	↓	↓	↓	↓	↓			
811076	↓	↓	↓	↓	↓			
811083	<1	>2	11/27/13	ES	yes	1:30		pH <2
811057 (1-3)	<1	>2	11/27/13	ES	NO	3:00		
811067 (1-2,4	↓	↓	↓	↓	↓	↓		
811069 (1-2)	↓	↓	↓	↓	↓	↓		
811079 (1-2)	↓	↓	↓	↓	↓	↓		
811073	<1	<2	12/2/13	ES	yes			
811094 (1-2)	↓	↓	↓	↓	↓			
811099 (10-12)	↓	>2	↓	↓	NO	3:00		
811104	↓	<2	↓	↓	yes			
811106 (1-3)	↓	>2	↓	↓	NO	3:00		
811107	<1	>2	11/27/13	KK	NO	1:50		
811117	>1	<2	12/3/13	KK	yes			
811118 (1-2)	>1	<2	↓	↓	↓			
811119 (1-3)	↓	↓	↓	↓	↓			
811123 (1-2)	↓	↓	↓	↓	↓			
811130-6	<1	>2	12/3/13	ES	NO	5:00		
811131 (1-3)	↓	↓	↓	↓	↓	↓		
811139 (1-2,4)	↓	↓	↓	↓	↓	↓		
811133	↓	>2	↓	↓	yes			
811134	↓	↓	↓	↓	↓			
811135	↓	↓	↓	↓	↓			
811136	↓	↓	↓	↓	↓			
811137	↓	↓	↓	↓	↓			
811156	>1	<2	12/4/13	ES	yes			
811160 (1-4)	<1	<2	12/4/13	KK	yes			
811157	<1	>2	↓	↓	↓			lab filtered
811158 (1-2)	<1	>2	↓	↓	↓			lab filtered
811159 (1-2,2)	<1	>2	↓	↓	↓			-2 lab filtered
811110	<1	<2	↓	↓	↓			
811162	>1	<2	12/6/13	KK	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.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 811158

Date Delivered: 12 / 3 / 13 **Time:** 23:00 **By:** ☐ Mail ☐ Field Service ☒ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☒ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☒ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.9 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☐ Yes ☐ No ☒ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. Were samples pH checked? pH = see C.O.C. ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☒ Ground Water ☐ Waste Water
    ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☐ Other_____
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !! Level III QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 17, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811160

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 December 3, 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.

Sample MW-37D-194 requested for Hexavalent Chromium by SM 3500B was analyzed by EPA 218.6 with Mr. Duffy's approval.

Due to the discrepancy between the Total Dissolved Chromium (4.8 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-124-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 4.4 ug/L and 3.5 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 4.8 ug/L. Mr. Duffy was informed and the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (4.1 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-44-125-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 4.2 ug/L and 4.0 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 4.3 ug/L. Mr. Duffy was informed and the original results were reported.

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

December 17, 2013

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811160
Date Received: December 3, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811160-001	MW-124-194	E218.6	FLDFLT	12/2/2013	10:15	Chromium, Hexavalent	ND	ug/L	0.20
811160-001	MW-124-194	SW6020	FLDFLT	12/2/2013	10:15	Chromium	4.8	ug/L	1.0
811160-002	MW-37D-194	E218.6	FLDFLT	12/2/2013	10:44	Chromium, Hexavalent	12.0	ug/L	1.0
811160-002	MW-37D-194	SW6020	FLDFLT	12/2/2013	10:44	Chromium	13.0	ug/L	1.0
811160-003	MW-40D-194	SM3500-CrB	FLDFLT	12/2/2013	14:54	Chromium, Hexavalent	153	ug/L	10.0
811160-003	MW-40D-194	SW6020	FLDFLT	12/2/2013	14:54	Chromium	148	ug/L	1.0
811160-004	MW-44-070-194	E218.6	FLDFLT	12/2/2013	10:32	Chromium, Hexavalent	ND	ug/L	0.20
811160-004	MW-44-070-194	SW6020	FLDFLT	12/2/2013	10:32	Chromium	ND	ug/L	1.0
811160-005	MW-44-115-194	E218.6	FLDFLT	12/2/2013	13:53	Chromium, Hexavalent	39.5	ug/L	1.0
811160-005	MW-44-115-194	SW6020	FLDFLT	12/2/2013	13:53	Chromium	43.1	ug/L	1.0
811160-006	MW-44-125-194	E218.6	FLDFLT	12/2/2013	12:37	Chromium, Hexavalent	ND	ug/L	0.20
811160-006	MW-44-125-194	SW6020	FLDFLT	12/2/2013	12:37	Chromium	4.1	ug/L	1.0
811160-007	MW-45-095a-194	E218.6	FLDFLT	12/2/2013	15:28	Chromium, Hexavalent	13.7	ug/L	0.20
811160-007	MW-45-095a-194	SW6020	FLDFLT	12/2/2013	15:28	Chromium	14.2	ug/L	1.0
811160-008	MW-65-160-194	E218.6	FLDFLT	12/2/2013	12:24	Chromium, Hexavalent	96.8	ug/L	1.0
811160-008	MW-65-160-194	SW6020	FLDFLT	12/2/2013	12:24	Chromium	102	ug/L	1.0
811160-009	MW-65-225-194	E218.6	FLDFLT	12/2/2013	13:14	Chromium, Hexavalent	551	ug/L	5.0
811160-009	MW-65-225-194	SW6020	FLDFLT	12/2/2013	13:14	Chromium	580	ug/L	1.0
811160-010	MW-217-194	E218.6	FLDFLT	12/3/2013	7:20	Chromium, Hexavalent	ND	ug/L	0.20
811160-011	MW-218-194	E218.6	FLDFLT	12/3/2013	7:25	Chromium, Hexavalent	ND	ug/L	0.20
811160-012	MW-219-194	E218.6	FLDFLT	12/3/2013	7:30	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811160

Printed 12/17/2013

Samples Received on 12/3/2013 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-124-194	811160-001	12/02/2013 10:15	Water
MW-37D-194	811160-002	12/02/2013 10:44	Water
MW-40D-194	811160-003	12/02/2013 14:54	Water
MW-44-070-194	811160-004	12/02/2013 10:32	Water
MW-44-115-194	811160-005	12/02/2013 13:53	Water
MW-44-125-194	811160-006	12/02/2013 12:37	Water
MW-45-095a-194	811160-007	12/02/2013 15:28	Water
MW-65-160-194	811160-008	12/02/2013 12:24	Water
MW-65-225-194	811160-009	12/02/2013 13:14	Water
MW-217-194	811160-010	12/03/2013 07:20	Water
MW-218-194	811160-011	12/03/2013 07:25	Water
MW-219-194	811160-012	12/03/2013 07:30	Water

Chrome VI by EPA 218.6

Batch 12CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811160-001 Chromium, Hexavalent	ug/L	12/04/2013 11:43	1.00	0.00600	0.20	ND
811160-004 Chromium, Hexavalent	ug/L	12/04/2013 11:53	1.00	0.00600	0.20	ND
811160-005 Chromium, Hexavalent	ug/L	12/04/2013 13:05	5.00	0.0300	1.0	39.5
811160-006 Chromium, Hexavalent	ug/L	12/04/2013 13:15	1.00	0.00600	0.20	ND
811160-007 Chromium, Hexavalent	ug/L	12/04/2013 13:26	1.00	0.00600	0.20	13.7
811160-008 Chromium, Hexavalent	ug/L	12/04/2013 15:58	5.00	0.0300	1.0	96.8
811160-009 Chromium, Hexavalent	ug/L	12/04/2013 14:12	25.0	0.150	5.0	551
811160-010 Chromium, Hexavalent	ug/L	12/04/2013 14:23	1.00	0.00600	0.20	ND
811160-011 Chromium, Hexavalent	ug/L	12/04/2013 14:33	1.00	0.00600	0.20	ND
811160-012 Chromium, Hexavalent	ug/L	12/04/2013 14:44	1.00	0.00600	0.20	ND

Method Blank

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

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

Duplicate — Lab ID = 811157-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.55	3.60	1.33	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	101	90 - 110

Matrix Spike — Lab ID = 811157-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.65	8.60(5.00)	101	90 - 110

Matrix Spike — Lab ID = 811158-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.4	15.5(10.0)	99.6	90 - 110

Matrix Spike — Lab ID = 811159-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.13	1.14(1.00)	99.6	90 - 110

Matrix Spike — Lab ID = 811159-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1390	1400(750)	98.8	90 - 110

Matrix Spike — Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.00(1.00)	99.3	90 - 110

Matrix Spike — Lab ID = 811160-004

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

Matrix Spike — Lab ID = 811160-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	89.8	89.5(50.0)	101	90 - 110

Matrix Spike — Lab ID = 811160-006

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

Matrix Spike — Lab ID = 811160-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	28.5	28.7(15.0)	98.7	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.

Matrix Spike — Lab ID = 811160-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	38.5	38.5(25.0)	99.9	90 - 110

Matrix Spike — Lab ID = 811160-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	196	197(100)	99.6	90 - 110

Matrix Spike — Lab ID = 811160-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1180	1180(625)	100	90 - 110

Matrix Spike — Lab ID = 811160-010

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

Matrix Spike — Lab ID = 811160-011

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

Matrix Spike — Lab ID = 811160-012

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.2	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	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	10.1	10.0	101	95 - 105

MRCVS - Primary

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

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.

Chrome VI by EPA 218.6

Batch 12CrH13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811160-002 Chromium, Hexavalent	ug/L	12/10/2013 13:58	5.00	0.0300	1.0	12.0

Method Blank

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

Duplicate — Lab ID = 811278-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.925	0.940	1.62	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.201	0.200	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.1	90 - 110

Matrix Spike — Lab ID = 811160-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.2	37.0(25.0)	96.6	90 - 110

Matrix Spike — Lab ID = 811278-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.92	1.94(1.00)	97.8	90 - 110

Matrix Spike — Lab ID = 811278-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.51	1.52(1.00)	99.0	90 - 110

Matrix Spike — Lab ID = 811278-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.50	1.51(1.00)	99.2	90 - 110

Matrix Spike — Lab ID = 811278-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.36	1.36(1.00)	99.9	90 - 110

Matrix Spike — Lab ID = 811278-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.30	1.32(1.00)	98.6	90 - 110

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

Metals by EPA 6020A, Dissolved

Batch 120513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811160-001 Chromium	ug/L	12/05/2013 12:48	2.00	0.142	1.0	4.8
811160-002 Chromium	ug/L	12/05/2013 14:31	2.00	0.142	1.0	13.0
811160-003 Chromium	ug/L	12/05/2013 14:37	2.00	0.142	1.0	148
811160-004 Chromium	ug/L	12/05/2013 14:43	2.00	0.142	1.0	ND
811160-005 Chromium	ug/L	12/05/2013 14:49	2.00	0.142	1.0	43.1
811160-006 Chromium	ug/L	12/05/2013 15:13	2.00	0.142	1.0	4.1
811160-007 Chromium	ug/L	12/05/2013 15:19	2.00	0.142	1.0	14.2
811160-008 Chromium	ug/L	12/05/2013 15:25	2.00	0.142	1.0	102
811160-009 Chromium	ug/L	12/05/2013 15:31	10.0	0.710	5.0	580

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	4.61	4.83	4.60	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.562	0.500	112	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.8	50.0	102	85 - 115

Matrix Spike

Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.8	54.8(50.0)	94.0	75 - 125

Matrix Spike Duplicate

Lab ID = 811160-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.8	54.8(50.0)	95.9	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.5	90 - 110

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.7	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.0	80 - 120

Serial Dilution Lab ID = 811160-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	44.1	43.1	2.35	0 - 10

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 12/17/2013

Chromium, Hexavalent by SM 3500-Cr B

Batch 12CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811160-003 Chromium, Hexavalent	ug/L	12/17/2013 15:55	1.00	4.40	10.0	153

Method Blank

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

Duplicate Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	934	934	0.0321	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

Matrix Spike Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3430(2500)	98.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

CH2MHILL

CHAIN OF CUSTODY RECORD

811160

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/3/2013
COC Number: 20

Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	500 ml Poly	2x500 ml Poly
Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C
Filtered:	Field	Field	Field	Field	Field
Holding Time:	28	28	28	180	180

*Where provided w/multiple Cr^6 + metals bottles please analyze 1 + hold 1

ALERT !!
Level III QC

		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium	Number of Containers	COMMENTS
-1	MW-124-194	12/2/2013	10:15	Water		X			X	4	* pH=2
-2	MW-37D-194	12/2/2013	10:44	Water			X	X		2	pH=2
-3	MW-40D-194	12/2/2013	14:54	Water			X	X		2	pH=2
-4	MW-44-070-194	12/2/2013	10:32	Water		X			X	4	* pH=2
	MW-44-070-194-EB	12/2/2013	9:20	Water	X			X		2	Hold
-5	MW-44-115-194	12/2/2013	13:53	Water	X			X		2	pH=2
-6	MW-44-125-194	12/2/2013	12:37	Water		X			X	4	* pH=2
	MW-44-125-194-EB	12/2/2013	8:30	Water	X			X		2	Hold
-7	MW-45-095a-194	12/2/2013	15:28	Water	X			X		2	pH=2
-8	MW-65-160-194	12/2/2013	12:24	Water	X			X		2	
-9	MW-65-225-194	12/2/2013	13:14	Water	X			X		2	
-10	MW-217-194	12/3/2013	7:20	Water	X					1	
-11	MW-218-194	12/3/2013	7:25	Water	X					1	
-12	MW-219-194	12/3/2013	7:30	Water	X					1	

pH for 6020A

31

	Signatures	Date/Time
Approved by		12-3-13 1700
Sampled by		
Relinquished by		12-3-13 1820
Received by		12-3-13 2300
Relinquished by		
Received by		12/3/13 2300

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

ATTN:
Sample Custody

Special Instructions:

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
11/22/13	811025-12	9.5	N/A	N/A	N/A	NR
	-13					
	-14					
	-15					
11/27/13	811083	7.0	2ml / 100ml	9.5	8:30	NE
12/3/13	811131-1	7.0	2ml / 100ml	9.5	12:00	NE
	-2					
	-3					
12/4/13	811157	7.0	2ml / 100ml	9.5	8:30	[illegible]
	811158-1					
	-2					
	811159-1					
	-2					
	811160-1	9.5	N/A	N/A	N/A	[illegible]
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					

[illegible] NE 12/5/13

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811020-1,2	>1	<2	11/22/13	DC	Yes			
810997-1,2	>1	<2	11/22/13	DC	↓			
811000-1,2,3	<1	>2	↓	↓	NO	13:10		
811002-10,11,12	↓	↓	↓	↓	↓	↓		
810030 (1-4)	>1	<2	11/25/13	ES	yes			
810036 (1-3)	↓	↓	↓	↓	↓			
811040	↓	↓	↓	↓	↓			
811043 (1-2)	↓	↓	↓	↓	↓			
811048	>1	<2	11/25/13	KK	yes			
811024 (1-7)	<1	<2	11/25/13	ES	yes			
811025 (1-3,6-13,15)	↓	↓	↓	↓	↓			T/D
811053	<1	<2	11/27/13	ES	yes			
811065 (1-2	↓	↓	↓	↓	↓			
811076	↓	↓	↓	↓	↓			
811083	<1	>2	11/27/13	ES	yes	1:30		pH <2
811057 (1-3)	<1	>2	11/27/13	ES	NO	3:00		
811067 (1-2,4	↓	↓	↓	↓	↓	↓		
811069 (1-2)	↓	↓	↓	↓	↓	↓		
811079 (1-2)	↓	↓	↓	↓	↓	↓		
811073	<1	<2	12/2/13	ES	yes			
811094 (1-2)	↓	↓	↓	↓	↓			
811099 (10-12)	↓	>2	↓	↓	NO	3:00		
811104	↓	<2	↓	↓	yes			
811106 (1-3)	↓	>2	↓	↓	NO	3:00		
811107	<1	>2	11/27/13	KK	NO	1:50		
811117	>1	<2	12/3/13	KK	yes			
811118 (1-2)	>1	<2	↓	↓	↓			
811119 (1-3)	↓	↓	↓	↓	↓			
811123 (1-2)	↓	↓	↓	↓	↓			
811130-6	<1	>2	12/3/13	ES	NO	5:00		
811131 (1-3)	↓	↓	↓	↓	↓	↓		
811139 (1-2,4)	↓	↓	↓	↓	↓	↓		
811133	↓	>2	↓	↓	yes			
811134	↓	↓	↓	↓	↓			
811135	↓	↓	↓	↓	↓			
811136	↓	↓	↓	↓	↓			
811137	↓	↓	↓	↓	↓			
811156	>1	<2	12/4/13	ES	yes			
811160 (1-4)	<1	<2	12/4/13	KK	yes			
811157	<1	>2	↓	↓	↓			lab filtered
811158 (1-2)	<1	>2	↓	↓	↓			lab filtered
811159 (1-2,2)	<1	>2	↓	↓	↓			-2 lab filtered
811110	<1	<2	↓	↓	↓			
811162	>1	<2	12/6/13	KK	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.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 811160

Date Delivered: 12/3/13 **Time:** 23:00 **By:** ☐Mail ☐Field Service ☑Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☑No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☑No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.9 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc.)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☑Yes ☐No ☐N/A
    Preserved (if yes) by: ☑**Truesdail** ☐Client
12. Were samples pH checked? pH = see c.o.c ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT ! Level III QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 19, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811200

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 December 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.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811200
Date Received: December 5, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811200-001	MW-124-194	SM4500NH3D	NONE	12/2/2013	10:15	Ammonia-N	ND	mg/L	0.500
811200-002	MW-44-070-194	SM4500NH3D	NONE	12/2/2013	10:32	Ammonia-N	ND	mg/L	0.500
811200-003	MW-44-115-194	SM4500NH3D	NONE	12/2/2013	13:53	Ammonia-N	ND	mg/L	0.500
811200-004	MW-44-125-194	SM4500NH3D	NONE	12/2/2013	12:37	Ammonia-N	ND	mg/L	0.500
811200-005	MW-45-095a-194	SM4500NH3D	NONE	12/2/2013	15:28	Ammonia-N	ND	mg/L	0.500
811200-006	MW-65-160-194	SM4500NH3D	NONE	12/2/2013	12:24	Ammonia-N	ND	mg/L	0.500
811200-007	MW-65-225-194	SM4500NH3D	NONE	12/2/2013	13:14	Ammonia-N	ND	mg/L	0.500
811200-008	MW-31-060-194	SM4500NH3D	NONE	12/3/2013	15:35	Ammonia-N	ND	mg/L	0.500
811200-009	MW-33-040-194	SM4500NH3D	NONE	12/3/2013	9:28	Ammonia-N	ND	mg/L	0.500
811200-010	MW-33-090-194	SM4500NH3D	NONE	12/3/2013	11:07	Ammonia-N	ND	mg/L	0.500
811200-011	MW-33-150-194	SM4500NH3D	NONE	12/3/2013	12:35	Ammonia-N	ND	mg/L	0.500
811200-012	MW-33-210-194	SM4500NH3D	NONE	12/3/2013	13:44	Ammonia-N	ND	mg/L	0.500
811200-013	MW-66-165-194	SM4500NH3D	NONE	12/3/2013	9:14	Ammonia-N	ND	mg/L	0.500
811200-014	MW-69-195-194	SM4500NH3D	NONE	12/3/2013	13:06	Ammonia-N	ND	mg/L	0.500
811200-015	MW-92-194	SM4500NH3D	NONE	12/3/2013	10:27	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811200

Printed 12/19/2013

Samples Received on 12/5/2013 12:25:00 PM

Field ID	Lab ID	Collected	Matrix
MW-124-194	811200-001	12/02/2013 10:15	Water
MW-44-070-194	811200-002	12/02/2013 10:32	Water
MW-44-115-194	811200-003	12/02/2013 13:53	Water
MW-44-125-194	811200-004	12/02/2013 12:37	Water
MW-45-095a-194	811200-005	12/02/2013 15:28	Water
MW-65-160-194	811200-006	12/02/2013 12:24	Water
MW-65-225-194	811200-007	12/02/2013 13:14	Water
MW-31-060-194	811200-008	12/03/2013 15:35	Water
MW-33-040-194	811200-009	12/03/2013 09:28	Water
MW-33-090-194	811200-010	12/03/2013 11:07	Water
MW-33-150-194	811200-011	12/03/2013 12:35	Water
MW-33-210-194	811200-012	12/03/2013 13:44	Water
MW-66-165-194	811200-013	12/03/2013 09:14	Water
MW-69-195-194	811200-014	12/03/2013 13:06	Water
MW-92-194	811200-015	12/03/2013 10:27	Water

Ammonia Nitrogen by SM4500-NH3D Batch 12NH313C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811200-001 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-002 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-003 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-004 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-005 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-006 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-007 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-008 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-009 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-010 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	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.GM.01 Printed 12/19/2013

811200-011 Ammonia as N		mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-012 Ammonia as N		mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-013 Ammonia as N		mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-014 Ammonia as N		mg/L	12/17/2013	1.00	0.0318	0.500	ND
811200-015 Ammonia as N		mg/L	12/17/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 811200-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.37	8.00	92.1	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.31	8.00	91.4	90 - 110

Matrix Spike — Lab ID = 811200-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.10	10.0(10.0)	91.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.34	6.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.52	6.00	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.39	6.00	106	90 - 110

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

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

811200

CHAIN-OF-CUSTODY RECORD

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

QC Level: Level IV

ALERT !!
Level IV QC

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

04-Dec-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
-1	N011552-001D / MW-124-194	Water	12/2/2013 10:15:00 AM	32OZP	1		
-2	N011552-004D / MW-44-070-194	Water	12/2/2013 10:32:00 AM	32OZP	1		
-3	N011552-005D / MW-44-115-194	Water	12/2/2013 1:53:00 PM	32OZP	1		
-4	N011552-006D / MW-44-125-194	Water	12/2/2013 12:37:00 PM	32OZP	1		
-5	N011552-007D / MW-45-095a-194	Water	12/2/2013 3:28:00 PM	32OZP	1		
-6	N011552-008D / MW-65-160-194	Water	12/2/2013 12:24:00 PM	32OZP	1		
-7	N011552-009D / MW-65-225-194	Water	12/2/2013 1:14:00 PM	32OZP	1		
-8	N011552-011D / MW-31-060-194	Water	12/3/2013 3:35:00 PM	32OZP	1		
-9	N011552-012D / MW-33-040-194	Water	12/3/2013 9:28:00 AM	32OZP	1		
-10	N011552-013D / MW-33-090-194	Water	12/3/2013 11:07:00 AM	32OZP	1		
-11	N011552-014D / MW-33-150-194	Water	12/3/2013 12:35:00 PM	32OZP	1		
-12	N011552-015D / MW-33-210-194	Water	12/3/2013 1:44:00 PM	32OZP	1		
-13	N011552-017D / MW-66-165-194	Water	12/3/2013 9:14:00 AM	32OZP	1		
-14	N011552-018D / MW-69-195-194	Water	12/3/2013 1:06:00 PM	32OZP	1		
-15	N011552-019D / MW-92-194	Water	12/3/2013 10:27:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N011552 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by: Normal TAT

Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

GSO# 523348741

		Date/Time			Date/Time
Relinquished by:	Hanah Glodoviza	12/4/2013 17:00	**Received by:**	Linda, TLI	12-5-13 12:25
Relinquished by:			**Received by:**		

019

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 811200

Date Delivered: 12/5/13 **Time:** 12:25 **By:** ☒ Mail ☐ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☒ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☒ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.1°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☒ Client
12. Were samples pH checked? pH = _____ ☐ Yes ☐ No ☒ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Lucia

ALERT !! Level 4 QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

December 19, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811281

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 December 10, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811281
Date Received: December 10, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811281-001	MW-100-194	SM4500NH3D	NONE	12/4/2013	7:52	Ammonia-N	ND	mg/L	0.500
811281-002	MW-39-100-194	SM4500NH3D	NONE	12/4/2013	8:41	Ammonia-N	ND	mg/L	0.500
811281-003	MW-60-125-194	SM4500NH3D	NONE	12/4/2013	8:59	Ammonia-N	ND	mg/L	0.500
811281-004	MW-60BR-245-194	SM4500NH3D	NONE	12/4/2013	9:45	Ammonia-N	ND	mg/L	0.500
811281-005	MW-63-065-194	SM4500NH3D	NONE	12/4/2013	10:06	Ammonia-N	ND	mg/L	0.500
811281-006	MW-67-185-194	SM4500NH3D	NONE	12/4/2013	15:00	Ammonia-N	ND	mg/L	0.500
811281-007	MW-68-240-194	SM4500NH3D	NONE	12/4/2013	13:48	Ammonia-N	ND	mg/L	0.500
811281-008	MW-70-105-194	SM4500NH3D	NONE	12/4/2013	15:13	Ammonia-N	ND	mg/L	0.500
811281-009	MW-72-080-194	SM4500NH3D	NONE	12/4/2013	13:54	Ammonia-N	ND	mg/L	0.500
811281-010	MW-125-194	SM4500NH3D	NONE	12/5/2013	11:22	Ammonia-N	ND	mg/L	0.500
811281-011	MW-61-110-194	SM4500NH3D	NONE	12/5/2013	14:50	Ammonia-N	ND	mg/L	0.500
811281-012	MW-73-080-194	SM4500NH3D	NONE	12/5/2013	9:00	Ammonia-N	ND	mg/L	0.500
811281-013	MW-74-240-194	SM4500NH3D	NONE	12/5/2013	8:20	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811281

Printed 12/19/2013

Samples Received on 12/10/2013 7:50:00 AM

Field ID	Lab ID	Collected	Matrix
MW-100-194	811281-001	12/04/2013 07:52	Water
MW-39-100-194	811281-002	12/04/2013 08:41	Water
MW-60-125-194	811281-003	12/04/2013 08:59	Water
MW-60BR-245-194	811281-004	12/04/2013 09:45	Water
MW-63-065-194	811281-005	12/04/2013 10:06	Water
MW-67-185-194	811281-006	12/04/2013 15:00	Water
MW-68-240-194	811281-007	12/04/2013 13:48	Water
MW-70-105-194	811281-008	12/04/2013 15:13	Water
MW-72-080-194	811281-009	12/04/2013 13:54	Water
MW-125-194	811281-010	12/05/2013 11:22	Water
MW-61-110-194	811281-011	12/05/2013 14:50	Water
MW-73-080-194	811281-012	12/05/2013 09:00	Water
MW-74-240-194	811281-013	12/05/2013 08:20	Water

Ammonia Nitrogen by SM4500-NH3D Batch 12NH313D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811281-001 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-002 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-003 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-004 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-005 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-006 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-007 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-008 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-009 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-010 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-011 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND
811281-012 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	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.GM.01 Printed 12/19/2013

811281-013 Ammonia as N	mg/L	12/18/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 811281-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.25	8.00	90.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.37	8.00	92.1	90 - 110

Matrix Spike — Lab ID = 811281-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.1	10.0(10.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.74	6.00	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.24	6.00	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.34	6.00	106	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

811281

CHAIN-OF-CUSTODY RECORD

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

09-Dec-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
-1	N011572-001C / MW-100-194	Water	12/4/2013 7:52:00 AM	32OZP	1		
-2	N011572-003C / MW-39-100-194	Water	12/4/2013 8:41:00 AM	32OZP	1		
-3	N011572-004C / MW-60-125-194	Water	12/4/2013 8:59:00 AM	32OZP	1		
-4	N011572-005C / MW-60BR-245-194	Water	12/4/2013 9:45:00 AM	32OZP	1		
-5	N011572-006C / MW-63-065-194	Water	12/4/2013 10:06:00 AM	32OZP	1		
-6	N011572-007C / MW-67-185-194	Water	12/4/2013 3:00:00 PM	32OZP	1		
-7	N011572-008C / MW-68-240-194	Water	12/4/2013 1:48:00 PM	32OZP	1		
-8	N011572-009C / MW-70-105-194	Water	12/4/2013 3:13:00 PM	32OZP	1		
-9	N011572-010C / MW-72-080-194	Water	12/4/2013 1:54:00 PM	32OZP	1		
-10	N011572-011C / MW-125-194	Water	12/5/2013 11:22:00 AM	32OZP	1		
-11	N011572-013C / MW-61-110-194	Water	12/5/2013 2:50:00 PM	32OZP	1		
-12	N011572-014C / MW-73-080-194	Water	12/5/2013 9:00:00 AM	32OZP	1		
-13	N011572-015C / MW-74-240-194	Water	12/5/2013 8:20:00 AM	32OZP	1		

ALERT !!
Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N011572 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT

Please analyze for Ammonia by SM 4500. Please send report to CH2M Hill. Please bill ATL Inc.

GSO# 523405876

		Date/Time			Date/Time
Relinquished by:	HERSEY SAYYAS	09DEC13 1227	**Received by:**	Linda, TLI	12-10-13 07:50
Relinquished by:			**Received by:**		

018

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 811281

Date Delivered: 12/10/13 **Time:** 07:50 **By:** ☑ **Mail** ☐ **Field Service** ☐ **Client**

1. *Was a Chain of Custody received and signed?* ☑ Yes ☐ No ☐ N/A
2. *Does Customer require an acknowledgement of the COC?* ☐ Yes ☑ No ☐ N/A
3. *Are there any special requirements or notes on the COC?* ☐ Yes ☑ No ☐ N/A
4. *If a letter was sent with the COC, does it match the COC?* ☐ Yes ☐ No ☑ N/A
5. *Were all requested analyses understood and acceptable?* ☑ Yes ☐ No ☐ N/A
6. *Were samples received in a chilled condition?* ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.1 °C
7. *Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?* ☑ Yes ☐ No ☐ N/A
8. *Were sample custody seals intact?* ☐ Yes ☐ No ☑ N/A
9. *Does the number of samples received agree with COC?* ☑ Yes ☐ No ☐ N/A
10. *Did sample labels correspond with the client ID's?* ☑ Yes ☐ No ☐ N/A
11. *Did sample labels indicate proper preservation?* ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☑ *Client*
12. *Were samples pH checked? pH =* _____ ☐ Yes ☐ No ☑ N/A
13. *Were all analyses within holding time at time of receipt?* ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. *Have Project due dates been checked and accepted?* ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ *Std*
15. ***Sample Matrix:*** ☐ *Liquid* ☐ *Drinking Water* ☐ *Ground Water* ☐ *Waste Water* ☐ *Sludge* ☐ *Soil* ☐ *Wipe* ☐ *Paint* ☐ *Solid* ☑ *Other* Water
16. *Comments:* _____
17. *Sample Check-In completed by* **Truesdail** *Log-In/Receiving:* Linda

ALERT !!
Level IV QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 18, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811313

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 December 10, 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 other violations or non-conformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 811313
Date Received: December 10, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811313-001	MW-222-194	E218.6	FLDFLT	12/4/2013	7:10	Chromium, Hexavalent	ND	ug/L	0.20
811313-002	MW-26-194	SM3500-CrB	FLDFLT	12/4/2013	11:08	Chromium, Hexavalent	1970	ug/L	250
811313-002	MW-26-194	SW6020	FLDFLT	12/4/2013	11:08	Chromium	2000	ug/L	10.0
811313-003	MW-39-100-194	E218.6	FLDFLT	12/4/2013	8:41	Chromium, Hexavalent	52.2	ug/L	1.0
811313-003	MW-39-100-194	SW6020	FLDFLT	12/4/2013	8:41	Chromium	53.9	ug/L	1.0
811313-004	MW-60-125-194	E218.6	FLDFLT	12/4/2013	8:59	Chromium, Hexavalent	1100	ug/L	10.0
811313-004	MW-60-125-194	SW6020	FLDFLT	12/4/2013	8:59	Chromium	1070	ug/L	4.0
811313-005	MW-60BR-245-194	E218.6	FLDFLT	12/4/2013	9:45	Chromium, Hexavalent	ND	ug/L	1.0
811313-005	MW-60BR-245-194	SW6020	FLDFLT	12/4/2013	9:45	Chromium	ND	ug/L	1.0
811313-006	MW-63-065-194	E218.6	FLDFLT	12/4/2013	10:06	Chromium, Hexavalent	1.6	ug/L	0.20
811313-006	MW-63-065-194	SW6020	FLDFLT	12/4/2013	10:06	Chromium	1.9	ug/L	1.0
811313-007	MW-67-185-194	E218.6	FLDFLT	12/4/2013	15:00	Chromium, Hexavalent	2180	ug/L	20.0
811313-007	MW-67-185-194	SW6020	FLDFLT	12/4/2013	15:00	Chromium	2260	ug/L	10.0
811313-008	MW-68-240-194	E218.6	FLDFLT	12/4/2013	13:48	Chromium, Hexavalent	1960	ug/L	20.0
811313-008	MW-68-240-194	SW6020	FLDFLT	12/4/2013	13:48	Chromium	2110	ug/L	10.0
811313-009	MW-70-105-194	E218.6	FLDFLT	12/4/2013	15:13	Chromium, Hexavalent	163	ug/L	2.0
811313-009	MW-70-105-194	SW6020	FLDFLT	12/4/2013	15:13	Chromium	164	ug/L	1.0
811313-010	MW-72-080-194	E218.6	FLDFLT	12/4/2013	13:54	Chromium, Hexavalent	137	ug/L	2.0
811313-010	MW-72-080-194	SW6020	FLDFLT	12/4/2013	13:54	Chromium	136	ug/L	1.0
811313-011	MW-125-194	E218.6	FLDFLT	12/5/2013	11:22	Chromium, Hexavalent	601	ug/L	10.0
811313-011	MW-125-194	SW6020	FLDFLT	12/5/2013	11:22	Chromium	581	ug/L	2.0
811313-012	MW-19-194	SM3500-CrB	FLDFLT	12/5/2013	11:45	Chromium, Hexavalent	522	ug/L	20.0
811313-012	MW-19-194	SW6020	FLDFLT	12/5/2013	11:45	Chromium	487	ug/L	2.0
811313-013	MW-223-194	E218.6	FLDFLT	12/5/2013	7:50	Chromium, Hexavalent	ND	ug/L	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.

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811313-014	MW-224-194	E218.6	FLDFLT	12/5/2013	7:55	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811313

Printed 12/18/2013

Samples Received on 12/10/2013 7:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-222-194	811313-001	12/04/2013 07:10	Water
MW-26-194	811313-002	12/04/2013 11:08	Water
MW-39-100-194	811313-003	12/04/2013 08:41	Water
MW-60-125-194	811313-004	12/04/2013 08:59	Water
MW-60BR-245-194	811313-005	12/04/2013 09:45	Water
MW-63-065-194	811313-006	12/04/2013 10:06	Water
MW-67-185-194	811313-007	12/04/2013 15:00	Water
MW-68-240-194	811313-008	12/04/2013 13:48	Water
MW-70-105-194	811313-009	12/04/2013 15:13	Water
MW-72-080-194	811313-010	12/04/2013 13:54	Water
MW-125-194	811313-011	12/05/2013 11:22	Water
MW-19-194	811313-012	12/05/2013 11:45	Water
MW-223-194	811313-013	12/05/2013 07:50	Water
MW-224-194	811313-014	12/05/2013 07:55	Water

Chrome VI by EPA 218.6

Batch 12CrH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811313-001 Chromium, Hexavalent	ug/L	12/11/2013 11:22	1.00	0.00600	0.20	ND
811313-003 Chromium, Hexavalent	ug/L	12/11/2013 12:57	5.00	0.0300	1.0	52.2
811313-004 Chromium, Hexavalent	ug/L	12/11/2013 12:05	50.0	0.300	10.0	1100
811313-005 Chromium, Hexavalent	ug/L	12/12/2013 08:41	5.00	0.0300	1.0	ND
811313-007 Chromium, Hexavalent	ug/L	12/11/2013 12:47	100	0.600	20.0	2180
811313-008 Chromium, Hexavalent	ug/L	12/11/2013 13:28	100	0.600	20.0	1960
811313-009 Chromium, Hexavalent	ug/L	12/11/2013 14:22	10.0	0.0600	2.0	163
811313-010 Chromium, Hexavalent	ug/L	12/11/2013 14:32	10.0	0.0600	2.0	137
811313-013 Chromium, Hexavalent	ug/L	12/11/2013 14:43	1.00	0.00600	0.20	ND
811313-014 Chromium, Hexavalent	ug/L	12/11/2013 14:53	1.00	0.00600	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. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01 Printed 12/18/2013

Method Blank

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

Duplicate — Lab ID = 811312-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.137	0.130	5.32	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.00	5.00	100	90 - 110

Matrix Spike — Lab ID = 811312-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.12	1.13(1.00)	98.7	90 - 110

Matrix Spike — Lab ID = 811313-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.991	1.00(1.00)	99.1	90 - 110

Matrix Spike — Lab ID = 811313-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	123	127(75.0)	94.6	90 - 110

Matrix Spike — Lab ID = 811313-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	2230	2350(1250)	90.2	90 - 110

Matrix Spike — Lab ID = 811313-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.746	1.00(1.00)	74.6	90 - 110

Matrix Spike — Lab ID = 811313-005

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

Matrix Spike — Lab ID = 811313-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4910	4680(2500)	109	90 - 110

Matrix Spike — Lab ID = 811313-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3900	3960(2000)	96.9	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.

Matrix Spike — Lab ID = 811313-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	351	363(200)	93.8	90 - 110

Matrix Spike — Lab ID = 811313-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	286	287(150)	99.2	90 - 110

Matrix Spike — Lab ID = 811313-013

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

Matrix Spike — Lab ID = 811313-014

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

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.90	10.0	99.0	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	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.01 Printed 12/18/2013

Chrome VI by EPA 218.6

Batch 12CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811313-006 Chromium, Hexavalent	ug/L	12/12/2013 14:35	1.00	0.00600	0.20	1.6
811313-011 Chromium, Hexavalent	ug/L	12/12/2013 16:19	50.0	0.300	10.0	601

Method Blank

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

Duplicate — Lab ID = 811315-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	600	565	6.03	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.215	0.200	107	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 811313-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.54	6.64(5.00)	98.0	90 - 110

Matrix Spike — Lab ID = 811313-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1330	1350(750)	97.6	90 - 110

Matrix Spike — Lab ID = 811315-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1260	1320(750)	93.2	90 - 110

Matrix Spike — Lab ID = 811315-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	83.7	82.3(50.0)	103	90 - 110

Matrix Spike — Lab ID = 811315-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.01(1.00)	95.8	90 - 110

Matrix Spike — Lab ID = 811315-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.02(1.00)	105	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.01 Printed 12/18/2013

Metals by EPA 6020A, Dissolved

Batch 121113B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811313-002 Chromium	ug/L	12/11/2013 19:46	50.0	3.55	10.0	2000
811313-003 Chromium	ug/L	12/11/2013 20:16	2.00	0.142	1.0	53.9
811313-004 Chromium	ug/L	12/11/2013 20:28	20.0	1.42	4.0	1070
811313-005 Chromium	ug/L	12/11/2013 20:40	2.00	0.142	1.0	ND
811313-006 Chromium	ug/L	12/11/2013 20:58	2.00	0.142	1.0	1.9
811313-007 Chromium	ug/L	12/11/2013 21:04	50.0	3.55	10.0	2260
811313-008 Chromium	ug/L	12/11/2013 21:10	50.0	3.55	10.0	2110
811313-009 Chromium	ug/L	12/11/2013 21:16	2.00	0.142	1.0	164
811313-010 Chromium	ug/L	12/11/2013 21:23	2.00	0.142	1.0	136
811313-011 Chromium	ug/L	12/11/2013 21:29	10.0	0.710	2.0	581
811313-012 Chromium	ug/L	12/11/2013 21:41	10.0	0.710	2.0	487

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 811313-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	1850	2000	7.53	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.211	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.7	50.0	99.3	85 - 115

Matrix Spike

Lab ID = 811313-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	50.0	4280	4500(2500)	91.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.2	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

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.01 Printed 12/18/2013

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	93.8	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	17.9	20.0	89.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	17.8	20.0	89.1	80 - 120

Serial Dilution Lab ID = 811313-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	55.1	53.9	2.27	0 - 10

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Chromium, Hexavalent by SM 3500-Cr B

Batch 12CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811313-002 Chromium, Hexavalent	ug/L	12/17/2013 15:56	25.0	110	250	1970
811313-012 Chromium, Hexavalent	ug/L	12/17/2013 15:57	2.00	8.80	20.0	522

Method Blank

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

Duplicate — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	934	934	0.0321	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

Matrix Spike — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3430(2500)	98.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

811 313

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/10/2013
COC Number: 24

Rec'd 12/10/13
~~S~~ 811313

				Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
Container:				250 ml Poly	2x250 ml Poly	250 ml Poly	500 ml Poly	2x500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field	Field	Field			
Holding Time:				28	28	28	180	180			
	DATE	TIME	Matrix								
1 MW-222-194	12/4/2013	7:10	Water	X						1	
2 MW-26-194	12/4/2013	11:08	Water			X	X			2	
3 MW-39-100-194	12/4/2013	8:41	Water	X			X			2	
4 MW-60-125-194	12/4/2013	8:59	Water	X			X			2	
5 MW-60BR-245-194	12/4/2013	9:45	Water	X			X			2	
6 MW-63-065-194	12/4/2013	10:06	Water	X			X			2	6020A
7 MW-67-185-194	12/4/2013	15:00	Water	X			X			2	pH=
8 MW-68-240-194	12/4/2013	13:48	Water	X			X			2	2
9 MW-70-105-194	12/4/2013	15:13	Water	X			X			2	
10 MW-72-080-194	12/4/2013	13:54	Water	X			X			2	
11 MW-125-194	12/5/2013	11:22	Water	X			X			2	
12 MW-19-194	12/5/2013	11:45	Water			X	X			2	
13 MW-223-194	12/5/2013	7:50	Water	X						1	
14 MW-224-194	12/5/2013	7:55	Water	X						1	

Sample Conditions See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		12-10-13 1525
Relinquished by		12-10-13 1525
Received by		
Relinquished by		12-10-13 1930
Received by		1930

Shipping Details

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

ATTN:

Sample Custody

Special Instructions:

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
11/22/13	811025-12	9.5	N/A	N/A	N/A	NR
	-13					
	-14					
	-15					
11/27/13	811083	7.0	2ml / 100ml	9.5	8:30	NE
12/3/13	811131-1	7.0	2ml / 100ml	9.5	12:00	NE
	-2					
	-3					
12/4/13	811157	7.0	2ml / 100ml	9.5	8:30	[illegible]
	811158-1					
	-2					
	811159-1					
	-2					
	811160-1	9.5	N/A	N/A	N/A	[illegible]
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
12/10/13 ~~811278~~	811278-1	9.5	N/A	N/A	N/A	[illegible]
12/10/13	-2	9.5				
	-3					
	-4					
	-6					
~~12/11/13~~	811312	7.0	100ml / 2ml	9.5	7:45	NE
~~12/11/13~~	811313-1	9.5	N/A	N/A	N/A	NE
	-2					

NE
12/12/13

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

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
12/11/13	811313-3	9.5	N/A	N/A	N/A	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	✓ -14					
	811314-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	✓ -13					
	811315-1					
	-2					
	-3					
	-4					
	-5					
✓	✓ -6	✓	✓	✓	✓	✓

NE

12/12/13

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811218	>1	<2	12/6/13	KK	Y			
811155 (2 bottles)	>1	↓			↓			
811188 (10-12)	<1	>2			N	12/6/13 @ 12pm	12/9/13 @ 10:00	pH <2
811178 (1-3)	<1	↓			↓	↓	↓	↓
811193 (1-2)	>1	<2			Y			
811196	<1	↓			↓			
811154		>2			N	12pm	12/9/13 @ 10	pH <2
811187 (1-4)	↓							
811176 (1-4-6)	<1							
811170 (1-2)	<1							
811205 (17, 24)	<1	↓	↓	↓	↓	↓	↓	↓
811208	<1	<2	12/9/13	ES	Yes			
811226 (1-2)								
811227								
811248	↓	↓	↓	↓	↓			
811199 (1-3)	<1	<2	12/10/13	ES	Yes			
811278 (1-6)	↓	↓	↓	↓	↓			T/D
811267 (1-2)	<1	<2	12/11/13	ES	Yes			
811274	↓	↓						
811283	TTL	C						
811285 (1-4)	<1	<2						
811286								
811288								
811289	↓							
811290	>1							
811291	<1							
811292	>1							
811297	<1							
811298	↓	↓	↓	↓	↓			
811312	<1	>2	12/11/13	ES	Yes	11:00		pH <2
811313 (2-12)		<2						
811314 (1-11)								
811315 (1-3, 6-9)	↓	↓	↓	↓	↓			
811301 (1-2, 4)	<1	>2	12/12/13	ES	NO	11:00		
811302		<2			Yes			
811304								
811309		↓						
811310		>2			NO	11:00		
811316								
811317 (1-3)	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 811313

Date Delivered: 12/10/13 **Time:** 1930 **By:** ☐Mail ☐Field Service ☒Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☒No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.0 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒**Truesdail** ☐Client
12. Were samples pH checked? pH = See COC ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Marsha Bacca

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 7, 2014

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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811314

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 December 10, 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.

The straight run for sample MW-33-150-194 for Hexavalent Chromium by EPA 218.6 was outside the retention time window and the matrix spike recovery for the 5x dilution was outside the recovery limits. Therefore, the sample was re-analyzed straight and at a 5x dilution with associated matrix spikes. Sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium for confirmation, which yielded similar results to the original Total Dissolved Chromium analysis. The re-analysis at a 5x dilution for the Hexavalent Chromium and the original Total Dissolved Chromium results were reported and Mr. Duffy was informed.

Due to the discrepancy between the Total Dissolved Chromium (2.4 ug/L) and Hexavalent Chromium (0.59 ug/L) results for sample MW-38S-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.5 ug/L and 2.8 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 2.4 ug/L. Mr. Duffy was informed and the original results were reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 811314
Date Received: December 10, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811314-001	MW-24BR-194	E218.6	FLDFLT	12/3/2013	8:26	Chromium, Hexavalent	ND	ug/L	0.20
811314-001	MW-24BR-194	SW6020	FLDFLT	12/3/2013	8:26	Chromium	ND	ug/L	1.0
811314-002	MW-31-060-194	SM3500-CrB	FLDFLT	12/3/2013	15:35	Chromium, Hexavalent	422	ug/L	20.0
811314-002	MW-31-060-194	SW6020	FLDFLT	12/3/2013	15:35	Chromium	383	ug/L	2.0
811314-003	MW-33-040-194	E218.6	FLDFLT	12/3/2013	9:28	Chromium, Hexavalent	ND	ug/L	1.0
811314-003	MW-33-040-194	SW6020	FLDFLT	12/3/2013	9:28	Chromium	ND	ug/L	1.0
811314-004	MW-33-090-194	E218.6	FLDFLT	12/3/2013	11:07	Chromium, Hexavalent	13.1	ug/L	1.0
811314-004	MW-33-090-194	SW6020	FLDFLT	12/3/2013	11:07	Chromium	12.6	ug/L	1.0
811314-005	MW-33-150-194	E218.6	FLDFLT	12/3/2013	12:35	Chromium, Hexavalent	10.7	ug/L	1.0
811314-005	MW-33-150-194	SW6020	FLDFLT	12/3/2013	12:35	Chromium	11.0	ug/L	1.0
811314-006	MW-33-210-194	E218.6	FLDFLT	12/3/2013	13:44	Chromium, Hexavalent	12.5	ug/L	1.0
811314-006	MW-33-210-194	SW6020	FLDFLT	12/3/2013	13:44	Chromium	13.2	ug/L	1.0
811314-007	MW-38S-194	E218.6	FLDFLT	12/3/2013	10:40	Chromium, Hexavalent	0.59	ug/L	0.20
811314-007	MW-38S-194	SW6020	FLDFLT	12/3/2013	10:40	Chromium	2.4	ug/L	1.0
811314-008	MW-66-165-194	E218.6	FLDFLT	12/3/2013	9:14	Chromium, Hexavalent	595	ug/L	10.0
811314-008	MW-66-165-194	SW6020	FLDFLT	12/3/2013	9:14	Chromium	622	ug/L	2.0
811314-009	MW-69-195-194	E218.6	FLDFLT	12/3/2013	13:06	Chromium, Hexavalent	932	ug/L	10.0
811314-009	MW-69-195-194	SW6020	FLDFLT	12/3/2013	13:06	Chromium	952	ug/L	2.0
811314-010	MW-92-194	E218.6	FLDFLT	12/3/2013	10:27	Chromium, Hexavalent	12.9	ug/L	1.0
811314-010	MW-92-194	SW6020	FLDFLT	12/3/2013	10:27	Chromium	13.0	ug/L	1.0
811314-011	MW-100-194	E218.6	FLDFLT	12/4/2013	7:52	Chromium, Hexavalent	52.2	ug/L	1.0
811314-011	MW-100-194	SW6020	FLDFLT	12/4/2013	7:52	Chromium	51.4	ug/L	1.0

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

TRUESDAIL LABORATORIES, INC.

Report Continued

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811314-012	MW-220-194	E218.6	FLDFLT	12/4/2013	7:05	Chromium, Hexavalent	ND	ug/L	0.20
811314-013	MW-221-194	E218.6	FLDFLT	12/4/2013	7:07	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811314

Printed 1/7/2014

Samples Received on 12/10/2013 7:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-24BR-194	811314-001	12/03/2013 08:26	Water
MW-31-060-194	811314-002	12/03/2013 15:35	Water
MW-33-040-194	811314-003	12/03/2013 09:28	Water
MW-33-090-194	811314-004	12/03/2013 11:07	Water
MW-33-150-194	811314-005	12/03/2013 12:35	Water
MW-33-210-194	811314-006	12/03/2013 13:44	Water
MW-38S-194	811314-007	12/03/2013 10:40	Water
MW-66-165-194	811314-008	12/03/2013 09:14	Water
MW-69-195-194	811314-009	12/03/2013 13:06	Water
MW-92-194	811314-010	12/03/2013 10:27	Water
MW-100-194	811314-011	12/04/2013 07:52	Water
MW-220-194	811314-012	12/04/2013 07:05	Water
MW-221-194	811314-013	12/04/2013 07:07	Water

Chrome VI by EPA 218.6

Batch 12CrH13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811314-001 Chromium, Hexavalent	ug/L	12/19/2013 14:39	1.00	0.00600	0.20	ND
811314-005 Chromium, Hexavalent	ug/L	12/19/2013 12:33	5.00	0.0300	1.0	10.7

Method Blank

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

Duplicate — Lab ID = 811410-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	50.6	50.0	1.22	0 - 20

Low Level Calibration Verification

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

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	100	90 - 110

Matrix Spike — Lab ID = 811314-001

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

Matrix Spike — Lab ID = 811314-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	25.0	25.8(15.0)	95.1	90 - 110

Matrix Spike — Lab ID = 811314-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.5	35.7(25.0)	95.2	90 - 110

Matrix Spike — Lab ID = 811314-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.63	1.59(1.00)	104	90 - 110

Matrix Spike — Lab ID = 811410-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	121	125(75.0)	95.2	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	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	10.2	10.0	102	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.

Chrome VI by EPA 218.6

Batch 12CrH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811314-003 Chromium, Hexavalent	ug/L	12/11/2013 11:48	5.00	0.0300	1.0	ND
811314-004 Chromium, Hexavalent	ug/L	12/11/2013 11:54	5.00	0.0300	1.0	13.1
811314-006 Chromium, Hexavalent	ug/L	12/11/2013 17:43	5.00	0.0300	1.0	12.5
811314-007 Chromium, Hexavalent	ug/L	12/11/2013 09:13	1.00	0.00600	0.20	0.59
811314-008 Chromium, Hexavalent	ug/L	12/11/2013 09:23	50.0	0.300	10.0	595
811314-009 Chromium, Hexavalent	ug/L	12/11/2013 10:55	50.0	0.300	10.0	932
811314-010 Chromium, Hexavalent	ug/L	12/11/2013 12:46	5.00	0.0300	1.0	12.9
811314-011 Chromium, Hexavalent	ug/L	12/11/2013 12:57	5.00	0.0300	1.0	52.2
811314-012 Chromium, Hexavalent	ug/L	12/11/2013 10:26	1.00	0.00600	0.20	ND
811314-013 Chromium, Hexavalent	ug/L	12/11/2013 10:36	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate

Lab ID = 811314-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.560	0.594	5.80	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.200	0.200	99.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.02	5.00	100	90 - 110

Matrix Spike

Lab ID = 811314-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.60	5.00(5.00)	92.0	90 - 110

Matrix Spike

Lab ID = 811314-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.13	5.17(5.00)	99.3	90 - 110

Matrix Spike

Lab ID = 811314-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.7	38.1(25.0)	94.4	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.

Matrix Spike — Lab ID = 811314-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.0	35.9(25.0)	84.5	90 - 110

Matrix Spike — Lab ID = 811314-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.8	38.1(25.0)	91.0	90 - 110

Matrix Spike — Lab ID = 811314-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.51	1.59(1.00)	91.7	90 - 110

Matrix Spike — Lab ID = 811314-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1400	1340(750)	107	90 - 110

Matrix Spike — Lab ID = 811314-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1850	1930(1000)	91.8	90 - 110

Matrix Spike — Lab ID = 811314-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	38.7	37.9(25.0)	103	90 - 110

Matrix Spike — Lab ID = 811314-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	128	127(75.0)	101	90 - 110

Matrix Spike — Lab ID = 811314-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.945	1.00(1.00)	94.5	90 - 110

Matrix Spike — Lab ID = 811314-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.930	1.00(1.00)	93.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.02	5.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.87	10.0	98.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.84	10.0	98.4	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.01 Printed 1/7/2014

Metals by EPA 6020A, Dissolved

Batch 121213B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811314-001 Chromium	ug/L	12/12/2013 16:43	2.00	0.142	1.0	ND
811314-002 Chromium	ug/L	12/12/2013 17:19	10.0	0.710	2.0	383
811314-003 Chromium	ug/L	12/12/2013 17:25	2.00	0.142	1.0	ND
811314-004 Chromium	ug/L	12/12/2013 17:31	2.00	0.142	1.0	12.6
811314-005 Chromium	ug/L	12/12/2013 17:37	2.00	0.142	1.0	11.0
811314-006 Chromium	ug/L	12/12/2013 17:44	2.00	0.142	1.0	13.2
811314-007 Chromium	ug/L	12/12/2013 17:50	2.00	0.142	1.0	2.4
811314-008 Chromium	ug/L	12/12/2013 17:56	10.0	0.710	2.0	622
811314-009 Chromium	ug/L	12/12/2013 18:08	10.0	0.710	2.0	952
811314-010 Chromium	ug/L	12/12/2013 18:14	2.00	0.142	1.0	13.0
811314-011 Chromium	ug/L	12/12/2013 18:38	2.00	0.142	1.0	51.4

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 811314-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.228	0.200	114	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.8	50.0	97.6	85 - 115

Matrix Spike

Lab ID = 811314-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.7	50.0(50.0)	91.4	75 - 125

Matrix Spike Duplicate

Lab ID = 811314-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	44.4	50.0(50.0)	88.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	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.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	90.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.3	20.0	91.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.4	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	17.2	20.0	85.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	17.8	20.0	88.8	80 - 120

Serial Dilution Lab ID = 811314-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	618	622	0.600	0 - 10

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 8 of 8
Project Number: 423575.MP.02.GM.01 Printed 1/7/2014

Chromium, Hexavalent by SM 3500-Cr B

Batch 12CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811314-002 Chromium, Hexavalent	ug/L	12/17/2013 15:58	2.00	8.80	20.0	422

Method Blank

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

Duplicate — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	934	934	0.0321	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

Matrix Spike — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3430(2500)	98.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

811314

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/10/2013
COC Number: 24

* Where provided w/ multiple Cr6 + metals bottles, please analyze 1 + hold 1

Rec'd 12/10/13
S811314

	Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	500 ml Poly	2x500 ml Poly
	Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C
	Filtered:	Field	Field	Field	Field	Field
	Holding Time:	28	28	28	180	180
		Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium

		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium	Number of Containers	COMMENTS
1	MW-24BR-194	12/3/2013	8:26	Water	X			X		2	
2	MW-31-060-194	12/3/2013	15:35	Water			X	X		2	
3	MW-33-040-194	12/3/2013	9:28	Water		X			X	4	*
	MW-33-040-194-EB	12/3/2013	8:00	Water	X			X		2	Hold
4	MW-33-090-194	12/3/2013	11:07	Water	X			X		2	
5	MW-33-150-194	12/3/2013	12:35	Water	X			X		2	PH-2
6	MW-33-210-194	12/3/2013	13:44	Water	X			X		2	6020A
7	MW-38S-194	12/3/2013	10:40	Water	X			X		2	
8	MW-66-165-194	12/3/2013	9:14	Water	X			X		2	
9	MW-69-195-194	12/3/2013	13:06	Water	X			X		2	
10	MW-92-194	12/3/2013	10:27	Water	X			X		2	
11	MW-100-194	12/4/2013	7:52	Water	X			X		2	
12	MW-220-194	12/4/2013	7:05	Water	X					1	
13	MW-221-194	12/4/2013	7:07	Water	X					1	

For Sample Conditions See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		12-10-13 1525
Sampled by		
Relinquished by		12-10-13 1525
Received by		
Relinquished by		12-10-13 1930
Received by		12/10/13 1930

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

ATTN:
Sample Custody

Special Instructions:

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
12/11/13	811313-3	9.5	N/A	N/A	N/A	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	811314-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	811315-1					
	-2					
	-3					
	-4					
	-5					
	-6					

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811218	>1	<2	12/6/13	MK	Y			
811155 (2bottles)	>1	↓			↓			
811188 (10-12)	<1	>2			N	12/6/13@12pm	12/9/13@10am	pH <2
811178 (1-3)	<1	↓			↓	↓	↓	↓
811193 (1-2)	>1	<2			Y			
811196	<1	↓			↓			
811154		>2			N	12pm	12/9/13 @10	pH<2
811187 (1-4)	↓							
811176 (1-4-6)	<1							
811170 (1-2)	<1							
811205 (17, 24)	<1	↓	↓	↓	↓	↓	↓	↓
811208	<1	<2	12/9/13	ES	yes			
811226 (1-2)								
811227								
811248	↓	↓	↓	↓	↓			
811199 (1-3)	<1	<2	12/10/13	ES	yes			
811278 (1-6)	↓	↓	↓	↓	↓			TID
811267 (1-2)	<1	<2	12/11/13	ES	yes			
811274	↓	↓						
811283	TTL	C						
811285 (1-4)	<1	<2						
811286								
811288								
811289	↓							
811290	>1							
811291	<1							
811292	>1							
811297	<1							
811298	↓	↓	↓	↓	↓			
811312	<1	>2	12/11/13	ES	yes	11:00		pH <2
811313 (2-12)		<2						
811314 (1-11)								
811315 (1-3,6-9)	↓	↓	↓	↓	↓			
811301 (1-2,4)	<1	>2	12/12/13	ES	NO	11:00		
811302		<2			yes			
811304								
811309		↓						
811310		>2			NO	11:00		
811316								
811317 (1-3)	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: EJ **Lab #** 811314

Date Delivered: 12 / 10 / 13 **Time:** 1930 **By:** ☐ Mail ☐ Field Service ☒ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☒ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☒ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.0 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☒ Yes ☐ No ☐ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☒ **Truesdail** ☐ Client
12. Were samples pH checked? pH = See COC ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: [signature]

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 19, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811315

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 December 10, 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 other violations or non-conformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811315
Date Received: December 10, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811315-001	MW-61-110-194	E218.6	FLDFLT	12/5/2013	14:50	Chromium, Hexavalent	565	ug/L	10.0
811315-001	MW-61-110-194	SW6020	FLDFLT	12/5/2013	14:50	Chromium	563	ug/L	2.0
811315-002	MW-73-080-194	E218.6	FLDFLT	12/5/2013	9:00	Chromium, Hexavalent	32.3	ug/L	1.0
811315-002	MW-73-080-194	SW6020	FLDFLT	12/5/2013	9:00	Chromium	34.9	ug/L	1.0
811315-003	MW-74-240-194	E218.6	FLDFLT	12/5/2013	8:20	Chromium, Hexavalent	ND	ug/L	0.20
811315-003	MW-74-240-194	SW6020	FLDFLT	12/5/2013	8:20	Chromium	ND	ug/L	1.0
811315-004	MW-225-194	E218.6	FLDFLT	12/6/2013	12:58	Chromium, Hexavalent	ND	ug/L	0.20
811315-005	MW-226-194	E218.6	FLDFLT	12/6/2013	12:55	Chromium, Hexavalent	ND	ug/L	0.20
811315-006	MW-09-194	SM3500-CrB	FLDFLT	12/9/2013	11:12	Chromium, Hexavalent	240	ug/L	10.0
811315-006	MW-09-194	SW6020	FLDFLT	12/9/2013	11:12	Chromium	236	ug/L	2.0
811315-007	MW-25-194	SM3500-CrB	FLDFLT	12/9/2013	15:31	Chromium, Hexavalent	191	ug/L	10.0
811315-007	MW-25-194	SW6020	FLDFLT	12/9/2013	15:31	Chromium	188	ug/L	2.0
811315-008	MW-67-225-194	E218.6	FLDFLT	12/9/2013	8:56	Chromium, Hexavalent	3070	ug/L	50.0
811315-008	MW-67-225-194	SW6020	FLDFLT	12/9/2013	8:56	Chromium	3010	ug/L	10.0
811315-009	MW-67-260-194	E218.6	FLDFLT	12/9/2013	9:32	Chromium, Hexavalent	1980	ug/L	20.0
811315-009	MW-67-260-194	SW6020	FLDFLT	12/9/2013	9:32	Chromium	1820	ug/L	10.0
811315-010	MW-227-194	E218.6	FLDFLT	12/10/2013	7:10	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811315

Printed 12/19/2013

Samples Received on 12/10/2013 7:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-61-110-194	811315-001	12/05/2013 14:50	Water
MW-73-080-194	811315-002	12/05/2013 09:00	Water
MW-74-240-194	811315-003	12/05/2013 08:20	Water
MW-225-194	811315-004	12/06/2013 12:58	Water
MW-226-194	811315-005	12/06/2013 12:55	Water
MW-09-194	811315-006	12/09/2013 11:12	Water
MW-25-194	811315-007	12/09/2013 15:31	Water
MW-67-225-194	811315-008	12/09/2013 08:56	Water
MW-67-260-194	811315-009	12/09/2013 09:32	Water
MW-227-194	811315-010	12/10/2013 07:10	Water

Chrome VI by EPA 218.6

Batch 12CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811315-001 Chromium, Hexavalent	ug/L	12/12/2013 15:48	50.0	0.300	10.0	565
811315-002 Chromium, Hexavalent	ug/L	12/12/2013 17:11	5.00	0.0300	1.0	32.3
811315-003 Chromium, Hexavalent	ug/L	12/12/2013 16:09	1.00	0.00600	0.20	ND
811315-004 Chromium, Hexavalent	ug/L	12/12/2013 17:21	1.00	0.00600	0.20	ND
811315-005 Chromium, Hexavalent	ug/L	12/12/2013 17:32	1.00	0.00600	0.20	ND
811315-008 Chromium, Hexavalent	ug/L	12/13/2013 09:23	250	1.50	50.0	3070
811315-009 Chromium, Hexavalent	ug/L	12/13/2013 09:34	100	0.600	20.0	1980
811315-010 Chromium, Hexavalent	ug/L	12/12/2013 18:03	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 811315-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	600	565	6.03	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.

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.215	0.200	107	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 811313-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.54	6.64(5.00)	98.0	90 - 110

Matrix Spike — Lab ID = 811313-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1330	1350(750)	97.6	90 - 110

Matrix Spike — Lab ID = 811315-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1260	1320(750)	93.2	90 - 110

Matrix Spike — Lab ID = 811315-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	83.7	82.3(50.0)	103	90 - 110

Matrix Spike — Lab ID = 811315-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.01(1.00)	95.8	90 - 110

Matrix Spike — Lab ID = 811315-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.02(1.00)	105	90 - 110

Matrix Spike — Lab ID = 811315-005

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

Matrix Spike — Lab ID = 811315-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6740	6820(3750)	98.0	90 - 110

Matrix Spike — Lab ID = 811315-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3920	3940(2000)	98.8	90 - 110

Matrix Spike — Lab ID = 811315-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.02(1.00)	107	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.01

Metals by EPA 6020A, Dissolved

Batch 121213B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811315-001 Chromium	ug/L	12/12/2013 18:44	10.0	0.710	2.0	563
811315-002 Chromium	ug/L	12/12/2013 18:50	2.00	0.142	1.0	34.9
811315-003 Chromium	ug/L	12/12/2013 18:56	2.00	0.142	1.0	ND
811315-006 Chromium	ug/L	12/12/2013 19:02	10.0	0.710	2.0	236
811315-007 Chromium	ug/L	12/12/2013 19:08	10.0	0.710	2.0	188

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 811314-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.228	0.200	114	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.8	50.0	97.6	85 - 115

Matrix Spike — Lab ID = 811314-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.7	50.0(50.0)	91.4	75 - 125

Matrix Spike Duplicate — Lab ID = 811314-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	44.4	50.0(50.0)	88.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	90.9	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.01

Metals by EPA 6020A, Dissolved Batch 121313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811315-008 Chromium	ug/L	12/13/2013 16:19	50.0	3.55	10.0	3010
811315-009 Chromium	ug/L	12/13/2013 16:25	50.0	3.55	10.0	1820

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 811314-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.178	0.200	89.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.2	50.0	98.4	85 - 115

Matrix Spike — Lab ID = 811314-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.0	50.0(50.0)	92.0	75 - 125

Matrix Spike Duplicate — Lab ID = 811314-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.4	50.0(50.0)	90.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.3	20.0	91.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.6	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01 Printed 12/19/2013

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.3	20.0	91.5	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.0	20.0	90.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.7	80 - 120

Serial Dilution Lab ID = 811315-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	250	1760	1820	3.04	0 - 10

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 8 of 8
Project Number: 423575.MP.02.GM.01 Printed 12/19/2013

Chromium, Hexavalent by SM 3500-Cr B Batch 12CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811315-006 Chromium, Hexavalent	ug/L	12/17/2013 15:59	1.00	4.40	10.0	240
811315-007 Chromium, Hexavalent	ug/L	12/17/2013 16:04	1.00	4.40	10.0	191

Method Blank

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

Duplicate — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	934	934	0.0321	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

Matrix Spike — Lab ID = 811158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3430(2500)	98.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.0	60.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

811315

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/10/2013
COC Number: 24

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	500 ml Poly	2x500 ml Poly		Number of Containers	COMMENTS
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field			
				Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix		Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium			
1	MW-61-110-194	12/5/2013	14:50	Water	X			X			2	PH2 6020A
2	MW-73-080-194	12/5/2013	9:00	Water	X			X			2	
3	MW-74-240-194	12/5/2013	8:20	Water	X			X			2	
4	MW-225-194	12/6/2013	12:58	Water	X						1	
5	MW-226-194	12/6/2013	12:55	Water	X						1	
6	MW-09-194	12/9/2013	11:12	Water			X	X			2	PH2 6020A
7	MW-25-194	12/9/2013	15:31	Water			X	X			2	
8	MW-67-225-194	12/9/2013	8:56	Water	X			X			2	
9	MW-67-260-194	12/9/2013	9:32	Water	X			X			2	
10	MW-227-194	12/10/2013	7:10	Water	X						1	
										TOTAL NUMBER OF CONTAINERS	70	

Rec'd 12/10/13
Sample 811315

ALERT !!
Level III QC

Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		12-10-13 1525
Sampled by		
Relinquished by	[signature]	12-10-13 1525
Received by	Elizabeth Ingo	
Relinquished by	Elizabeth Ingo	12-10-13 1930
Received by	Michael Brady	12/10/13 1930

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

ATTN:
Sample Custody

Special Instructions:

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
12/11/13	811313-3	9.5	N/A	N/A	N/A	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	811314-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	811315-1					
	-2					
	-3					
	-4					
	-5					
	-6					

NE 12/13/13

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

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
12/11/13	811315-7	9.5	N/A	N/A	N/A	NE
	-8					
	-9					
	-10					
12/11/13	811310	7.0	2mL/100mL	9.5	8:30	NE

NE
12/13/13

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811218	>1	<2	12/10/13	MC	Y			
811155 (2 bottles)	>1	↓			↓			
811188 (10-12)	<1	>2			N	12/10/13 @ 12pm	12/11/13 @ 10:00	pH <2
811178 (1-3)	<1	↓			↓	↓	↓	↓
811193 (1-2)	>1	<2			Y			
811196	<1	↓			↓			
811154		>2			N	12pm	12/11/13 @ 10	pH <2
811187 (1-4)	↓							
811176 (1-4-6)	<1							
811170 (1-2)	<1							
811205 (17, 24)	<1	↓	↓	↓	↓	↓	↓	↓
811208	<1	<2	12/9/13	ES	yes			
811226 (1-2)								
811227								
811248	↓	↓	↓	↓	↓			
811199 (1-3)	<1	<2	12/10/13	ES	yes			
811278 (1-6)	↓	↓	↓	↓	↓			T/D
811267 (1-2)	<1	<2	12/11/13	ES	yes			
811274	↓	↓						
811283	TTL	C						
811285 (1-4)	<1	<2						
811286								
811288								
811289	↓							
811290	>1							
811291	<1							
811292	>1							
811297	<1							
811298	↓	↓	↓	↓	↓			
811312	<1	>2	12/11/13	ES	yes	11:00		pH <2
811313 (2-12)		<2						
811314 (1-11)								
811315 (1-3, 6-9)	↓	↓	↓	↓	↓			
811301 (1-2, 4)	<1	>2	12/12/13	ES	NO	11:00		
811302		<2			yes			
811304								
811309		↓						
811310		>2			NO	11:00		
811316								
811317 (1-3)	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 811315

Date Delivered: 12/10/13 **Time:** 1930 **By:** ☐Mail ☐Field Service ☑Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☑Yes ☑No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.0 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☑Yes ☐No ☐N/A
    Preserved (if yes) by: ☑Truesdail ☐Client
12. Were samples pH checked? pH = See COC ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments:
17. Sample Check-In completed by Truesdail Log-In/Receiving: Sandra B

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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

December 19, 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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811340

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 December 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 Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811340
Date Received: December 12, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811340-001	MW-67-225-194	SM4500NH3D	NONE	12/9/2013	8:56	Ammonia-N	ND	mg/L	0.500
811340-002	MW-67-260-194	SM4500NH3D	NONE	12/9/2013	9:32	Ammonia-N	ND	mg/L	0.500
811340-003	MW-59-100-194	SM4500NH3D	NONE	12/10/2013	12:32	Ammonia-N	ND	mg/L	0.500
811340-004	MW-70BR-225-194	SM4500NH3D	NONE	12/10/2013	10:04	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811340

Printed 12/19/2013

Samples Received on 12/12/2013 12:35:00 PM

Field ID	Lab ID	Collected	Matrix
MW-67-225-194	811340-001	12/09/2013 08:56	Water
MW-67-260-194	811340-002	12/09/2013 09:32	Water
MW-59-100-194	811340-003	12/10/2013 12:32	Water
MW-70BR-225-194	811340-004	12/10/2013 10:04	Water

Ammonia Nitrogen by SM4500-NH3D Batch 12NH313C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811340-001 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811340-002 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811340-003 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND
811340-004 Ammonia as N	mg/L	12/17/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 811200-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.37	8.00	92.1	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.31	8.00	91.4	90 - 110

Matrix Spike — Lab ID = 811200-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.10	10.0(10.0)	91.0	75 - 125

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.01

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.34	6.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.52	6.00	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.39	6.00	106	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

8N 340

QC Level: Level IV

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Rec'd 12/12/13
811340

Field Sampler: SIGNED

11-Dec-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
-1	N011593-003C / MW-67-225-194	Water	12/9/2013 8:56:00 AM	32OZP	1		
-2	N011593-004C / MW-67-260-194	Water	12/9/2013 9:32:00 AM	32OZP	1		
-3	N011593-006C / MW-59-100-194	Water	12/10/2013 12:32:00 PM	32OZP	1		
-4	N011593-007C / MW-70BR-225-194	Water	12/10/2013 10:04:00 AM	32OZP	1		

ALERT !!
Level IV QC

For Sample Conditions
See Form Attached

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N011593 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Please analyze for Ammonia by SM 4500. Please send report to CH2M Hill. Please bill ATL Inc.

GSO#5234332263

		Date/Time			Date/Time
Relinquished by:	HERSEY SAYAS	11DEC13 1420	**Received by:**		12-12-13 12:35
Relinquished by:			**Received by:**		

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 81340

Date Delivered: 12 / 12 / 13 **Time:** 12:35 **By:** ☑ Mail ☐ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☑ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☑ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ Truesdail ☑ Client
12. Were samples pH checked? pH = _____ ☐ Yes ☐ No ☑ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !!
Level IV QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 14, 2014

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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811409

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 December 17, 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 (4550 ug/L) and Hexavalent Chromium (2350 ug/L) results for sample MW-51-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 4470 ug/L and 4680 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 4560 ug/L. The Hexavalent Chromium was re-analyzed three days past the method specified holing time and yielded a result of 4520 ug/L. Mr. Duffy was informed and the original Total Dissolved Chromium and Hexavalent Chromium re-analysis results were reported.

Due to the discrepancy between the Total Dissolved Chromium (6850 ug/L) and Hexavalent Chromium (4570 ug/L) results for sample MW-66-230-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 6910 ug/L and 6540 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 6860 ug/L. The Hexavalent Chromium was re-analyzed two days past the method specified holing time and yielded a result of 6630 ug/L. Mr. Duffy was informed and the original Total Dissolved Chromium and Hexavalent Chromium re-analysis results were reported.

Due to the discrepancy between the Total Dissolved Chromium (1.4 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-32-020-194, sample from the Total Dissolved Chromium sample containers was digested and analyzed for Total Dissolved Chromium. The result was 1.3 ug/L. The original digestate was re-analyzed for confirmation and yielded a result of 1.2 ug/L. Solids were observed in both the Hexavalent Chromium and Total Dissolved Chromium sample containers. Sample was taken from the Hexavalent Chromium sample container, filtered, digested, and analyzed for Total Dissolved Chromium. The result was ND<1.0 ug/L. After discussing the results with Mr. Duffy, the Total Dissolved Chromium result from the laboratory filtered and digested sample was reported.

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

January 14, 2014

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 811409
Date Received: December 17, 2013
Revision 1; January 15, 2014

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811409-001	MW-12-194	SM3500-CrB	FLDFLT	12/10/2013	10:53	Chromium, Hexavalent	2440	ug/L	250
811409-001	MW-12-194	SW6020	FLDFLT	12/10/2013	10:53	Chromium	2350	ug/L	10.0
811409-002	MW-59-100-194	E218.6	FLDFLT	12/10/2013	12:32	Chromium, Hexavalent	3860	ug/L	50.0
811409-002	MW-59-100-194	SW6020	FLDFLT	12/10/2013	12:32	Chromium	3960	ug/L	10.0
811409-003	MW-70BR-225-194	E218.6	FLDFLT	12/10/2013	10:04	Chromium, Hexavalent	1950	ug/L	20.0
811409-003	MW-70BR-225-194	SW6020	FLDFLT	12/10/2013	10:04	Chromium	1910	ug/L	10.0
811409-004	PGE-07BR-194	E218.6	FLDFLT	12/10/2013	13:32	Chromium, Hexavalent	ND	ug/L	1.0
811409-004	PGE-07BR-194	SW6020	FLDFLT	12/10/2013	13:32	Chromium	ND	ug/L	1.0
811409-005	MW-20-070-194	SM3500-CrB	FLDFLT	12/11/2013	8:40	Chromium, Hexavalent	2140	ug/L	250
811409-005	MW-20-070-194	SW6020	FLDFLT	12/11/2013	8:40	Chromium	2520	ug/L	25.0
811409-006	MW-20-100-194	SM3500-CrB	FLDFLT	12/11/2013	9:25	Chromium, Hexavalent	2140	ug/L	250
811409-006	MW-20-100-194	SW6020	FLDFLT	12/11/2013	9:25	Chromium	2080	ug/L	25.0
811409-007	MW-228-194	E218.6	FLDFLT	12/11/2013	7:10	Chromium, Hexavalent	ND	ug/L	0.20
811409-008	MW-51-194	E218.6	FLDFLT	12/11/2013	11:55	Chromium, Hexavalent	4520 J	ug/L	50.0
811409-008	MW-51-194	SW6020	FLDFLT	12/11/2013	11:55	Chromium	4550	ug/L	25.0
811409-009	MW-62-065-194	E218.6	FLDFLT	12/11/2013	13:20	Chromium, Hexavalent	471	ug/L	5.0
811409-009	MW-62-065-194	SW6020	FLDFLT	12/11/2013	13:20	Chromium	476	ug/L	2.0
811409-010	MW-71-035-194	E218.6	FLDFLT	12/11/2013	15:15	Chromium, Hexavalent	0.47	ug/L	0.20
811409-010	MW-71-035-194	SW6020	FLDFLT	12/11/2013	15:15	Chromium	ND	ug/L	1.0
811409-011	MW-10-194	SM3500-CrB	FLDFLT	12/12/2013	14:00	Chromium, Hexavalent	380	ug/L	10.0
811409-011	MW-10-194	SW6020	FLDFLT	12/12/2013	14:00	Chromium	367	ug/L	2.0
811409-012	MW-229-194	E218.6	FLDFLT	12/12/2013	7:05	Chromium, Hexavalent	ND	ug/L	0.20
811409-013	MW-230-194	E218.6	FLDFLT	12/12/2013	7:08	Chromium, Hexavalent	0.27	ug/L	0.20
811409-014	MW-231-194	E218.6	FLDFLT	12/12/2013	17:30	Chromium, Hexavalent	ND	ug/L	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.

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811409-015	MW-232-194	E218.6	FLDFLT	12/12/2013	17:35	Chromium, Hexavalent	0.52	ug/L	0.20
811409-016	MW-57-070-194	E218.6	FLDFLT	12/12/2013	12:14	Chromium, Hexavalent	461	ug/L	5.0
811409-016	MW-57-070-194	SW6020	FLDFLT	12/12/2013	12:14	Chromium	512	ug/L	5.0
811409-017	MW-66-230-194	E218.6	FLDFLT	12/12/2013	10:54	Chromium, Hexavalent	6630	ug/L	100
811409-017	MW-66-230-194	SW6020	FLDFLT	12/12/2013	10:54	Chromium	6850	ug/L	50.0
811409-018	MW-68-180-194	E218.6	FLDFLT	12/12/2013	9:42	Chromium, Hexavalent	21100	ug/L	200
811409-018	MW-68-180-194	SW6020	FLDFLT	12/12/2013	9:42	Chromium	25600	ug/L	250
811409-019	MW-98-194	E218.6	FLDFLT	12/12/2013	7:00	Chromium, Hexavalent	20900	ug/L	200
811409-019	MW-98-194	SW6020	FLDFLT	12/12/2013	7:00	Chromium	23900	ug/L	250
811409-020	MW-32-020-194	E218.6	FLDFLT	12/16/2013	13:34	Chromium, Hexavalent	ND	ug/L	1.0
811409-020	MW-32-020-194	SW6020	LABFLT	12/16/2013	13:34	Chromium	ND	ug/L	1.0
811409-021	MW-36-100-194	E218.6	FLDFLT	12/16/2013	12:22	Chromium, Hexavalent	53.8	ug/L	1.0
811409-021	MW-36-100-194	SW6020	FLDFLT	12/16/2013	12:22	Chromium	59.5	ug/L	1.0
811409-022	MW-64BR-194	E218.6	FLDFLT	12/16/2013	11:30	Chromium, Hexavalent	ND	ug/L	1.0
811409-022	MW-64BR-194	SW6020	FLDFLT	12/16/2013	11:30	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811409

Printed 1/15/2014
Revised

Samples Received on 12/17/2013 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-12-194	811409-001	12/10/2013 10:53	Water
MW-59-100-194	811409-002	12/10/2013 12:32	Water
MW-70BR-225-194	811409-003	12/10/2013 10:04	Water
PGE-07BR-194	811409-004	12/10/2013 13:32	Water
MW-20-070-194	811409-005	12/11/2013 08:40	Water
MW-20-100-194	811409-006	12/11/2013 09:25	Water
MW-228-194	811409-007	12/11/2013 07:10	Water
MW-51-194	811409-008	12/11/2013 11:55	Water
MW-62-065-194	811409-009	12/11/2013 13:20	Water
MW-71-035-194	811409-010	12/11/2013 15:15	Water
MW-10-194	811409-011	12/12/2013 14:00	Water
MW-229-194	811409-012	12/12/2013 07:05	Water
MW-230-194	811409-013	12/12/2013 07:08	Water
MW-231-194	811409-014	12/12/2013 17:30	Water
MW-232-194	811409-015	12/12/2013 17:35	Water
MW-57-070-194	811409-016	12/12/2013 12:14	Water
MW-66-230-194	811409-017	12/12/2013 10:54	Water
MW-68-180-194	811409-018	12/12/2013 09:42	Water
MW-98-194	811409-019	12/12/2013 07:00	Water
MW-32-020-194	811409-020	12/16/2013 13:34	Water
MW-36-100-194	811409-021	12/16/2013 12:22	Water
MW-64BR-194	811409-022	12/16/2013 11:30	Water

Chrome VI by EPA 218.6

Batch 12CrH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811409-002 Chromium, Hexavalent	ug/L	12/18/2013 14:27	250	1.50	50.0	3860
811409-003 Chromium, Hexavalent	ug/L	12/18/2013 14:37	100	0.600	20.0	1950
811409-004 Chromium, Hexavalent	ug/L	12/18/2013 14:48	5.00	0.0300	1.0	ND
811409-007 Chromium, Hexavalent	ug/L	12/18/2013 14:58	1.00	0.00600	0.20	ND
811409-009 Chromium, Hexavalent	ug/L	12/18/2013 15:08	25.0	0.150	5.0	471

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.

811409-010	Chromium, Hexavalent	ug/L	12/18/2013 15:50	1.00	0.00600	0.20	0.47
811409-012	Chromium, Hexavalent	ug/L	12/18/2013 16:00	1.00	0.00600	0.20	ND
811409-013	Chromium, Hexavalent	ug/L	12/18/2013 16:11	1.00	0.00600	0.20	0.27
811409-014	Chromium, Hexavalent	ug/L	12/18/2013 16:21	1.00	0.00600	0.20	ND
811409-015	Chromium, Hexavalent	ug/L	12/18/2013 16:32	1.00	0.00600	0.20	0.52
811409-016	Chromium, Hexavalent	ug/L	12/18/2013 16:42	25.0	0.150	5.0	461
811409-018	Chromium, Hexavalent	ug/L	12/18/2013 17:34	1000	6.00	200	21100
811409-019	Chromium, Hexavalent	ug/L	12/18/2013 17:44	1000	6.00	200	20900
811409-020	Chromium, Hexavalent	ug/L	12/18/2013 17:24	5.00	0.0300	1.0	ND
811409-021	Chromium, Hexavalent	ug/L	12/18/2013 18:16	5.00	0.0300	1.0	53.8
811409-022	Chromium, Hexavalent	ug/L	12/19/2013 09:42	5.00	0.0300	1.0	ND

Method Blank

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

Duplicate — Lab ID = 811408-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.164	0.162	1.35	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.97	5.00	99.4	90 - 110

Matrix Spike — Lab ID = 811408-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.16(1.00)	101	90 - 110

Matrix Spike — Lab ID = 811409-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250.0	8710	8860(5000)	97.1	90 - 110

Matrix Spike — Lab ID = 811409-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3890	3950(2000)	97.1	90 - 110

Matrix Spike — Lab ID = 811409-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.86	5.00(5.00)	97.1	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.

Matrix Spike — Lab ID = 811409-004

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

Matrix Spike — Lab ID = 811409-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.10(1.00)	103	90 - 110

Matrix Spike — Lab ID = 811409-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	958	971(500)	97.4	90 - 110

Matrix Spike — Lab ID = 811409-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.52	1.47(1.00)	104	90 - 110

Matrix Spike — Lab ID = 811409-012

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

Matrix Spike — Lab ID = 811409-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.28	1.27(1.00)	101	90 - 110

Matrix Spike — Lab ID = 811409-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.14(1.00)	104	90 - 110

Matrix Spike — Lab ID = 811409-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.56	1.52(1.00)	105	90 - 110

Matrix Spike — Lab ID = 811409-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	945	961(500)	96.9	90 - 110

Matrix Spike — Lab ID = 811409-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9730	9570(5000)	103	90 - 110

Matrix Spike — Lab ID = 811409-018

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	46300	46100(25000)	101	90 - 110

Matrix Spike — Lab ID = 811409-019

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	46300	45900(25000)	102	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.

Matrix Spike — Lab ID = 811409-020

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.92	5.17(5.00)	94.9	90 - 110

Matrix Spike — Lab ID = 811409-020

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

Matrix Spike — Lab ID = 811409-021

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	130	129(75.0)	101	90 - 110

Matrix Spike — Lab ID = 811409-022

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.24	5.20(5.00)	101	90 - 110

Matrix Spike — Lab ID = 811409-022

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

Matrix Spike — Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	486	496(250)	96.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	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

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.

Chrome VI by EPA 218.6

Batch 01CrH14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811409-008 Chromium, Hexavalent	ug/L	01/14/2014 09:55	250	1.50	50.0	4520	J
811409-017 Chromium, Hexavalent	ug/L	01/14/2014 10:16	500	3.00	100	6630	J

Method Blank

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

Duplicate — Lab ID = 811409-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4450	4520	1.60	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	99.2	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 811409-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9970	9520(5000)	109	90 - 110

Matrix Spike — Lab ID = 811409-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	14200	14100(7500)	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.82	10.0	98.2	95 - 105

MRCVS - Primary

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

MRCVS - Primary

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

Metals by EPA 6020A, Dissolved

Batch 122013A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811409-005 Chromium	ug/L	12/20/2013 17:08	50.0	3.55	25.0	2520
811409-006 Chromium	ug/L	12/20/2013 17:14	50.0	3.55	25.0	2080
811409-008 Chromium	ug/L	12/20/2013 17:20	50.0	3.55	25.0	4550
811409-016 Chromium	ug/L	12/20/2013 17:38	10.0	0.710	5.0	512
811409-017 Chromium	ug/L	12/20/2013 17:50	100	7.10	50.0	6850
811409-018 Chromium	ug/L	12/20/2013 17:56	500	35.5	250	25600
811409-019 Chromium	ug/L	12/20/2013 18:02	500	35.5	250	23900

Method Blank

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

Duplicate

Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.04	2.25	9.84	0 - 20
Chromium	ug/L	5.00	262	268	2.37	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.252	0.200	126	70 - 130
Chromium	ug/L	1.00	0.547	0.500	109	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	51.8	50.0	104	85 - 115
Chromium	ug/L	1.00	49.8	50.0	99.6	85 - 115

Matrix Spike

Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.2	52.2(50.0)	100	75 - 125
Chromium	ug/L	5.00	391	393(125)	98.3	75 - 125

Matrix Spike Duplicate

Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	54.3	52.2(50.0)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	90 - 110
Chromium	ug/L	1.00	19.7	20.0	98.6	90 - 110

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.5	20.0	103	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	80 - 120

Serial Dilution Lab ID = 811409-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	488	512	4.81	0 - 10

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

Metals by EPA 6020A, Dissolved

Batch 121813B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811409-001 Chromium	ug/L	12/18/2013 19:18	50.0	3.55	10.0	2350
811409-002 Chromium	ug/L	12/18/2013 19:24	50.0	3.55	10.0	3960
811409-003 Chromium	ug/L	12/18/2013 19:30	50.0	3.55	10.0	1910
811409-004 Chromium	ug/L	12/18/2013 19:48	2.00	0.142	1.0	ND
811409-009 Chromium	ug/L	12/18/2013 20:12	10.0	0.710	2.0	476
811409-010 Chromium	ug/L	12/18/2013 20:24	2.00	0.142	1.0	ND
811409-011 Chromium	ug/L	12/18/2013 20:30	10.0	0.710	2.0	367
811409-021 Chromium	ug/L	12/18/2013 21:19	2.00	0.142	1.0	59.5
811409-022 Chromium	ug/L	12/18/2013 21:25	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	254	255	0.282	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.236	0.200	118	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.5	50.0	99.1	85 - 115

Matrix Spike

Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	384	380(125)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.1	90 - 110

MRCVS - Primary

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

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.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.0	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.5	20.0	92.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	93.9	80 - 120

Serial Dilution Lab ID = 811409-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	469	476	1.47	0 - 10

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

Metals by EPA 6020A, Dissolved

Batch 122613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811409-020 Chromium	ug/L	12/26/2013 15:37	5.00	0.355	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 811409-020

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.180	0.200	90.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.4	50.0	96.8	85 - 115

Matrix Spike

Lab ID = 811409-020

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	46.8	50.0(50.0)	93.5	75 - 125

Matrix Spike Duplicate

Lab ID = 811409-020

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	43.3	50.0(50.0)	86.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	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	18.8	20.0	94.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.2	90 - 110

Interference Check Standard A

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

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.01 Printed 1/14/2014

Chromium, Hexavalent by SM 3500-Cr B

Batch 12CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811409-001 Chromium, Hexavalent	ug/L	12/26/2013 15:03	25.0	110	250	2440
811409-005 Chromium, Hexavalent	ug/L	12/26/2013 15:04	25.0	110	250	2140
811409-006 Chromium, Hexavalent	ug/L	12/26/2013 15:05	25.0	110	250	2140
811409-011 Chromium, Hexavalent	ug/L	12/26/2013 15:07	1.00	4.40	10.0	380

Method Blank

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

Duplicate — Lab ID = 811409-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	2030	2140	5.39	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.8	60.0	99.7	90 - 110

Matrix Spike — Lab ID = 811409-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	4480	4640(2500)	93.6	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.8	60.0	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.8	60.0	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.8	60.0	99.7	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

CH2MHILL CHAIN OF CUSTODY RECORD 811409 Page 1 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/17/2013
COC Number: 32

ALERT !!
Level III QC

	DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium	Number of Containers	COMMENTS
Container:				250 ml Poly	2x250 ml Poly	250 ml Poly	500 ml Poly	2x500 ml Poly		
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C		
Filtered:				Field	Field	Field	Field	Field		
Holding Time:				28	28	28	180	180		
-1 MW-12-194	12/10/2013	10:53	Water			X	X		2	
-2 MW-59-100-194	12/10/2013	12:32	Water	X			X		2	
-3 MW-70BR-225-194	12/10/2013	10:04	Water	X			X		2	
-4 PGE-07BR-194	12/10/2013	13:32	Water	X			X		2	pH=2 6020A
-5 MW-20-070-194	12/11/2013	8:40	Water			X	X		2	
-6 MW-20-100-194	12/11/2013	9:52	Water			X	X		2	
-7 MW-228-194	12/11/2013	7:10	Water	X					1	
-8 MW-51-194	12/11/2013	11:55	Water			X	X		2	
-9 MW-62-065-194	12/11/2013	13:20	Water	X			X		2	pH=2 6020A
-10 MW-71-035-194	12/11/2013	15:15	Water	X			X		2	
-11 MW-10-194	12/12/2013	14:00	Water			X	X		2	
-12 MW-229-194	12/12/2013	7:05	Water	X					1	
-13 MW-230-194	12/12/2013	7:08	Water	X					1	
-14 MW-231-194	12/12/2013	17:30	Water	X					1	

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		12-17-13 1525
Sampled by		
Relinquished by		12-17-13 1525
Received by	Shawn Ngo	
Relinquished by	Shawn Ngo	12-17-13 1940
Received by		12/17/13 1940

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

ATTN: Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL **CHAIN OF CUSTODY RECORD** 811409

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/17/2013
COC Number: 32

				Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (6020A) FF Chromium	Metals (6020A-R) FF Chromium		Number of Containers	COMMENTS
Container:				250 ml Poly	2x250 ml Poly	250 ml Poly	500 ml Poly	2x500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field	Field	Field			
Holding Time:				28	28	28	180	180			
	DATE	TIME	Matrix								
15 MW-232-194	12/12/2013	17:35	Water	X						1	
16 MW-57-070-194	12/12/2013	12:14	Water	X			X			2	
17 MW-66-230-194	12/12/2013	10:54	Water	X			X			2	~~PH=7~~ 6020A
18 MW-68-180-194	12/12/2013	9:42	Water	X			X			2	
19 MW-98-194	12/12/2013	7:00	Water	X			X			2	
20 MW-32-020-194	12/16/2013	13:34	Water		X			X		4	* ~~PH=7~~ 6020A
21 MW-36-100-194	12/16/2013	12:22	Water	X			X			2	~~PH=2~~ 6020A
22 MW-64BR-194	12/16/2013	11:30	Water	X			X			2	
									TOTAL NUMBER OF CONTAINERS	41	

*Please hold 1 Cr6 + 1 metals bottle + analyze 1 Cr6 + 1 metals bottle.

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		12-17-13
Sampled by		1525
Relinquished by		12-17-13
Received by		1525
Relinquished by		12-17-13
Received by		1940

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

ATTN:
Sample Custody

Special Instructions:

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
12/11/13	811315-7	9.5	N/A	N/A	N/A	NE
	-8					
	-9					
	-10					
12/11/13	811310	7.0	2ml/100ml	9.5	8:30	NE
12/18/13	811408	7.00			9:00	NE
	811409-2	9.5	N/A	N/A	N/A	NE
	-3					
	-4	7.0	2ml/100ml	9.5	9:00	NE
	-7	9.5	N/A	N/A	N/A	NE
	-9					
	-10					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
	-19					
	-20	7.0	2ml/100ml	9.5	9:00	NE
	-21	9.5	N/A	N/A	N/A	NE
	-22					
	811410-1	9.5	N/A	N/A	N/A	NE
	-2					
12/20/13	811468	7.00	2ml/100ml	9.5	9:00	NE

NE
12/20/13

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811345	<1	<2	12/13/19	ES	Yes			
346								
347								
348								
349								
350								
351								
352								
353								
354								
355								
811359								
811361								
811363								
811366-1								
-2	SOIL							
811369	<1	<2	12/17/19	ES	Yes			
811371								
811373								
811376	SOIL							
811381 (1-2)	<1	<2						
811384								
811408	<1	>2	12/18/19	ES	Yes	2:00		pH <2
811409-20	>1							
811409 (1-6, 8-11, 16-19, 21-22)	<1	<2						
Gr6 811409-20	>1	>2	12/19/19	ES	Yes	10:00		Filtered then acidify
811390	<1	<2	12/20/19	ES	Yes			
410 811393								
811394								
811395								
811396								
811397								
811399		>2			No	12:00		pH <2
811426 (10-12)								
811400 (1-2)								
811404		<2			Yes			
811422 (1-2)								
811451								
811453								
811454								
811457								
811466								
811431 (1-3)	<1	<2	12/26/19	ES	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.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 811409

Date Delivered: 12/17/13 **Time:** 19:40 **By:** ☐Mail ☐Field Service ☒Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☒No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☒No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.0 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Stratamina

ALERT !!
Level III QC

C:\Users\Teri\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 7, 2014

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-195, GROUNDWATER MONITORING PROJECT, TLI NO.: 811410

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-195 groundwater-monitoring project for Hexavalent Chromium and Total Dissolved Arsenic and 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 December 17, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811410
Date Received: December 16, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811410-001	MW-34-100-195	E218.6	FLDFLT	12/16/2013	10:58	Chromium, Hexavalent	246	ug/L	2.0
811410-001	MW-34-100-195	SW6020	FLDFLT	12/16/2013	10:58	Arsenic	2.2	ug/L	0.50
811410-001	MW-34-100-195	SW6020	FLDFLT	12/16/2013	10:58	Chromium	268	ug/L	2.5
811410-002	MW-46-175-195	E218.6	FLDFLT	12/16/2013	14:33	Chromium, Hexavalent	50.0	ug/L	1.0
811410-002	MW-46-175-195	SW6020	FLDFLT	12/16/2013	14:33	Chromium	52.5	ug/L	1.0

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

004

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.03
P.O. Number: 423575.MP.02.GM.03
Release Number:

Laboratory No. 811410

Printed 1/7/2014

Samples Received on 12/17/2013 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-34-100-195	811410-001	12/16/2013 10:58	Water
MW-46-175-195	811410-002	12/16/2013 14:33	Water

Chrome VI by EPA 218.6 Batch 12CrH13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811410-002 Chromium, Hexavalent	ug/L	12/19/2013 12:12	5.00	0.0300	1.0	50.0

Method Blank

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

Duplicate — Lab ID = 811410-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	50.6	50.0	1.22	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	100	90 - 110

Matrix Spike — Lab ID = 811314-001

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

Matrix Spike — Lab ID = 811314-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	25.0	25.8(15.0)	95.1	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.

Matrix Spike — Lab ID = 811314-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.5	35.7(25.0)	95.2	90 - 110

Matrix Spike — Lab ID = 811314-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.63	1.59(1.00)	104	90 - 110

Matrix Spike — Lab ID = 811410-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	121	125(75.0)	95.2	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	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	10.2	10.0	102	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.

Chrome VI by EPA 218.6

Batch 12CrH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811410-001 Chromium, Hexavalent	ug/L	12/18/2013 09:00	10.0	0.0600	2.0	246

Method Blank

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

Duplicate — Lab ID = 811408-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.164	0.162	1.35	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.97	5.00	99.4	90 - 110

Matrix Spike — Lab ID = 811408-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.16(1.00)	101	90 - 110

Matrix Spike — Lab ID = 811409-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250.0	8710	8860(5000)	97.1	90 - 110

Matrix Spike — Lab ID = 811409-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3890	3950(2000)	97.1	90 - 110

Matrix Spike — Lab ID = 811409-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.86	5.00(5.00)	97.1	90 - 110

Matrix Spike — Lab ID = 811409-004

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

Matrix Spike — Lab ID = 811409-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.10(1.00)	103	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.

Matrix Spike — Lab ID = 811409-021

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	130	129(75.0)	101	90 - 110

Matrix Spike — Lab ID = 811409-022

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.24	5.20(5.00)	101	90 - 110

Matrix Spike — Lab ID = 811409-022

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

Matrix Spike — Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	486	496(250)	96.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	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	9.98	10.0	99.8	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

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 Printed 1/7/2014

Metals by EPA 6020A, Dissolved

Batch 122013A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811410-001 Arsenic	ug/L	12/20/2013 16:32	2.00	0.100	0.50	2.2
Chromium	ug/L	12/20/2013 15:49	5.00	0.355	2.5	268
811410-002 Chromium	ug/L	12/20/2013 16:56	2.00	0.142	1.0	52.5

Method Blank

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

Duplicate

Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.04	2.25	9.84	0 - 20
Chromium	ug/L	5.00	262	268	2.37	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.252	0.200	126	70 - 130
Chromium	ug/L	1.00	0.547	0.500	109	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	51.8	50.0	104	85 - 115
Chromium	ug/L	1.00	49.8	50.0	99.6	85 - 115

Matrix Spike

Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.2	52.2(50.0)	100	75 - 125
Chromium	ug/L	5.00	391	393(125)	98.3	75 - 125

Matrix Spike Duplicate

Lab ID = 811410-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	54.3	52.2(50.0)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	90 - 110
Chromium	ug/L	1.00	19.7	20.0	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.7	20.0	98.4	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 Printed 1/7/2014

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.5	20.0	103	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	80 - 120

Serial Dilution Lab ID = 811409-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	488	512	4.81	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

CH2MHILL

CHAIN OF CUSTODY RECORD 811410

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
QC Manager Shawn Duffy
Project Number 423575.MP.02.GM.03
Project 2013-GMP-195
Turnaround Time 10 Days
Shipping Date: 11/19/2013
COC Number: GMP-195

ALERT !!
Level III QC

	DATE	TIME	Matrix	Cr6 (E218.6) FF	Metals (6020A) FF Arsenic,Chromium	Metals (6020A) FF Chromium		Number of Containers	COMMENTS
Container				250 ml Poly	500 ml Poly	500 ml Poly			
Preservatives				(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field			
Holding Time:				28	180	180			
-1	12-16-13	1058	Water	X	X		Sample name: MW-34-100-195	2	pH=2
-2	12-16-13	1433	"	X		X	MW-46-175-195	2	
							TOTAL NUMBER OF CONTAINERS	4	

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		
Received by	Shah Ngo	12-17-13 1525
Relinquished by	Shah Ngo	12-17-13
Received by	Sa Cue	12/17/13 1940 1940

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

ATTN: Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

044

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
QC Manager Shawn Duffy
Project Number 423575.MP.02.GM.03
Project 2013-GMP-195
Turnaround Time 10 Days
Shipping Date: 11/19/2013
COC Number: GMP-195

			Container:	250 ml Poly	500 ml Poly	500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field			
			Holding Time:	28	180	180			
DATE	TIME	Matrix		Cr6 (E218.6) FF	Metals (6020A) FF Arsenic,Chromium	Metals (6020A) FF Chromium		Number of Containers	COMMENTS
12-16-13	1058	Water		X	X		Sample name: MW-34-100-195	2	
12-16-13	1433	"		X		X	MW-46-175-195	2	
							TOTAL NUMBER OF CONTAINERS	4	

	Signatures	Date/Time
Approved by		12-17-13
Sampled by		1525
Relinquished by		
Received by	Shiak Ngo	12-17-13
Relinquished by		1525
Received by		

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

ATTN:
Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

045

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/11/13	811315-7	9.5	N/A	N/A	N/A	NE
	-8					
	-9					
	-10					
12/11/13	811310	7.0	2ml/100ml	9.5	8:30	NE
12/18/13	811408	7.00			9:00	NE
	811409-2	9.5	N/A	N/A	N/A	NE
	-3					
	-4	7.0	2ml/100ml	9.5	9:00	NE
	-7	9.5	N/A	N/A	N/A	NE
	-9					
	-10					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
	-19					
	-20	7.0	2ml/100ml	9.5	9:00	NE
	-21	9.5	N/A	N/A	N/A	NE
	-22					
	811410-1	9.5	N/A	N/A	N/A	NE
	-2					
12/20/13	811468	7.00	2ml/100ml	9.5	9:00	NE

NE
12/20/13

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811496	<1	>2	12/26/13	ES	Yes	10:00		pH <2
811497 (1-2)	>1	>2	↓	↓	↓	10:00		↓
811510 (1-3)	<1	<2	↓	↓	↓			
811469	>1	<2	12/26/13	ES	Yes			
811488 (1-2)	↓	↓	↓	↓	↓			
811490 (1-5)	↓							
811491	<1							
811492								
811493		↓			↓			
811468		>2			No	4:00	12/30/13 10:00	pH <2
811503		↓			↓	↓	↓	↓
811514 (1-3)								
811517 (10-12)	↓	↓	↓	↓	↓	↓		
811540	<1	>2	1/2/14	ES	Yes	10:00		pH <2
811410 (1,2)	<1	<2	12/18/13	ES	Yes			
811526 (1-2)	<1	<2	1/2/14	ES	Yes			
811545	↓	↓	↓	↓	↓			
811546								
811547								
811549 (1-2)								
811536		↓			↓			
811559		>2			NO	2:00	1/3/14 11:00	pH <2
811519 (4-7		↓			↓	↓		
11,13,19,20,26	↓	↓	↓	↓	↓	↓		
811566 (17,24	↓	↓	↓	↓	↓	↓		
811531 (1-3)	<1	<2	1/2/14	ES	Yes			
ES 1/2/14 ~~811498 (14 15)~~	↓	↓	↓	↓	↓			
811498 (13,14)	↓	↓	↓	↓	↓			TOTAL
811498 (1-6,8-10,15,16)	<1	<2	1/3/14	ES	Yes			DISSOLVED
811574 (4-6)	<1	>2	1/3/14	KK	NO	1:20 pm		
811567 (1-3)	<1	>2	↓	↓	↓	↓		
811577 (1-2)	>1	<2	1/3/14	KK	Yes			
811565 (1-3)	<1	>2	1/3/14	KK	NO	1:20pm		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 811410

Date Delivered: 12/17/13 **Time:** 19:40 **By:** ☐Mail ☐Field Service ☒Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☒No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☒No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.0°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Stubbinina

C:\Users\Tru\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 8, 2014

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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811414

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 December 18, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811414
Date Received: December 18, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811414-001	MW-51-194	SM4500NH3D	NONE	12/11/2013	11:55	Ammonia-N	ND	mg/L	0.500
811414-002	MW-62-065-194	SM4500NH3D	NONE	12/11/2013	13:20	Ammonia-N	ND	mg/L	0.500
811414-003	MW-71-035-194	SM4500NH3D	NONE	12/11/2013	15:15	Ammonia-N	ND	mg/L	0.500
811414-004	MW-57-070-194	SM4500NH3D	NONE	12/12/2013	12:14	Ammonia-N	ND	mg/L	0.500
811414-005	MW-66-230-194	SM4500NH3D	NONE	12/12/2013	10:54	Ammonia-N	ND	mg/L	0.500
811414-006	MW-68-180-194	SM4500NH3D	NONE	12/12/2013	9:42	Ammonia-N	ND	mg/L	0.500
811414-007	MW-98-194	SM4500NH3D	NONE	12/12/2013	7:00	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811414

Printed 1/8/2014

Samples Received on 12/18/2013 8:30:00 AM

Field ID	Lab ID	Collected	Matrix
MW-51-194	811414-001	12/11/2013 11:55	Water
MW-62-065-194	811414-002	12/11/2013 13:20	Water
MW-71-035-194	811414-003	12/11/2013 15:15	Water
MW-57-070-194	811414-004	12/12/2013 12:14	Water
MW-66-230-194	811414-005	12/12/2013 10:54	Water
MW-68-180-194	811414-006	12/12/2013 09:42	Water
MW-98-194	811414-007	12/12/2013 07:00	Water

Ammonia Nitrogen by SM4500-NH3D Batch 12NH313E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811414-001 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND
811414-002 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND
811414-003 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND
811414-004 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND
811414-005 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND
811414-006 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND
811414-007 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 811414-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.24	8.00	90.5	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 2 of 2
Project Number: 423575.MP.02.GM.01 Printed 1/8/2014

Matrix Spike Lab ID = 811414-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.08	10.0(10.0)	90.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.97	6.00	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.89	6.00	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.10	6.00	102	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

811414

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

17-Dec-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
1	N011622-003C / MW-51-194	Water	12/11/2013 11:55:00 AM	32OZP	1		
2	N011622-004C / MW-62-065-194	Water	12/11/2013 1:20:00 PM	32OZP	1		
3	N011622-005C / MW-71-035-194	Water	12/11/2013 3:15:00 PM	32OZP	1		
4	N011622-007C / MW-57-070-194	Water	12/12/2013 12:14:00 PM	32OZP	1		
5	N011622-008C / MW-66-230-194	Water	12/12/2013 10:54:00 AM	32OZP	1		
6	N011622-009C / MW-68-180-194	Water	12/12/2013 9:42:00 AM	32OZP	1		
7	N011622-010C / MW-98-194	Water	12/12/2013 7:00:00 AM	32OZP	1		

ALERT !!
Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N011622 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Please analyze for Ammonia by SM4500. Please send repot to CH2M Hill. Please bill ATL Inc.

GSO# 5934816-43

		Date/Time			Date/Time
Relinquished by:	Hersey Smyas	17DEC13 1235	**Received by:**	L. Shakiuma	12-18-13 0830
Relinquished by:			**Received by:**		

015

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 811414

Date Delivered: 12/18/13 **Time:** 08:30 **By:** ☑Mail ☐Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☑No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☑No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☑Yes ☐No ☐N/A
    Preserved (if yes) by: ☐Truesdail ☑Client
12. Were samples pH checked? pH = _____ ☐Yes ☐No ☑N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Guabundue

ALERT !! Level IV QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 8, 2014

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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811438

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 December 19, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811438
Date Received: December 19, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811438-001	MW-32-020-194	SM4500NH3D	NONE	12/16/2013	13:34	Ammonia-N	9.16	mg/L	0.500
811438-002	MW-36-100-194	SM4500NH3D	NONE	12/16/2013	12:22	Ammonia-N	ND	mg/L	0.500
811438-003	MW-50-200-194	SM4500NH3D	NONE	12/17/2013	8:10	Ammonia-N	ND	mg/L	0.500
811438-004	MW-66BR-270-194	SM4500NH3D	NONE	12/17/2013	6:42	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811438

Printed 1/8/2014

Samples Received on 12/19/2013 8:00:00 AM

Field ID	Lab ID	Collected	Matrix
MW-32-020-194	811438-001	12/16/2013 13:34	Water
MW-36-100-194	811438-002	12/16/2013 12:22	Water
MW-50-200-194	811438-003	12/17/2013 08:10	Water
MW-66BR-270-194	811438-004	12/17/2013 06:42	Water

Ammonia Nitrogen by SM4500-NH3D

Batch 12NH313E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811438-001 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	9.16
811438-002 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND
811438-003 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND
811438-004 Ammonia as N	mg/L	12/23/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 811414-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.24	8.00	90.5	90 - 110

Matrix Spike — Lab ID = 811414-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.08	10.0(10.0)	90.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.97	6.00	99.5	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01 Printed 1/8/2014

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.89	6.00	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.10	6.00	102	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Rec'd 12/19/13
Soc 811438

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

811438

Field Sampler: SIGNED

18-Dec-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
1	N011661-001C / MW-32-020-194	Water	12/16/2013 1:34:00 PM	32OZP	1		
2	N011661-002C / MW-36-100-194	Water	12/16/2013 12:22:00 PM	32OZP	1		
3	N011661-006C / MW-50-200-194	Water	12/17/2013 8:10:00 AM	32OZP	1		
4	N011661-008C / MW-66BR-270-194	Water	12/17/2013 6:42:00 AM	32OZP	1		

For Sample Conditions See Form Attached

ALERT !! Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N01661 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Please analze for Ammonia by Sm4500. Please send report to CH2M Hill. Please bill ATL Inc.

GSO# 523494454

		Date/Time			Date/Time
Relinquished by:	Hersey Stayns	18DEC13 1118	**Received by:**	Linda, TLI	12-19-13 08:00
Relinquished by:			**Received by:**		

014

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 81438

Date Delivered: 12/19/13 **Time:** 08:00 **By:** ☑ **Mail** ☐ **Field Service** ☐ **Client**

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☑ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☑ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☑ Client
12. Were samples pH checked? pH = _____ ☐ Yes ☐ No ☑ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
    ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level IV QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 13, 2014

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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811498

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 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 December 23, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (7.9 ug/L) and Hexavalent Chromium (4.1 ug/L) results for sample PM-03-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 6.5 ug/L and 5.3 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 8.0 ug/L. After discussing the results with Mr. Duffy, sample from the Total Dissolved Chromium was digested and analyzed for Total Dissolved Chromium one final time for confirmation and yielded a result of 7.2 ug/L. The original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (18.0 ug/L) and Hexavalent Chromium (12.6 ug/L) results for sample PM-04-194, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 16.7 ug/L and 13.1 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 16.8 ug/L. After discussing the results with Mr. Duffy, sample from the Total Dissolved Chromium was digested and analyzed for Total Dissolved Chromium one final time for confirmation and yielded a result of 15.7 ug/L. The original results were reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 811498
Date Received: December 23, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811498-001	MW-123-194	SM3500-CrB	FLDFLT	12/17/2013	7:00	Chromium, Hexavalent	9370	ug/L	500
811498-001	MW-123-194	SW6020	FLDFLT	12/17/2013	7:00	Chromium	10700	ug/L	100
811498-002	MW-20-130-194	SM3500-CrB	FLDFLT	12/17/2013	9:38	Chromium, Hexavalent	9370	ug/L	500
811498-002	MW-20-130-194	SW6020	FLDFLT	12/17/2013	9:38	Chromium	9620	ug/L	100
811498-003	MW-50-200-194	SM3500-CrB	FLDFLT	12/17/2013	8:10	Chromium, Hexavalent	6600	ug/L	500
811498-003	MW-50-200-194	SW6020	FLDFLT	12/17/2013	8:10	Chromium	7110	ug/L	50.0
811498-004	MW-58BR-194	E218.6	FLDFLT	12/17/2013	14:13	Chromium, Hexavalent	1.1	ug/L	1.0
811498-004	MW-58BR-194	SW6020	FLDFLT	12/17/2013	14:13	Chromium	1.5	ug/L	1.0
811498-005	MW-66BR-270-194	E218.6	FLDFLT	12/17/2013	6:42	Chromium, Hexavalent	ND	ug/L	1.0
811498-005	MW-66BR-270-194	SW6020	FLDFLT	12/17/2013	6:42	Chromium	ND	ug/L	1.0
811498-006	TW-01-194	SM3500-CrB	FLDFLT	12/17/2013	11:52	Chromium, Hexavalent	2770	ug/L	250
811498-006	TW-01-194	SW6020	FLDFLT	12/17/2013	11:52	Chromium	2880	ug/L	50.0
811498-007	MW-233-194	E218.6	FLDFLT	12/18/2013	7:15	Chromium, Hexavalent	ND	ug/L	0.20
811498-008	MW-68BR-280-194	E218.6	FLDFLT	12/18/2013	9:30	Chromium, Hexavalent	ND	ug/L	1.0
811498-008	MW-68BR-280-194	SW6020	FLDFLT	12/18/2013	9:30	Chromium	ND	ug/L	1.0
811498-009	PGE-08-194	E218.6	FLDFLT	12/18/2013	16:06	Chromium, Hexavalent	ND	ug/L	1.0
811498-009	PGE-08-194	SW6020	FLDFLT	12/18/2013	16:06	Chromium	ND	ug/L	1.0
811498-010	MW-14-194	E218.6	FLDFLT	12/19/2013	10:40	Chromium, Hexavalent	17.2	ug/L	0.20
811498-010	MW-14-194	SW6020	FLDFLT	12/19/2013	10:40	Chromium	17.3	ug/L	1.0
811498-011	MW-234-194	E218.6	FLDFLT	12/19/2013	8:10	Chromium, Hexavalent	ND	ug/L	0.20
811498-012	MW-235-194	E218.6	FLDFLT	12/19/2013	14:30	Chromium, Hexavalent	ND	ug/L	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.

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811498-013	PM-03-194	E200.8	NONE	12/19/2013	12:34	Chromium	7.9	ug/L	1.0
811498-013	PM-03-194	E218.6	FLDFLT	12/19/2013	12:34	Chromium, Hexavalent	4.1	ug/L	0.20
811498-014	PM-04-194	E200.8	NONE	12/19/2013	12:19	Chromium	18.0	ug/L	1.0
811498-014	PM-04-194	E218.6	FLDFLT	12/19/2013	12:19	Chromium, Hexavalent	12.6	ug/L	0.20
811498-015	TW-02D-194	SM3500-CrB	FLDFLT	12/19/2013	13:56	Chromium, Hexavalent	162	ug/L	10.0
811498-015	TW-02D-194	SW6020	FLDFLT	12/19/2013	13:56	Chromium	156	ug/L	1.0
811498-016	TW-02S-194	SM3500-CrB	FLDFLT	12/19/2013	13:47	Chromium, Hexavalent	545	ug/L	20.0
811498-016	TW-02S-194	SW6020	FLDFLT	12/19/2013	13:47	Chromium	492	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.

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: **E2 Consulting Engineers**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811498

Printed 1/13/2014

Samples Received on 12/23/2013 3:55:00 PM

Field ID	Lab ID	Collected	Matrix
MW-123-194	811498-001	12/17/2013 07:00	Water
MW-20-130-194	811498-002	12/17/2013 09:38	Water
MW-50-200-194	811498-003	12/17/2013 08:10	Water
MW-58BR-194	811498-004	12/17/2013 14:13	Water
MW-66BR-270-194	811498-005	12/17/2013 06:42	Water
TW-01-194	811498-006	12/17/2013 11:52	Water
MW-233-194	811498-007	12/18/2013 07:15	Water
MW-68BR-280-194	811498-008	12/18/2013 09:30	Water
PGE-08-194	811498-009	12/18/2013 16:06	Water
MW-14-194	811498-010	12/19/2013 10:40	Water
MW-234-194	811498-011	12/19/2013 08:10	Water
MW-235-194	811498-012	12/19/2013 14:30	Water
PM-03-194	811498-013	12/19/2013 12:34	Water
PM-04-194	811498-014	12/19/2013 12:19	Water
TW-02D-194	811498-015	12/19/2013 13:56	Water
TW-02S-194	811498-016	12/19/2013 13:47	Water

Chrome VI by EPA 218.6 Batch 12CrH13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811498-004 Chromium, Hexavalent	ug/L	12/26/2013 14:18	5.00	0.0300	1.0	1.1
811498-005 Chromium, Hexavalent	ug/L	12/26/2013 16:04	5.00	0.0300	1.0	ND
811498-007 Chromium, Hexavalent	ug/L	12/26/2013 12:23	1.00	0.00600	0.20	ND
811498-008 Chromium, Hexavalent	ug/L	12/26/2013 16:25	5.00	0.0300	1.0	ND
811498-009 Chromium, Hexavalent	ug/L	12/26/2013 16:35	5.00	0.0300	1.0	ND
811498-010 Chromium, Hexavalent	ug/L	12/26/2013 13:06	1.00	0.00600	0.20	17.2
811498-011 Chromium, Hexavalent	ug/L	12/26/2013 13:15	1.00	0.00600	0.20	ND
811498-012 Chromium, Hexavalent	ug/L	12/26/2013 13:46	1.00	0.00600	0.20	ND
811498-013 Chromium, Hexavalent	ug/L	12/26/2013 13:57	1.00	0.00600	0.20	4.1
811498-014 Chromium, Hexavalent	ug/L	12/26/2013 14:07	1.00	0.00600	0.20	12.6

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.

Method Blank

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

Duplicate — Lab ID = 811498-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.189	0.194	2.66	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.228	0.200	114	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 811498-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.25	6.11(5.00)	103	90 - 110

Matrix Spike — Lab ID = 811498-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.969	1.00(1.00)	96.9	90 - 110

Matrix Spike — Lab ID = 811498-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.97	5.05(5.00)	98.4	90 - 110

Matrix Spike — Lab ID = 811498-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.23	1.19(1.00)	103	90 - 110

Matrix Spike — Lab ID = 811498-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.789	1.00(1.00)	78.9	90 - 110

Matrix Spike — Lab ID = 811498-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.77	5.00(5.00)	95.4	90 - 110

Matrix Spike — Lab ID = 811498-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.842	1.00(1.00)	84.2	90 - 110

Matrix Spike — Lab ID = 811498-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.00(5.00)	97.9	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.

Matrix Spike — Lab ID = 811498-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	36.0	37.2(20.0)	94.1	90 - 110

Matrix Spike — Lab ID = 811498-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.02(1.00)	101	90 - 110

Matrix Spike — Lab ID = 811498-012

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

Matrix Spike — Lab ID = 811498-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.02	9.11(5.00)	98.1	90 - 110

Matrix Spike — Lab ID = 811498-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	26.8	27.6(15.0)	94.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.00	5.00	99.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Metals by EPA 6020A, Dissolved

Batch 010314B-ICPMS1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811498-001 Chromium	ug/L	01/04/2014 02:34	200	14.2	100	10700
811498-002 Chromium	ug/L	01/04/2014 02:41	200	14.2	100	9620
811498-003 Chromium	ug/L	01/04/2014 02:48	100	7.10	50.0	7110
811498-004 Chromium	ug/L	01/04/2014 01:43	2.00	0.142	1.0	1.5
811498-005 Chromium	ug/L	01/04/2014 03:03	2.00	0.142	1.0	ND
811498-006 Chromium	ug/L	01/04/2014 03:10	100	7.10	50.0	2880
811498-008 Chromium	ug/L	01/04/2014 03:25	2.00	0.142	1.0	ND
811498-009 Chromium	ug/L	01/04/2014 03:32	2.00	0.142	1.0	ND
811498-010 Chromium	ug/L	01/04/2014 03:39	2.00	0.142	1.0	17.3
811498-015 Chromium	ug/L	01/04/2014 04:08	2.00	0.142	1.0	156
811498-016 Chromium	ug/L	01/04/2014 04:15	10.0	0.710	5.0	492

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.513	0.500	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.9	50.0	97.7	85 - 115

Matrix Spike

Lab ID = 811498-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.6	51.5(50.0)	98.3	75 - 125

Matrix Spike Duplicate

Lab ID = 811498-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.3	51.5(50.0)	95.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	91.2	90 - 110

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	94.8	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	90.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.8	80 - 120

Serial Dilution Lab ID = 811498-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	487	492	1.00	0 - 10

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

Client: E2 Consulting Engineers

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Metals by EPA 200.8, Total

Batch 010714A-ICPMS1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811498-013 Chromium	ug/L	01/07/2014 18:54	2.00	0.0380	2.0	7.9
811498-014 Chromium	ug/L	01/07/2014 19:01	2.00	0.0380	2.0	18.0

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 811544-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.608	0.500	122	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.7	50.0	103	85 - 115

Matrix Spike

Lab ID = 811544-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.7	50.0(50.0)	103	75 - 125

Matrix Spike Duplicate

Lab ID = 811544-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.3	50.0(50.0)	104	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.2	20.0	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.3	20.0	106	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 1/13/2014

Chromium, Hexavalent by SM 3500-Cr B

Batch 12CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811498-001 Chromium, Hexavalent	ug/L	12/26/2013 15:08	50.0	220	500	9370
811498-002 Chromium, Hexavalent	ug/L	12/26/2013 15:09	50.0	220	500	9370
811498-003 Chromium, Hexavalent	ug/L	12/26/2013 15:14	50.0	220	500	6600
811498-006 Chromium, Hexavalent	ug/L	12/26/2013 15:15	25.0	110	250	2770
811498-015 Chromium, Hexavalent	ug/L	12/26/2013 15:16	1.00	4.40	10.0	162
811498-016 Chromium, Hexavalent	ug/L	12/26/2013 15:17	2.00	8.80	20.0	545

Method Blank

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

Duplicate — Lab ID = 811409-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	2030	2140	5.39	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.8	60.0	99.7	90 - 110

Matrix Spike — Lab ID = 811409-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	4480	4640(2500)	93.6	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.8	60.0	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.8	60.0	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.8	60.0	99.7	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.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

CH2MHILL

CHAIN OF CUSTODY RECORD

811498

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date:
COC Number: TLI-GMP194

Rec'd 12/23/13
811498

ALERT !!
Level III QC

				Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (200.8) Total Chromium	Metals (6020A) FF Chromium		Number of Containers	COMMENTS
Container:				250 ml Poly	250 ml Poly	250 ml Poly	500 ml Poly	500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field	NA	Field			
Holding Time:				28	28	28	180	180			
	DATE	TIME	Matrix								
1	MW-123-194	12/17/2013	7:00	Water			X		X		2	
2	MW-20-130-194	12/17/2013	9:38	Water			X		X		2	
3	MW-50-200-194	12/17/2013	8:10	Water			X		X		2	MH=2 6020A
4	MW-58BR-194	12/17/2013	14:13	Water	X				X		2	
5	MW-66BR-270-194	12/17/2013	6:42	Water	X				X		2	
6	TW-01-194	12/17/2013	11:52	Water			X		X		2	
7	MW-233-194	12/18/2013	7:15	Water	X						1	
8	MW-68BR-280-194	12/18/2013	9:30	Water	X				X		2	
9	PGE-08-194	12/18/2013	16:06	Water	X				X		2	MH=2 6020A
10	MW-14-194	12/19/2013	10:40	Water	X				X		2	
11	MW-234-194	12/19/2013	8:10	Water	X						1	
12	MW-235-194	12/19/2013	14:30	Water	X						1	
13	PM-03-194	12/19/2013	12:34	Water		X		X			2	MH=2 6020A
14	PM-04-194	12/19/2013	12:19	Water		X		X			2	

	Signatures	Date/Time
Approved by		12-19-13 1500
Sampled by		
Relinquished by	[signature]	12-23-13 1555
Received by	Shawn Ngo	
Relinquished by	Linda, TLI	12-23-13 15:55
Received by		

Shipping Details

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

ATTN:
Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

811698

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date:
COC Number: TLI-GMP194

				Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Cr6 (SM3500B) FF	Metals (200.8) Total Chromium	Metals (6020A) FF Chromium		Number of Containers	COMMENTS
Container:				250 ml Poly	250 ml Poly	250 ml Poly	500 ml Poly	500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field	NA	Field			
Holding Time:				28	28	28	180	180			
	DATE	TIME	Matrix								
15 TW-02D-194	12/19/2013	13:56	Water			X		X		2	MS-2 60204
16 TW-02S-194	12/19/2013	13:47	Water			X		X		2	
									TOTAL NUMBER OF CONTAINERS	~~35~~ 29	

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		12-19-13 1500
Sampled by		
Relinquished by		
Received by		12-23-13 1555
Relinquished by		
Received by		

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

ATTN:
Sample Custody

Special Instructions:

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
12/23/13	811496	7.0	2mL /100mL	9.5	18:30	MM
	811497-1	7.0	2mL/100mL	9.5	18:40	MM
	811497-2	9.5	N/A	N/A	N/A	
	811498-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					

NE
12/27/13

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811496	<1	>2	12/26/13	ES	Yes	10:00		pH<2
811497 (1-2)	>1	>2	↓	↓	↓	10:00		↓
811510 (1-3)	<1	<2	↓	↓	↓			
811469	>1	<2	12/26/13	ES	Yes			
811488 (1-2)	↓	↓	↓	↓	↓			
811490 (1-5)	↓							
811491	<1							
811492	↓							
811493		↓			↓			
811468		>2			No	4:00	12/30/13 10:00	pH<2
811503		↓			↓	↓	↓	↓
811514 (1-3)								
811517 (10-12)	↓	↓	↓	↓	↓	↓		
811540	<1	>2	1/2/14	ES	Yes	10:00		pH<2
811410 (1,2)	<1	<2	12/18/13	ES	Yes			
811526 (1-2)	<1	<2	1/2/14	ES	Yes			
811545	↓	↓	↓	↓	↓			
811546								
811547								
811549 (1-2)								
811536		↓			↓			
811559		>2			NO	2:00	1/3/14 11:00	pH<2
811519 (4-7, 11,13,19,20,26)	↓	↓	↓	↓	↓	↓		
811566 (17,24)	↓	↓	↓	↓	↓	↓		
811531 (1-3)	<1	<2	1/2/14	ES	Yes			
ES 1/2/14 ~~811498 (14,15)~~	↓	↓	↓	↓	↓			
811498 (13,14)	↓	↓	↓	↓	↓			TOTAL DISSOLVED
811498 (1-6, 8-10, 15,16)	<1	<2	1/3/14	ES	Yes			
811574 (4-6)	<1	>2	1/3/14	KK	NO	1:20 pm		
811567 (1-3)	<1	>2	↓	↓	↓	↓		
811577 (1-2)	>1	<2	1/3/14	KK	Yes			
811505 (1-3)	<1	>2	1/3/14	KK	NO	1:20pm		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 811498

Date Delivered: 12 / 13 / 13 **Time:** 15:55 **By:** ☐ Mail ☐ Field Service ☑ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☑ No ☐ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☑ No ☐ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 5.5 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc.)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☑ Truesdail ☐ Client
12. Were samples pH checked? pH = see C.O.C ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments:
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 10, 2014

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-194-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 811509

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-194-Q4 groundwater-monitoring project for Ammonia as N. 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 December 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.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 811509
Date Received: December 26, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811509-001	MW-68BR-280-194	SM4500NH3D	NONE	12/18/2013	9:30	Ammonia-N	ND	mg/L	0.500
811509-002	PM-03-194	SM4500NH3D	NONE	12/19/2013	12:34	Ammonia-N	ND	mg/L	0.500
811509-003	PM-04-194	SM4500NH3D	NONE	12/19/2013	12:19	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

004

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 811509

Printed 1/10/2014

Samples Received on 12/26/2013 8:05:00 AM

Field ID	Lab ID	Collected	Matrix
MW-68BR-280-194	811509-001	12/18/2013 09:30	Water
PM-03-194	811509-002	12/19/2013 12:34	Water
PM-04-194	811509-003	12/19/2013 12:19	Water

Ammonia Nitrogen by SM4500-NH3D Batch 01NH314A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811509-001 Ammonia as N	mg/L	01/07/2014	1.00	0.0318	0.500	ND
811509-002 Ammonia as N	mg/L	01/07/2014	1.00	0.0318	0.500	ND
811509-003 Ammonia as N	mg/L	01/07/2014	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate — Lab ID = 811509-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.35	8.00	91.9	90 - 110

Matrix Spike — Lab ID = 811509-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.23	10.0(10.0)	92.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.93	6.00	98.8	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.01

Printed 1/10/2014

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.80	6.00	96.6	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

811509

CHAIN-OF-CUSTODY RECORD

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 FAX: 7023072691

Rec'd 12/26/13 811500
Sva

QC Level: Level IV

ALERT !!
Level IV QC

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

20-Dec-13

	Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
1	N011683-001C / MW-68BR-280-194	Water	12/18/2013 9:30:00 AM	32OZP	1		
2	N011683-004C / PM-03-194	Water	12/19/2013 12:34:00 PM	32OZP	1		
3	N011683-005C / PM-04-194	Water	12/19/2013 12:19:00 PM	32OZP	1		

For Sample Conditions
See Form Attached

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N011683 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

		Date/Time			Date/Time
Relinquished by:	Hanah Glodoviza	12/23/2013 17:00	Received by:	GSO # 523531703	
Relinquished by:			Received by:	Linda, TLI, 12-26-13 08:05	

015

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: ATL **Lab #** 811509

Date Delivered: 12/26/13 **Time:** 08:05 **By:** ☒Mail ☐Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☒No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☒No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☐Truesdail ☒Client
12. Were samples pH checked? pH = _____ ☐Yes ☐No ☒N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!! Level IV QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M3237
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 02, 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)

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: M3237

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M323701	MW-27-020-194	11/04/13 10:47	11/12/13
M323702	MW-27-060-194	11/04/13 11:47	11/12/13
M323703	MW-27-085-194	11/04/13 12:47	11/12/13
M323704	MW-30-030-194	11/04/13 15:02	11/12/13
M323705	MW-30-050-194	11/04/13 16:08	11/12/13
M323706	MW-41D-194	11/04/13 10:47	11/12/13
M323707	MW-41M-194	11/04/13 12:23	11/12/13
M323708	MW-41S-194	11/04/13 12:54	11/12/13
M323709	MW-21-194	11/05/13 15:14	11/12/13
M323710	MW-28-025-194	11/05/13 08:35	11/12/13
M323711	MW-28-090-194	11/05/13 09:15	11/12/13
M323712	MW-29-194	11/05/13 10:50	11/12/13
M323713	MW-42-030-194	11/05/13 13:16	11/12/13
M323714	MW-42-055-194	11/05/13 13:52	11/12/13
M323715	MW-42-065-194	11/05/13 14:34	11/12/13
M323716	MW-72BR-200-194	11/05/13 11:55	11/12/13
M323717	MW-91-194	11/05/13 08:00	11/12/13
M323718	MW-99-194	11/05/13 08:47	11/12/13
M323719	OW-03D-194	11/05/13 14:30	11/12/13
M323720	MW-16-194	11/06/13 14:22	11/12/13
M323721	MW-32-035-194	11/06/13 16:51	11/12/13
M323722	MW-37S-194	11/06/13 11:50	11/12/13
M323723	MW-43-025-194	11/06/13 08:23	11/12/13
M323724	MW-43-075-194	11/06/13 09:17	11/12/13
M323725	MW-43-090-194	11/06/13 09:56	11/12/13
M323726	MW-48-194	11/06/13 15:05	11/12/13
M323727	MW-49-135-194	11/06/13 11:06	11/12/13
M323728	MW-49-275-194	11/06/13 14:07	11/12/13
M323729	MW-50-095-194	11/06/13 10:00	11/12/13
M323730	TW-05-194	11/06/13 08:46	11/12/13
M323731	MW-31-135-194	11/07/13 15:45	11/12/13
M323732	MW-49-365-194	11/07/13 10:04	11/12/13
M323733	MW-57-185-194	11/07/13 11:08	11/12/13
M323734	MW-97-194	11/07/13 07:35	11/12/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3237

Project: PGE Topock **Project #:** 423575.MP.02.GM.01

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-020-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323701

Date Received: 11/12/13

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	11/15/13

FORM I GEN CHEM

EB131127-14:51-M3237-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-060-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323702

Date Received: 11/12/13

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-085-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323703

Date Received: 11/12/13

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	11/15/13

FORM I GEN CHEM

EB131127-14:51-M3237-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-30-030-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323704

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0174		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-30-050-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323705

Date Received: 11/12/13

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-41D-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323706

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.549		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-41M-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323707

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.675		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-41S-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323708

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.25		MG/L	5	3 ML	E353.2	11/20/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-21-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323709

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	3.55		MG/L	5	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-28-025-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323710

Date Received: 11/12/13

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-28-090-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323711

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0146		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-29-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323712

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0138		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-42-030-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323713

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0125		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-42-055-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323714

Date Received: 11/12/13

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	11/15/13

FORM I GEN CHEM

EB131127-14:51-M3237-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-42-065-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323715

Date Received: 11/12/13

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72BR-200-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323716

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.105		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-91-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323717

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0200		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-99-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323718

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.106		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

OW-03D-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323719

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.724		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-16-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323720

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	3.30		MG/L	5	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-32-035-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323721

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0482		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-37S-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323722

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.29		MG/L	5	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-025-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323723

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0407		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-075-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323724

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0342		MG/L	1	3 ML	E353.2	11/15/13

FORM I GEN CHEM

EB131127-14:51-M3237-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-090-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323725

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0202		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-48-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323726

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0702		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-135-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323727

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.498		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-275-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323728

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.880		MG/L	1	3 ML	E353.2	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-095-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323729

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.53		MG/L	5	3 ML	E353.2	11/20/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-05-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323730

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.00		MG/L	5	3 ML	E353.2	11/20/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-31-135-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323731

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	0.866		MG/L	5	3 ML	E353.2	11/20/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-365-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323732

Date Received: 11/12/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0202		MG/L	1	3 ML	E353.2	11/15/13

FORM I GEN CHEM

EB131127-14:51-M3237-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-57-185-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323733

Date Received: 11/12/13

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	11/15/13

FORM I GEN CHEM

EB131127-14:51-M3237-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-97-194

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M323734

Date Received: 11/12/13

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	11/15/13

FORM I GEN CHEM

EB131127-14:51-M3237-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-111513

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-111513

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-112013

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-112013

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	11/20/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-111513

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-111513

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-112013

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-112013

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	11/20/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-111513

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB3-111513

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-111513

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB4-111513

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-111513

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-111513

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB6-111513

SDG No.: M3237

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB6-111513

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	11/15/13

EB131127-14:51-M3237-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3237

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS1W1115

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/15/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1445

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.417	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3237

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS2W1115

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/15/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1515

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.417	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3237

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS3W1115

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/15/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1545

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.425	102	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3237

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS1W1120

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/20/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1422

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.495	103	90-110	

* Values outside of QC limits

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&F Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/5/2013
COC Number: 2

				Container:	125 ml Poly			
				Preservatives:	H2SO4 pH<2 4°C			
				Filtered:	NA			
				Holding Time:	28			
	DATE	TIME	Matrix		Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-27-020-194	11/4/2013	10:47	Water		X		1	1
MW-27-060-194	11/4/2013	11:47	Water		X		1	2
MW-27-085-194	11/4/2013	12:47	Water		X		1	3
MW-30-030-194	11/4/2013	15:02	Water		X		1	4
MW-30-050-194	11/4/2013	16:08	Water		X		1	5
MW-41D-194	11/4/2013	10:47	Water		X		1	6
MW-41M-194	11/4/2013	12:23	Water		X		1	7
MW-41S-194	11/4/2013	12:54	Water		X		1	8
MW-21-194	11/5/2013	15:14	Water		X		1	9
MW-28-025-194	11/5/2013	8:35	Water		X		1	10
MW-28-090-194	11/5/2013	9:15	Water		X		1	11
MW-29-194	11/5/2013	10:50	Water		X		1	12
MW-42-030-194	11/5/2013	13:16	Water		X		1	13
MW-42-055-194	11/5/2013	13:52	Water		X		1	14

	Signatures	Date/Time
Approved by		
Sampled by		11-5-13 1630
Relinquished by		05-NOV13 1630
Received by		05-NOV13 1827
Relinquished by		05 NOV13 1827
Received by		11NOV13 1204
REL BY:		

Shipping Details

Method of Shipment: courier
On Ice: yes no 3.3 1122
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

FED EX: 8037 1902 2871

ATTN:

Sample Custody
and
Kathy McKinley

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Claudia Moncada 11/12/13 1010

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/5/2013
COC Number: 2

Container:	125 ml Poly
Preservatives:	H2SO4 pH<2 4°C
Filtered:	NA
Holding Time:	28

	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-42-065-194	11/5/2013	14:34	Water	X		1	15
MW-72BR-200-194	11/5/2013	11:55	Water	X		1	16
MW-91-194	11/5/2013	8:00	Water	X		1	17
MW-99-194	11/5/2013	8:47	Water	X		1	18
OW-03D-194	11/5/2013	14:30	Water	X		1	19
					TOTAL NUMBER OF CONTAINERS	19	

	Signatures	Date/Time
Approved by		11-5-13 1630
Sampled by		
Relinquished by		05NOV13 1630
Received by		05NOV13 1827
Relinquished by		05NOV13 1827
Received by		06NOV13 1204
REL BY:		

Shipping Details
Method of Shipment: courier
On Ice: (yes) no 3.3 1.22
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

FED EX: 8097 1907 287

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Clara Thomann 11/12/13 1010

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/7/2013
COC Number: 7

				Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
			Container:	125 ml Poly			
			Preservatives:	H2SO4 pH<2 4°C			
			Filtered:	NA			
			Holding Time:	28			
	DATE	TIME	Matrix				
MW-16-194	11/6/2013	14:22	Water	x		1	20
MW-32-035-194	11/6/2013	16:51	Water	x		1	21
MW-37S-194	11/6/2013	11:50	Water	x		1	22
MW-43-025-194	11/6/2013	8:23	Water	x		1	23
MW-43-075-194	11/6/2013	9:17	Water	x		1	24
MW-43-090-194	11/6/2013	9:56	Water	x		1	25
MW-48-194	11/6/2013	15:05	Water	x		1	26
MW-49-135-194	11/6/2013	11:06	Water	x		1	27
MW-49-275-194	11/6/2013	14:07	Water	x		1	28
MW-50-095-194	11/6/2013	10:00	Water	x		1	29
TW-05-194	11/6/2013	8:46	Water	x		1	30
MW-31-135-194	11/7/2013	15:45	Water	x		1	31
MW-49-365-194	11/7/2013	10:04	Water	x		1	32
MW-57-185-194	11/7/2013	11:08	Water	x		1	33

	Signatures	Date/Time
Approved by		
Sampled by		11-7-13 1605
Relinquished by		07NOV13 1605
Received by		07NOV13 1911
Relinquished by		07NOV13 1911
Received by		11NOV13 1204
REL:		

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 22 1R2
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

ATTN:

Sample Custody
and
Kathy McKinley

FED EX: 8037 1902 2871

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Claudia Naman 11/12/13 1010

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575 MP 02.GM 01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/7/2013
COC Number: 7

			Container:	125 ml Poly			
			Preservatives:	H2SO4 pH<2, 4°C			
			Filtered:	NA			
			Holding Time:	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-97-194	11/7/2013	7:35	Water	X		1	3 4(
					TOTAL NUMBER OF CONTAINERS	15	

	Signatures	Date/Time
Approved by		
Sampled by		11-7-13 1605
Relinquished by		07NOV13 1605
Received by		07NOV13 1911
Relinquished by		07NOV13 1911
Received by		11NOV13 1204

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 22122
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

FED EX: 8637 1907 2871

Clara Thomann 11/12/13 1010

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3237 Date Received: 11/12/13

Client/Project: R&E Topeck Checked By: CT

Packing Material: Ice Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		X	
Radiological Screening for DoD	X		
Temp OK? (<6C) Therm ID TH173 Exp. 11/13 41.4 °C		X	
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did sample labels agree with COC? No, document in SRER		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?	CRUb 11/12	X	~~X~~
Was enough sample volume provided for analysis? No, document in SRER		X	
Containers supplied by ASL?		X	
Any sample with < 1/2 holding time remaining? If so contact LPM			X
Samples have multi-phase? If yes, document on SRER			X
All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		X	
Dissolved/Soluble metals filtered in the field?	X		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	X		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M3293
Project ID: 423575.MP.05.AZ
Attn: Jay Piper
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 11, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Accredited in accordance with NELAP:
Oregon (100022)
Arizona (0771)
Louisiana (05031)

ASL Report #: M3293

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M329301	MW-56D-194	11/14/13 11:18	11/16/13
M329302	MW-56M-194	11/14/13 12:13	11/16/13
M329303	MW-56S-194	11/14/13 12:56	11/16/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6010B, SW6020: FLDFLT

Matrix Spike/Matrix Spike Duplicate(s):
SW6010B, SW6020: Matrix spike/matrix spike duplicates recovered outside acceptance criteria. See Form 5A.

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-56D-194

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329301

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	385000			P
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.56		N	MS
7439-89-6	Iron	12/02/13	1	10.0	20.0	3000			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	98300			P
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	764		N	MS
7440-23-5	Sodium	12/03/13	100	25000	50000	2780000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194MS

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329301MS

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	36.7			MS
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	789			MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-56D-194MSD

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329301MSD

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	36.2			MS
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	771			MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-56M-194

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329302

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	379000			P
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS
7439-89-6	Iron	12/02/13	1	10.0	20.0	804			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	73100			P
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	669			MS
7440-23-5	Sodium	12/03/13	100	25000	50000	4080000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329303

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	238000			P
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	2.61			MS
7439-89-6	Iron	12/02/13	1	10.0	20.0	8880			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	81100			P
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	1240			MS
7440-23-5	Sodium	12/03/13	10	2500	5000	534000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-1121

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1121

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	100	U		P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	500	U		P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-1125

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1125

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-23-5	Sodium	12/03/13	1	250	500	500	U		P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB2-1205

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-1205

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS
7439-96-5	Manganese	12/05/13	1	0.0250	0.250	0.250	U		MS

Comments:

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE RECOVERY

SDG No.: M3293 Lab Name: CH2M HILL ASL

Matrix: Water Concentration Units: ug/L

Native Sample ID: MW-56D-194

MS Sample ID: MW-56D-194MS

MSD Sample ID: MW-56D-194MSD

Analyte	Method	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q	M
Chromium	SW6020	1.56	50.0	36.7	70	50.0	36.2	69	1.4	80-120	20	*	MS
Manganese	SW6020	764	50.0	789	50	50.0	771	13	2.4	80-120	20	*	MS

Comments:
Dissolved Metals
Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

LABORATORY CONTROL SAMPLE

SDG No.: M3293 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1121 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Calcium	SW6010B	10000	10000	100				85-115	
Iron	SW6010B	500	548	110				85-115	
Magnesium	SW6010B	10000	10500	105				80-120	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3293 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1125 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Sodium	SW6010B	10000	10200	102				85-115	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3293 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS2W1205 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Chromium	SW6020	50.0	52.0	104				85-115	
Manganese	SW6020	50.0	49.8	100				80-120	

Comments:

SERIAL DILUTIONS

Field Sample ID:

MW-56D-194DL

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: Water

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)		% Difference	Q	M
Chromium	1.56		5.00	U			MS
Manganese	764		789		3.2		MS

Comments:

10% Criteria does not apply if undiluted sample result is <50 times the MDL for ICP.

10% Criteria does not apply if undiluted sample result is <100 times the MDL for ICPMS.

SERIAL DILUTIONS

Field Sample ID:

MW-56S-194DL

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: Water

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)		% Difference	Q	M
Calcium	238000		225000		5.8		P
Iron	8880		8760		1.4		P
Magnesium	81100		81100		0.0		P

Comments:

10% Criteria does not apply if undiluted sample result is <50 times the MDL for ICP.

10% Criteria does not apply if undiluted sample result is <100 times the MDL for ICPMS.

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E300.0A

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	16.4	500	5760		mg/L	1000	50 UL	E300.0A	11/22/2013
14808-79-8	Sulfate	17.3	250	1290		mg/L	500	50 UL	E300.0A	11/22/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	19.7	600	8290		mg/L	1200	50 UL	E300.0A	11/22/2013
14808-79-8	Sulfate	20.7	300	1460		mg/L	600	50 UL	E300.0A	11/22/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	4.10	125	1820		mg/L	250	50 UL	E300.0A	11/22/2013
14808-79-8	Sulfate	8.64	125	1290		mg/L	250	50 UL	E300.0A	11/22/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1122

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1122

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
14808-79-8	Sulfate	0.0346	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/22/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1121

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-1121

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	0.0164	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/22/2013
14808-79-8	Sulfate	0.0346	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/22/2013

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS2W1121

Initial Calibration ID: 300A-082313

Date Analyzed: 11/22/2013

Matrix: (Soil/Water) WATER

Time Analyzed: 0325

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	3.07	102	90-110	
Sulfate	15.0	14.9	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS1W1122

Initial Calibration ID: 300A-082313

Date Analyzed: 11/22/2013

Matrix: (Soil/Water) WATER

Time Analyzed: 1527

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	3.24	108	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E350.1

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.419		MG/L	1	8 ML	E350.1	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	8 ML	E350.1	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.939		MG/L	1	8 ML	E350.1	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1120

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1120

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	8 ML	E350.1	11/20/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E350.1

LCS ID: BS1W1120

Initial Calibration ID: 073013NH3LAcal

Date Analyzed: 11/20/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1155

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.78	1.77	100	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0225		MG/L	1	3 ML	E353.2	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0117		MG/L	1	3 ML	E353.2	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0524		MG/L	1	3 ML	E353.2	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-112013

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB3-112013

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	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-112013

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB4-112013

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	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-112013

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-112013

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	11/20/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS2W1120

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/20/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1614

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.451	94	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2320B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	495		mg/L	1	50 ML	SM2320B	11/20/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	495		mg/L	1	50 ML	SM2320B	11/20/13

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	130		mg/L	1	50 ML	SM2320B	11/20/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	130		mg/L	1	50 ML	SM2320B	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	697		mg/L	1	50 ML	SM2320B	11/20/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	697		mg/L	1	50 ML	SM2320B	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1120

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1120

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: SM2320B

LCS ID: BS1W1120

Initial Calibration ID: NONE

Date Analyzed: 11/20/13

Matrix: (Soil/Water) WATER

Time Analyzed: 0921

Instrument: TIM845

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Alkalinity, Total as CaCO3	48.0	47.3	99	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2510B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	13700		umhos/	1	30 ML	SM2510B	11/19/13

FORM I GEN CHEM

BS131205-11:13-M3293-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	18700		umhos/	1	30 ML	SM2510B	11/19/13

FORM I GEN CHEM

BS131205-11:13-M3293-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	6160		umhos/	1	30 ML	SM2510B	11/19/13

FORM I GEN CHEM

BS131205-11:13-M3293-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1119

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1119

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	10.0	U	umhos/	1	30 ML	SM2510B	11/19/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: SM2510B

LCS ID: BS1W1119

Initial Calibration ID: NONE

Date Analyzed: 11/19/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1659

Instrument: NONE

Concentration Units: umhos/cm

Analyte	Expected	Found	%R	QC Limits %R	Q
Conductivity	554	542	98	80-120	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E218.6

Laboratory Control Sample(s):
E218.6: ICV-1126 also was used for BS1W1126.

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194MS

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301MS

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.64		ug/L	5	1000 UL	E218.6	11/27/2013

FORM I GEN CHEM

YL131211-14:01-M3293-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194MS

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302MS

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.88		ug/L	5	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194MS

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303MS

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.921		ug/L	1	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1126

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1126

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	11/26/2013

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E218.6

LCS ID: BS1W1126

Initial Calibration ID: HexCr-112613

Date Analyzed: 11/26/2013

Matrix: (Soil/Water) WATER

Time Analyzed: 2254

Instrument: ICK

Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	1.38	1.29	93	90-110	

* Values outside of QC limits

Comments:

5.4°C ice

CH2MHILL

CHAIN OF CUSTODY RECORD

11/14/2013 2:36:20 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.05.AZ
Task Order
Project 2013-GMP-194-AZ
Turnaround Time 12 Days
Shipping Date: 11/15/2013
COC Number: 1

			Container:	250 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	NA	NA	NA	NA	NA			
			Holding Time:	28	180	180	7	7	7	28	28			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-56D-194	11/14/2013	11:18	Water	X	X	X	X	X	X	X	X		4	1
MW-56M-194	11/14/2013	12:13	Water	X	X	X	X	X	X	X	X		4	2
MW-56S-194	11/14/2013	12:56	Water	X	X	X	X	X	X	X	X		4	3
												TOTAL NUMBER OF CONTAINERS	12	

M3293

1

	Signatures	Date/Time
Approved by		
Sampled by		11-15-13 0910
Relinquished by		
Received by		
Relinquished by		
Received by		

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone

ATTN:
Sample Custody
and

Special Instructions:
November - December 2013

Report Copy to
Shawn Duffy

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3293 Date Received: 11/16/13

Client/Project: PGE Topock Checked By: CT

Packing Material: Ice Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		X	
Radiological Screening for DoD	X		
Temp OK? (<6C) Therm ID__TH173__ Exp. 11/13 5.4°C			
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did sample labels agree with COC? No, document in SRER		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?		X	
Was enough sample volume provided for analysis? No, document in SRER		X	
Containers supplied by ASL?		X	
Any sample with < 1/2 holding time remaining? If so contact LPM		X	
Samples have multi-phase? If yes, document on SRER			X
All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		X	
Dissolved/Soluble metals filtered in the field?		X	
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER			X

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: **M3293** **Client/Project** **PGE Topock**

The following exceptions were noted:

		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	11) Client specified on COC to use Conductivity E120.1 method and Ammonia by SNM4500. ASL will use SM2510B to meet holding time and EPA 350.1 for ammonia.
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
x	11. Other.	

ACTION TAKEN:

Originator: Clara Thomann Date: 11/16/2013

Client was notified on: (Date/Time) Client Contact:

Client Services:

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:

PGE Topock - 2013-GMP-194-Q4

ASL Report #: M3331

Project ID: 423575.MP.02.GM.01

Attn: Jay Piper

cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 06, 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)

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: M3331

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M333101	MW-13-194	11/13/13 11:17	11/20/13
M333102	MW-38D-194	11/13/13 12:36	11/20/13
M333103	MW-52D-194	11/13/13 08:58	11/20/13
M333104	MW-52M-194	11/13/13 10:15	11/20/13
M333105	MW-52S-194	11/13/13 11:28	11/20/13
M333106	MW-53D-194	11/13/13 13:44	11/20/13
M333107	MW-53M-194	11/13/13 13:01	11/20/13
M333108	MW-62-110-194	11/13/13 13:25	11/20/13
M333109	MW-62-190-194	11/13/13 13:32	11/20/13
M333110	MW-96-194	11/13/13 07:20	11/20/13
M333111	OW-03M-194	11/13/13 09:02	11/20/13
M333112	OW-03S-194	11/13/13 09:24	11/20/13
M333113	MW-22-194	11/14/13 08:42	11/20/13
M333114	MW-15-194	11/11/13 12:50	11/20/13
M333115	MW-17-194	11/11/13 11:24	11/20/13
M333116	MW-18-194	11/11/13 10:22	11/20/13
M333117	MW-23-060-194	11/11/13 15:02	11/20/13
M333118	MW-23-080-194	11/11/13 16:25	11/20/13
M333119	MW-36-020-194	11/11/13 15:27	11/20/13
M333120	MW-36-040-194	11/11/13 11:45	11/20/13
M333121	MW-36-050-194	11/11/13 10:09	11/20/13
M333122	MW-36-070-194	11/11/13 14:20	11/20/13
M333123	MW-36-090-194	11/11/13 13:05	11/20/13
M333124	MW-40S-194	11/11/13 09:04	11/20/13
M333125	MW-95-194	11/11/13 07:25	11/20/13
M333126	MW-35-060-194	11/12/13 14:04	11/20/13
M333127	MW-35-135-194	11/12/13 14:52	11/20/13
M333128	MW-39-050-194	11/12/13 14:02	11/20/13
M333129	MW-39-060-194	11/12/13 14:57	11/20/13
M333130	MW-39-070-194	11/12/13 09:35	11/20/13
M333131	MW-39-080-194	11/12/13 13:20	11/20/13
M333132	MW-47-055-194	11/12/13 10:56	11/20/13
M333133	MW-47-115-194	11/12/13 12:10	11/20/13
M333134	TW-04-194	11/12/13 10:22	11/20/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3331

Project: PGE Topock **Project #:** 423575.MP.02.GM.01

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-13-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333101

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.26		MG/L	10	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-38D-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333102

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0560		MG/L	1	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52D-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333103

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52M-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333104

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52S-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333105

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0381		MG/L	1	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-53D-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333106

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-53M-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333107

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-110-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333108

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.98		MG/L	10	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-190-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333109

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0106		MG/L	1	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-96-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333110

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

OW-03M-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333111

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.01		MG/L	5	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

OW-03S-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333112

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.81		MG/L	10	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-22-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333113

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0316		MG/L	1	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-15-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333114

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	5.15		MG/L	20	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-17-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333115

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	4.80		MG/L	20	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-18-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333116

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	4.44		MG/L	20	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-23-060-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333117

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	5.66		MG/L	50	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-23-080-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333118

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	6.68		MG/L	50	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-020-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333119

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0134		MG/L	1	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-040-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333120

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-050-194

SDG No.: M3331

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M333121

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-070-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333122

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-090-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333123

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-40S-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333124

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.19		MG/L	10	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-95-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333125

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0142		MG/L	1	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-35-060-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333126

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	2.04		MG/L	10	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-35-135-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333127

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	2.67		MG/L	10	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-050-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333128

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-060-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333129

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-070-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333130

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-080-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333131

Date Received: 11/20/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-055-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333132

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.71		MG/L	5	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-115-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333133

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	2.21		MG/L	10	3 ML	E353.2	11/26/13

FORM I GEN CHEM

EB131204-15:12-M3331-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-04-194

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M333134

Date Received: 11/20/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.33		MG/L	5	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-112613

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB10-112613

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB10-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB11-112613

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB11-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB12-112613

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB12-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-112613

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-112613

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB3-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-112613

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB4-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-112613

SDG No.: M3331

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-112613

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	11/26/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3331

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS1W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1502

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.482	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3331

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS2W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1532

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.489	102	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3331

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS6W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1720

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.505	105	90-110	

* Values outside of QC limits

Comments:

M 333 1

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/14/2013
COC Number: 14

			Container:	125 ml Poly		
			Preservatives:	H2SO4, pH<2, 4°C		
			Filtered:	NA		
			Holding Time:	28		
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Number of Containers	COMMENTS
MW-13-194	11/13/2013	11:17	Water	X	1	1
MW-38D-194	11/13/2013	12:36	Water	X	1	2
MW-52D-194	11/13/2013	8:58	Water	X	1	3
MW-52M-194	11/13/2013	10:15	Water	X	1	4
MW-52S-194	11/13/2013	11:28	Water	X	1	5
MW-53D-194	11/13/2013	13:44	Water	X	1	6
MW-53M-194	11/13/2013	13:01	Water	X	1	7
MW-62-110-194	11/13/2013	13:25	Water	X	1	8
MW-62-190-194	11/13/2013	13:32	Water	X	1	9
MW-96-194	11/13/2013	7:20	Water	X	1	10
OW-03M-194	11/13/2013	9:02	Water	X	1	11
OW-03S-194	11/13/2013	9:24	Water	X	1	12
MW-22-194	11/14/2013	8:42	Water	X	1	13
				TOTAL NUMBER OF CONTAINERS		

	Signatures	Date/Time
Approved by		
Sampled by		11-14-13 1525
Relinquished by		
Received by		14NOV13 1525
Relinquished by		14NOV13 1734
Received by		

Shipping Details

Method of Shipment:
On Ice: (yes) / no 3.3°C KE 1B2
Airbill No:
Lab Name: CH2M HILL Analytical
Lab Phone:

ATTN:
Sample Custody
Attn:
Kathy McKinley

Special Instructions:

Report Copy to
Shawn Duffy

m3331

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 10

				Container:	Preservatives:	Filtered:	Holding Time:		
				125 ml Poly	H2SO4, pH<2, 4°C	NA	28		
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)				Number of Containers	COMMENTS
MW-15-194	11/11/2013	12:50	Water	X				1	14
MW-17-194	11/11/2013	11:24	Water	X				1	15
MW-18-194	11/11/2013	10:22	Water	X				1	16
MW-23-060-194	11/11/2013	15:02	Water	X				1	17
MW-23-080-194	11/11/2013	16:25	Water	X				1	18
MW-36-020-194	11/11/2013	15:27	Water	X				1	19
MW-36-040-194	11/11/2013	11:45	Water	X				1	20
MW-36-050-194	11/11/2013	10:09	Water	X				1	21
MW-36-070-194	11/11/2013	14:20	Water	X				1	22
MW-36-090-194	11/11/2013	13:05	Water	X				1	23
MW-40S-194	11/11/2013	9:04	Water	X				1	24
MW-95-194	11/11/2013	7:25	Water	X				1	25
MW-35-060-194	11/12/2013	14:04	Water	X				1	26
MW-35-135-194	11/12/2013	14:52	Water	X				1	27

	Signatures	Date/Time
Approved by		
Sampled by		11-12-13 1625
Relinquished by		
Received by		12NOV13 1625
Relinquished by		12NOV13 1625
Received by		

Shipping Details
Method of Shipment: [illegible]
On Ice: yes no
Airbill No.
Lab Name: [illegible]
Lab Phone

ATTN:
Sample Custody
[illegible]
Kathy McKamey

Special Instructions:

Report Copy to
Shawn Duffy
[illegible]

M3331

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 10

			Container:	125 ml Poly			
			Preservatives:	H2SO4, pH<2, 4°C			
			Filtered:	NA			
			Holding Time:	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-39-050-194	11/12/2013	14:02	Water	X		1	28
MW-39-060-194	11/12/2013	14:57	Water	X		1	29
MW-39-070-194	11/12/2013	9:35	Water	X		1	30
MW-39-080-194	11/12/2013	13:20	Water	X		1	31
MW-47-055-194	11/12/2013	10:56	Water	X		1	32
MW-47-115-194	11/12/2013	12:10	Water	X		1	33
TW-04-194	11/12/2013	10:22	Water	X		1	34
					TOTAL NUMBER OF CONTAINERS		

	Signatures	Date/Time
Approved by		
Sampled by		11-12-13 1625
Relinquished by		
Received by		12NOV13 1625
Relinquished by		12NOV13 1626
Received by		

Shipping Details

Method of Shipment:
On Ice: yes / no
Airbill No:
Lab Name:
Lab Phone:

ATTN.

Sample Custody
Attn:
Kathy McKinney

Special Instructions:

Report Copy to
Shawn Duffy

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3331 Date Received: 11/20/13

Client/Project: Topock Checked By: CC

Packing Material: Ice Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID TH173 Exp. 2/14 1.8 °C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M3360
Project ID: 423575.MP.05.AZ
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 12, 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 #: M3360

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M336001	MW-250-194	11/21/13 14:36	11/23/13
M336002	MW-54-085-194	11/21/13 08:46	11/23/13
M336003	MW-54-085-194-EB	11/21/13 08:02	11/23/13
M336004	MW-54-140-194	11/21/13 09:37	11/23/13
M336005	MW-54-140-194-EB	11/21/13 08:54	11/23/13
M336006	MW-54-195-194	11/21/13 10:26	11/23/13
M336007	MW-54-195-194-EB	11/21/13 09:50	11/23/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6010B: FLDFLT

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336002

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	163000			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	487			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	86500			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	831			P
7440-23-5	Sodium	12/03/13	100	25000	50000	1790000			P

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-54-140-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336004

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	142000			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	11100			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	142			P
7440-23-5	Sodium	12/03/13	100	25000	50000	2510000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336006

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	124000			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	97.6			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	4150			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	539			P
7440-23-5	Sodium	12/03/13	100	25000	50000	4140000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-1121

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1121

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	100	U		P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	500	U		P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	10.0	U		P

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
WB1-1125

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1125

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-23-5	Sodium	12/03/13	1	250	500	500	U		P

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3360 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1121 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Calcium	SW6010B	10000	10000	100				85-115	
Iron	SW6010B	500	548	110				85-115	
Magnesium	SW6010B	10000	10500	105				80-120	
Manganese	SW6010B	500	494	99				85-115	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3360 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1125 Solid LCS ID:

Analyte	Method	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	Solid (mg/Kg) %R	Limits	C
Sodium	SW6010B	10000	10200	102				85-115	

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6020: FLDFLT

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336002

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-38-2	Arsenic	12/05/13	2	0.0600	0.200	3.37			MS
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194-EB

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336003

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments: _____

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336004

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-38-2	Arsenic	12/05/13	2	0.0600	0.200	2.08			MS
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-54-140-194-EB

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336005

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336006

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-38-2	Arsenic	12/05/13	2	0.0600	0.200	0.200	U		MS
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194-EB

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336007

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments: _____

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
WB2-1205

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-1205

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-38-2	Arsenic	12/05/13	1	0.0300	0.100	0.100	U		MS
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3360 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS2W1205 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Arsenic	SW6020	50.0	50.4	101				85-115	
Chromium	SW6020	50.0	52.0	104				85-115	

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E300.0A

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	8.19	250	3270		mg/L	500	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	515		mg/L	100	50 UL	E300.0A	11/28/13

YL131210-22:18-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	8.19	250	4710		mg/L	500	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	497		mg/L	100	50 UL	E300.0A	11/28/13

FORM I GEN CHEM

YL131210-22:18-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	16.4	500	7750		mg/L	1000	50 UL	E300.0A	12/09/13
14808-79-8	Sulfate	3.46	50.0	945		mg/L	100	50 UL	E300.0A	11/28/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1209

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1209

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	0.0164	0.500	0.500	U	mg/L	1	50 UL	E300.0A	12/09/13

YL131210-22:18-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1127

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	0.0164	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/27/13
14808-79-8	Sulfate	0.0346	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/27/13

YL131210-22:18-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS2W1127

Initial Calibration ID: 300A-082313

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 2307

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	3.14	105	90-110	
Sulfate	15.0	15.8	106	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS1W1209

Initial Calibration ID: 300A-082313

Date Analyzed: 12/09/13

Matrix: (Soil/Water) WATER

Time Analyzed: 0933

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	2.93	98	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E350.1

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	8 ML	E350.1	11/27/13

EB131127-16:06-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	8 ML	E350.1	11/27/13

EB131127-16:06-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	8 ML	E350.1	11/27/13

EB131127-16:06-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1127

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	8 ML	E350.1	11/27/13

EB131127-16:06-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E350.1

LCS ID: BS1W1127

Initial Calibration ID: 073013NH3LAcal

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1024

Instrument: LACH8500

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.78	1.75	98	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.225		MG/L	1	3 ML	E353.2	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.874		MG/L	1	3 ML	E353.2	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

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	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-112613

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-112613

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	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB6-112613

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB6-112613

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	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS3W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1602

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.478	100	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2320B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	150		mg/L	1	50 ML	SM2320B	11/26/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	150		mg/L	1	50 ML	SM2320B	11/26/13

BS131127-09:44-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	101		mg/L	1	50 ML	SM2320B	11/26/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	101		mg/L	1	50 ML	SM2320B	11/26/13

FORM I GEN CHEM

BS131127-09:44-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	58.7		mg/L	1	50 ML	SM2320B	11/26/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	58.7		mg/L	1	50 ML	SM2320B	11/26/13

BS131127-09:44-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1126

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1126

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13

FORM I GEN CHEM

BS131127-09:44-M3360-W

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: SM2320B

LCS ID: BS1W1126

Initial Calibration ID: NONE

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1143

Instrument: TIM845

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Alkalinity, Total as CaCO3	48.0	48.7	101	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2510B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	9750		umhos/	1	30 ML	SM2510B	11/25/13

FORM I GEN CHEM

BS131127-09:39-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	12100		umhos/	1	30 ML	SM2510B	11/25/13

FORM I GEN CHEM

BS131127-09:39-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	18000		umhos/	1	30 ML	SM2510B	11/25/13

FORM I GEN CHEM

BS131127-09:39-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1125

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1125

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	10.0	U	umhos/	1	30 ML	SM2510B	11/25/13

BS131127-09:39-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: SM2510B

LCS ID: BS1W1125

Initial Calibration ID: NONE

Date Analyzed: 11/25/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1116

Instrument: NONE

Concentration Units: umhos/cm

Analyte	Expected	Found	%R	QC Limits %R	Q
Conductivity	474	467	99	80-120	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E218.6

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-250-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336001

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-250-194MS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336001MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.930		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194MS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.73		ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194-EB

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336003

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194-EBMS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336003MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.973		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194MS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.76		ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194-EB

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336005

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194-EBMS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336005MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.980		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194MS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.85		ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194-EB

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336007

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194-EBMS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336007MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.982		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1203

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1203

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E218.6

LCS ID: BS1W1203

Initial Calibration ID: HexCr-112613

Date Analyzed: 12/03/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1503

Instrument: ICK

Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	1.38	1.30	94	90-110	

* Values outside of QC limits

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

11/22/2013 9:46:08 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.05.AZ
Task Order
Project 2013-GMP-194-AZ
Turnaround Time 12 Days
Shipping Date:
COC Number: CHMC-GMP194Az

				Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMME
			Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	2x500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4 pH<2, 4°C	H2SO4 pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	Field	Field	NA	NA	NA	NA	NA			
			Holding Time:	28	28	180	180	180	180	7	7	7	28	28			
	DATE	TIME	Matrix												M3360		
MW-250-194	11/21/2013	14:36	Water	X												1	1
MW-54-085-194	11/21/2013	8:46	Water		X	X	X		X	X	X	X	X	X		7	2
MW-54-085-194-EB	11/21/2013	8:02	Water	X				X								2	3
MW-54-140-194	11/21/2013	9:37	Water		X	X	X		X	X	X	X	X	X		7	4
MW-54-140-194-EB	11/21/2013	8:54	Water	X				X								2	5
MW-54-195-194	11/21/2013	10:26	Water		X	X	X		X	X	X	X	X	X		7	6
MW-54-195-194-EB	11/21/2013	9:50	Water	X				X								2	7
															TOTAL NUMBER OF CONTAINERS	28	

	Signatures	Date/Time
Approved by		11-22-13
Sampled by		1000
Relinquished by		
Received by		
Relinquished by		
Received by		11/23/13 1210

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
November - December 2013

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3360 Date Received: 11/23/13

Client/Project: PG&E Topeka Checked By: G

Packing Material: Ice Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		X	
Radiological Screening for DoD	X		
Temp OK? (<6C) Therm ID__TH173__ Exp. 2/14 2.4 °C			
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did sample labels agree with COC? No, document in SRER		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?		X	
Was enough sample volume provided for analysis? No, document in SRER		X	
Containers supplied by ASL?		X	
Any sample with < 1/2 holding time remaining? If so contact LPM			X
Samples have multi-phase? If yes, document on SRER			X
All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		X	
Dissolved/Soluble metals filtered in the field?		X	
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER			X

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: **M3360** **Client/Project** **Topock**

The following exceptions were noted:

		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	Conductivity method was changed from EPA120.1 to SM2510B to extend the holding time.
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
	11. Other.	

ACTION TAKEN:

Originator: Carmen Cole Date: 11/25/2013

Client was notified on: (Date/Time) Client Contact:

Client Services:

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M3361
Project ID: 423575.MP.02.RM
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 02, 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)

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: M3361

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M336101	C-BNS-D-193	11/20/13 13:18	11/23/13
M336102	C-I-3-D-193	11/20/13 11:05	11/23/13
M336103	C-I-3-S-193	11/20/13 11:27	11/23/13
M336104	C-R22A-D-193	11/20/13 12:24	11/23/13
M336105	C-R22A-S-193	11/20/13 12:45	11/23/13
M336106	C-R27-D-193	11/20/13 13:47	11/23/13
M336107	C-R27-S-193	11/20/13 14:09	11/23/13
M336108	C-TAZ-D-193	11/20/13 10:02	11/23/13
M336109	C-TAZ-S-193	11/20/13 10:27	11/23/13
M336110	R63-193	11/20/13 11:55	11/23/13
M336111	C-CON-D-193	11/21/13 09:18	11/23/13
M336112	C-CON-S-193	11/21/13 09:38	11/23/13
M336113	C-MAR-S-193	11/21/13 07:48	11/23/13
M336114	C-NR1-D-193	11/21/13 10:17	11/23/13
M336115	C-NR1-S-193	11/21/13 10:38	11/23/13
M336116	C-NR3-D-193	11/21/13 11:25	11/23/13
M336117	C-NR3-S-193	11/21/13 11:45	11/23/13
M336118	C-NR4-D-193	11/21/13 12:19	11/23/13
M336119	C-NR4-S-193	11/21/13 12:33	11/23/13
M336120	R-19-193	11/21/13 08:45	11/23/13
M336121	R-28-193	11/21/13 08:23	11/23/13
M336122	RRB-193	11/21/13 14:24	11/23/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3361

Project: PGE Topock **Project #:** 423575.MP.02.RM

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-BNS-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336101

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.295		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-I-3-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336102

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.288		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-I-3-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336103

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.313		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R22A-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336104

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.289		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R22A-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336105

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.285		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R27-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336106

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.279		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R27-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336107

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.287		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-TAZ-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336108

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.288		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-TAZ-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336109

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.289		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R63-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336110

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.278		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-CON-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336111

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.299		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-CON-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336112

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.301		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-MAR-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336113

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.291		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR1-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336114

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.300		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR1-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336115

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.314		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR3-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336116

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.300		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR3-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336117

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.292		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR4-D-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336118

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.304		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR4-S-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336119

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.318		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R-19-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336120

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.298		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R-28-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336121

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.293		MG/L	1	3 ML	E353.2	11/26/13

FORM I GEN CHEM

EB131127-15:53-M3361-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RRB-193

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336122

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.165		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-112613

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-112613

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	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB6-112613

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB6-112613

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	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB7-112613

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB7-112613

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	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB8-112613

SDG No.: M3361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB8-112613

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	11/26/13

EB131127-15:53-M3361-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3361

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS3W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1602

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.478	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3361

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS4W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1632

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.500	104	90-110	

* Values outside of QC limits

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

11/21/2013 3:39.48 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2013-RMP-193
Turnaround Time 10 Days
Shipping Date: 11/22/2013
COC Number: 2

				Container:	Preservatives:	Filtered:	Holding Time:	
				125 ml Poly	H2SO4 pH<2 4°C	NA	28	
	DATE	TIME	Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate				Number of Containers	COMMENTS
C-BNS-D-193	11/20/2013	13:18	Water	X				1	1
C-I-3-D-193	11/20/2013	11:05	Water	X				1	2
C-I-3-S-193	11/20/2013	11:27	Water	X				1	3
C-R22A-D-193	11/20/2013	12:24	Water	X				1	4
C-R22A-S-193	11/20/2013	12:45	Water	X				1	5
C-R27-D-193	11/20/2013	13:47	Water	X				1	6
C-R27-S-193	11/20/2013	14:09	Water	X				1	7
C-TAZ-D-193	11/20/2013	10:02	Water	X				1	8
C-TAZ-S-193	11/20/2013	10:27	Water	X				1	9
R63-193	11/20/2013	11:55	Water	X				1	10
C-CON-D-193	11/21/2013	9:18	Water	X				1	11
C-CON-S-193	11/21/2013	9:38	Water	X				1	12
C-MAR-S-193	11/21/2013	7:48	Water	X				1	13
C-NR1-D-193	11/21/2013	10:17	Water	X				1	14

M3361

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		11-22-13 1000
Received by		
Relinquished by	Clara Thomann	11/23/13 1210
Received by		

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
Nov 4-6, 2013

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

11/21/2013 3:39:49 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575 MP 02 RM
Task Order
Project 2013-RMP-193
Turnaround Time 10 Days
Shipping Date: 11/22/2013
COC Number: 2

Container:	125 ml Poly
Preservatives:	H2SO4 pH<2 4°C
Filtered:	NA
Holding Time:	28

M 3.3 GHF 11/23

	DATE	TIME	Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
C-NR1-S-193	11/21/2013	10:38	Water	X		1	15
C-NR3-D-193	11/21/2013	11:25	Water	X		1	16
C-NR3-S-193	11/21/2013	11:45	Water	X		1	17
C-NR4-D-193	11/21/2013	12:19	Water	X		1	18
C-NR4-S-193	11/21/2013	12:33	Water	X		1	19
R-19-193	11/21/2013	8:45	Water	X		1	20
R-28-193	11/21/2013	8:23	Water	X		1	21
RRB-193	11/21/2013	14:24	Water	X		1	22
					TOTAL NUMBER OF CONTAINERS	22	

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by	[signature]	11-22-13 1000
Received by		
Relinquished by	[signature]	11/23/13 1210
Received by		

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
Nov 4-6, 2013

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3361 Date Received: 11/23/13

Client/Project: PG&E Topock Checked By: CT

Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		x	
Radiological Screening for DoD	x		
Temp OK? (<6C) Therm ID__TH173__ Exp. 2/14 4.1 °C			
Was a Chain of Custody (CoC) Provided?		x	
Was the CoC correctly filled out (If No, document in the SRER)		x	
Did sample labels agree with COC? No, document in SRER		x	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		x	
Were the sample containers in good condition (broken or leaking)?		x	
Was enough sample volume provided for analysis? No, document in SRER		x	
Containers supplied by ASL?		x	
Any sample with < 1/2 holding time remaining? If so contact LPM			x
Samples have multi-phase? If yes, document on SRER			x
All VOCs free of air bubbles? No, document on SRER	x		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		x	
Dissolved/Soluble metals filtered in the field?	x		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	x		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M3367
Project ID: 423575.MP.05.AZ
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 13, 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 #: M3367

Sample Receipt Comments

We certify that the test results meet all NELAP requirements .

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M336701	MW-55-045-194	11/21/13 12:56	11/23/13
M336702	MW-55-045-194-EB	11/21/13 12:32	11/23/13
M336703	MW-55-120-194	11/21/13 13:40	11/23/13
M336704	MW-55-120-194-EB	11/21/13 13:09	11/23/13
M336705	MW-90-120-194	11/21/13 07:00	11/23/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6010B: FLDFLT

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-55-045-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336701

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	39600			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	63.0			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	9680			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	1090			P
7440-23-5	Sodium	12/03/13	10	2500	5000	101000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336703

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	96200			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	2040			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	10.7			P
7440-23-5	Sodium	12/03/13	100	25000	50000	1670000			P

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-90-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336705

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	95700			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	2040			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	10.6			P
7440-23-5	Sodium	12/03/13	100	25000	50000	1680000			P

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
WB1-1121

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1121

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	100	U		P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	500	U		P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	10.0	U		P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-1125

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1125

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-23-5	Sodium	12/03/13	1	250	500	500	U		P

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3367 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1121 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Calcium	SW6010B	10000	10000	100				85-115	
Iron	SW6010B	500	548	110				85-115	
Magnesium	SW6010B	10000	10500	105				80-120	
Manganese	SW6010B	500	494	99				85-115	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3367 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1125 Solid LCS ID:

Analyte	Method	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	Solid (mg/Kg) %R	Limits	C
Sodium	SW6010B	10000	10200	102				85-115	

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6020: FLDFLT

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-55-045-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336701

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194-EB

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336702

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments: _____

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336703

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	7.59			MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-55-120-194-EB

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336704

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-90-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336705

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	7.61			MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
WB2-1205

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-1205

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3367 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS2W1205 Solid LCS ID:

Analyte	Method	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	Solid (mg/Kg) %R	Limits	C
Chromium	SW6020	50.0	51.7	103				85-115	

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E300.0A

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	1.64	50.0	347		mg/L	100	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	112		mg/L	100	50 UL	E300.0A	11/28/13

YL131210-22:23-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	8.19	250	2910		mg/L	500	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	307		mg/L	100	50 UL	E300.0A	11/28/13

FORM I GEN CHEM

YL131210-22:23-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	8.19	250	3040		mg/L	500	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	301		mg/L	100	50 UL	E300.0A	11/28/13

FORM I GEN CHEM

YL131210-22:23-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1127

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	0.0164	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/27/13
14808-79-8	Sulfate	0.0346	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/27/13

YL131210-22:23-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS2W1127

Initial Calibration ID: 300A-082313

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 2307

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	3.14	105	90-110	
Sulfate	15.0	15.8	106	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0637		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.41		MG/L	5	3 ML	E353.2	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.41		MG/L	5	3 ML	E353.2	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB10-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB10-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB11-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB11-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB12-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB12-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB7-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB7-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB8-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB8-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB9-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB9-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS4W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1632

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.500	104	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS6W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1720

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.505	105	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2320B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	181		mg/L	1	50 ML	SM2320B	11/27/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	181		mg/L	1	50 ML	SM2320B	11/27/13

FORM I GEN CHEM

BS131204-11:43-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	60.5		mg/L	1	50 ML	SM2320B	11/27/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	60.5		mg/L	1	50 ML	SM2320B	11/27/13

BS131204-11:43-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	60.7		mg/L	1	50 ML	SM2320B	11/27/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	60.7		mg/L	1	50 ML	SM2320B	11/27/13

FORM I GEN CHEM

BS131204-11:43-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1127

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13

BS131204-11:43-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: SM2320B

LCS ID: BS1W1127

Initial Calibration ID: NONE

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 0852

Instrument: TIM845

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Alkalinity, Total as CaCO3	48.0	47.1	98	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2510B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	1450		umhos/	1	30 ML	SM2510B	11/27/13

FORM I GEN CHEM

BS131204-11:48-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	8220		umhos/	1	30 ML	SM2510B	11/27/13

FORM I GEN CHEM

BS131204-11:48-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	8280		umhos/	1	30 ML	SM2510B	11/27/13

FORM I GEN CHEM

BS131204-11:48-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1127

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	10.0	U	umhos/	1	30 ML	SM2510B	11/27/13

BS131204-11:48-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: SM2510B

LCS ID: BS1W1127

Initial Calibration ID: NONE

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1201

Instrument: NONE

Concentration Units: umhos/cm

Analyte	Expected	Found	%R	QC Limits %R	Q
Conductivity	474	468	99	80-120	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E218.6

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194MS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	1.03		ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194-EB

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336702

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194-EBMS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336702MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.995		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:22-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	7.17		ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194MS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	17.0		ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194-EB

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336704

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194-EBMS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336704MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.985		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:22-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	7.33		ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194MS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	16.7		ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1203

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1203

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: E218.6

LCS ID: BS1W1203

Initial Calibration ID: HexCr-112613

Date Analyzed: 12/03/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1503

Instrument: ICK

Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	1.38	1.30	94	90-110	

* Values outside of QC limits

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

11/22/2013 9:47:13 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.05.AZ
Task Order
Project 2013-GMP-194-AZ
Turnaround Time 12 Days
Shipping Date: 11/22/2013
COC Number: 5

			Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	500 ml Poly	2x500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA			
			Holding Time:	28	28	180	180	180	7	7	7	28			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Nitrate/Nitrite (E353.3)	M3367	Number of Containers	COMME
MW-55-045-194	11/21/2013	12:56	Water		X	X		X	X	X	X	X		7	1
MW-55-045-194-EB	11/21/2013	12:32	Water	X			X							2	2
MW-55-120-194	11/21/2013	13:40	Water		X	X		X	X	X	X	X		7	3
MW-55-120-194-EB	11/21/2013	13:09	Water	X			X							2	4
MW-90-120-194	11/21/2013	7:00	Water		X	X		X	X	X	X	X		7	5
													TOTAL NUMBER OF CONTAINERS	25	

	Signatures	Date/Time
Approved by		11-22-13
Sampled by		1000
Relinquished by		
Received by		
Relinquished by		
Received by	Clair Homann	11/23/13 1210

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
November - December 2013

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3367 Date Received: 11/23/13

Client/Project: PG&E Topock Checked By: CT

Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		X	
Radiological Screening for DoD	X		
Temp OK? (<6C) Therm ID TH173 Exp. 2/14 2.1 °C			
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did sample labels agree with COC? No, document in SRER		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?		X	
Was enough sample volume provided for analysis? No, document in SRER		X	
Containers supplied by ASL?		X	
Any sample with < 1/2 holding time remaining? If so contact LPM			X
Samples have multi-phase? If yes, document on SRER			X
All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		X	
Dissolved/Soluble metals filtered in the field?		X	
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER			X

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: **M3367** **Client/Project** **Topock**

The following exceptions were noted:

		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	Conductivity method was changed from EPA120.1 to SM2510B to extend the holding time.
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
	11. Other.	

ACTION TAKEN:

Originator: Carmen Cole Date: 11/25/2013

Client was notified on: (Date/Time) Client Contact:

Client Services:

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:

PGE Topock - 2013-GMP-194-Q4

ASL Report #: M3376

Project ID: 423575.MP.02.GM.01

Attn: Jay Piper

cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December MO, 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 #: M3376

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M337601	MW-34-055-194	11/20/13 10:22	11/26/13
M337602	MW-34-080-194	11/20/13 11:45	11/26/13
M337603	MW-34-100-194	11/20/13 12:45	11/26/13
M337604	MW-46-175-194	11/20/13 14:56	11/26/13
M337605	MW-46-205-194	11/20/13 15:42	11/26/13
M337606	MW-93-194	11/20/13 07:00	11/26/13
M337607	MW-94-194	11/20/13 07:30	11/26/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3376

Project: PGE Topock **Project #:** 423575.MP.02.GM.01

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-055-194

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M337601

Date Received: 11/26/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-080-194

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M337602

Date Received: 11/26/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-100-194

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M337603

Date Received: 11/26/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.422		MG/L	1	3 ML	E353.2	11/26/13

FORM I GEN CHEM

EB131212-10:30-M3376-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-175-194

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M337604

Date Received: 11/26/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.02		MG/L	5	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-205-194

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M337605

Date Received: 11/26/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.02		MG/L	5	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-93-194

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M337606

Date Received: 11/26/13

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-94-194

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M337607

Date Received: 11/26/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.419		MG/L	1	3 ML	E353.2	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB10-112613

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB10-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB14-112613

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB14-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB15-112613

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB15-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB7-112613

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB7-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB8-112613

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB8-112613

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	11/26/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB9-112613

SDG No.: M3376

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB9-112613

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	11/26/13

EB131212-10:30-M3376-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3376

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS4W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1632

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.500	104	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3376

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS5W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1702

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.508	106	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3376

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS9W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1846

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.517	108	90-110	

* Values outside of QC limits

Comments:

M3316

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/21/2013
COC Number: 18

2.4°C

				Container:	Preservatives:	Filtered:	Holding Time:			
				125 ml Poly	H2SO4, pH<2, 4°C	NA	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)					Number of Containers	COMMENTS
MW-34-055-194	11/20/2013	10:22	Water	x					1	1
MW-34-080-194	11/20/2013	11:45	Water	x					1	2
MW-34-100-194	11/20/2013	12:45	Water	x					1	3
MW-46-175-194	11/20/2013	14:56	Water	x					1	4
MW-46-205-194	11/20/2013	15:42	Water	x					1	5
MW-93-194	11/20/2013	7:00	Water	x					1	6
MW-94-194	11/20/2013	7:30	Water	x					1	7
								TOTAL NUMBER OF CONTAINERS	7	

	Signatures	Date/Time
Approved by		
Sampled by		11-22-13 1135
Relinquished by		
Received by		11/22/13
Relinquished by		
Received by		

Shipping Details

Method of Shipment:
On Ice: (yes) / no
Airbill No.
Lab Name:
Lab Phone:

ATTN:

Sample Custody

Special Instructions:

Report Copy to

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3376 Date Received: 11/26/13

Client/Project: Topock Checked By: CC

Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- (On File) COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID TH173 Exp. 2/14 2.4 °C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock - 2013-GMP-194-Q4

ASL Report #: M3448
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 26, 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 #: M3448

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M344801	MW-100-194	12/04/13 07:52	12/10/13
M344802	MW-26-194	12/04/13 11:08	12/10/13
M344803	MW-39-100-194	12/04/13 08:41	12/10/13
M344804	MW-60-125-194	12/04/13 08:59	12/10/13
M344805	MW-60BR-245-194	12/04/13 09:45	12/10/13
M344806	MW-63-065-194	12/04/13 10:06	12/10/13
M344807	MW-67-185-194	12/04/13 15:00	12/10/13
M344808	MW-68-240-194	12/04/13 13:48	12/10/13
M344809	MW-70-105-194	12/04/13 15:13	12/10/13
M344810	MW-72-080-194	12/04/13 13:54	12/10/13
M344811	MW-125-194	12/05/13 11:22	12/10/13
M344812	MW-19-194	12/05/13 11:45	12/10/13
M344813	MW-61-110-194	12/05/13 14:50	12/10/13
M344814	MW-73-080-194	12/05/13 09:00	12/10/13
M344815	MW-74-240-194	12/05/13 08:20	12/10/13
M344816	MW-124-194	12/02/13 10:15	12/10/13
M344817	MW-37D-194	12/02/13 10:44	12/10/13
M344818	MW-40D-194	12/02/13 14:54	12/10/13
M344819	MW-44-070-194	12/02/13 10:32	12/10/13
M344820	MW-44-115-194	12/02/13 13:53	12/10/13
M344821	MW-44-125-194	12/02/13 12:37	12/10/13
M344822	MW-45-095a-194	12/02/13 15:28	12/10/13
M344823	MW-65-160-194	12/02/13 12:24	12/10/13
M344824	MW-65-225-194	12/02/13 13:14	12/10/13
M344825	MW-24BR-194	12/03/13 08:26	12/10/13
M344826	MW-31-060-194	12/03/13 15:35	12/10/13
M344827	MW-33-040-194	12/03/13 09:28	12/10/13
M344828	MW-33-090-194	12/03/13 11:07	12/10/13
M344829	MW-33-150-194	12/03/13 12:35	12/10/13
M344830	MW-33-210-194	12/03/13 13:44	12/10/13
M344831	MW-38S-194	12/03/13 10:40	12/10/13
M344832	MW-66-165-194	12/03/13 09:14	12/10/13
M344833	MW-69-195-194	12/03/13 13:06	12/10/13
M344834	MW-92-194	12/03/13 10:27	12/10/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3448

Project: PGE Topock **Project #:** 423575.MP.02.GM.01

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-100-194

SDG No.: M3448

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M344801

Date Received: 12/10/13

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	12/13/13

FORM I GEN CHEM

EB131224-13:11-M3448-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-26-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344802

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	18.0		MG/L	20	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-100-194

SDG No.: M3448

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M344803

Date Received: 12/10/13

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60-125-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344804

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.57		MG/L	10	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60BR-245-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344805

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.153		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-63-065-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344806

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.23		MG/L	5	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-185-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344807

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	35.3		MG/L	50	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-240-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344808

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.61		MG/L	10	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-70-105-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344809

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.91		MG/L	10	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72-080-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344810

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.35		MG/L	5	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-125-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344811

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.893		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-19-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344812

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.78		MG/L	10	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-61-110-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344813

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.897		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-73-080-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344814

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.75		MG/L	10	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-74-240-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344815

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.815		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-124-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344816

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.249		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-37D-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344817

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.182		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-40D-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344818

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.10		MG/L	10	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-070-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344819

Date Received: 12/10/13

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	12/13/13

FORM I GEN CHEM

EB131224-13:11-M3448-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-115-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344820

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.220		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-125-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344821

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.249		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-45-095a-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344822

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0362		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-160-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344823

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	11.5		MG/L	50	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-225-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344824

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	8.89		MG/L	50	3 ML	E353.2	12/20/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-24BR-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344825

Date Received: 12/10/13

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-31-060-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344826

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.53		MG/L	10	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-040-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344827

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.127		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-090-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344828

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.46		MG/L	5	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-150-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344829

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.48		MG/L	5	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-210-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344830

Date Received: 12/10/13

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

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-38S-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344831

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.138		MG/L	1	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66-165-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344832

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	34.0		MG/L	50	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-69-195-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344833

Date Received: 12/10/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	18.3		MG/L	20	3 ML	E353.2	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-92-194

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M344834

Date Received: 12/10/13

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-122013

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-122013

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	12/20/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB10-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB10-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB11-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB11-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB12-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB12-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB13-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB13-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-122013

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-122013

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	12/20/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB3-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB4-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB7-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB7-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB8-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB8-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB9-121313

SDG No.: M3448

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB9-121313

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	12/13/13

EB131224-13:11-M3448-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3448

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS1W1213

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/13/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1052

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.466	97	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3448

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS2W1213

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/13/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1122

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.465	97	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3448

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS4W1213

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/13/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1217

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.493	103	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3448

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS5W1213

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/13/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1247

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.495	103	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3448

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS6W1213

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/13/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1256

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.499	104	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3448

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS8W1213

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/13/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1308

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.499	104	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3448

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS1W1220

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/20/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1559

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.490	102	90-110	

* Values outside of QC limits

Comments:

14

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/5/2013
COC Number: 26

				Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
			Container:	125 ml Poly			M3448
			Preservatives:	H2SO4, pH<2, 4°C			
			Filtered:	NA			
			Holding Time:	28			
	DATE	TIME	Matrix				
MW-100-194	12/4/2013	7:52	Water	x		1	1
MW-26-194	12/4/2013	11:08	Water	x		1	2
MW-39-100-194	12/4/2013	8:41	Water	x		1	3
MW-60-125-194	12/4/2013	8:59	Water	x		1	4
MW-60BR-245-194	12/4/2013	9:45	Water	x		1	5
MW-63-065-194	12/4/2013	10:06	Water	x		1	6
MW-67-185-194	12/4/2013	15:00	Water	x		1	7
MW-68-240-194	12/4/2013	13:48	Water	x		1	8
MW-70-105-194	12/4/2013	15:13	Water	x		1	9
MW-72-080-194	12/4/2013	13:54	Water	x		1	10
MW-125-194	12/5/2013	11:22	Water	x		1	11
MW-19-194	12/5/2013	11:45	Water	x		1	12
MW-61-110-194	12/5/2013	14:50	Water	x		1	13
MW-73-080-194	12/5/2013	9:00	Water	x		1	14

	Signatures	Date/Time
Approved by		
Sampled by		12-5-13 1545
Relinquished by		12/5/13 1545
Received by		12/5/13 1545
Relinquished by		12/5/13 1545
Received by		

Shipping Details

Method of Shipment:
On Ice: (yes) / no
Airbill No.
Lab Name:
Lab Phone:

ATTN:

Sample Custody
[illegible]
[illegible]

Special Instructions:

Report Copy to

Shawn Duffy
[illegible]

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/5/2013
COC Number: 26

				Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
Container:				125 ml Poly			
Preservatives:				H2SO4, pH<2, 4°C			
Filtered:				NA			
Holding Time:				28			
DATE	TIME	Matrix					M 3448
MW-74-240-194	12/5/2013	8:20	Water	X		1	15
					TOTAL NUMBER OF CONTAINERS	15	

	Signatures	Date/Time
Approved by		
Sampled by		12-5-13 1545
Relinquished by		
Received by		12/5/13 1745
Relinquished by		12/5/13
Received by		12/5/13

Shipping Details
Method of Shipment: Courier
On Ice: yes / no ~~IR #2~~ 5.7°C IR #7
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: [illegible]

ATTN:
Sample Custody
and
Kathy McKenzie

Special Instructions:

Report Copy to
Shawn Duffy
[illegible]

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/3/2013
COC Number: 22

M3449S

				Container:	Preservatives:	Filtered:	Holding Time:			
				125 ml Poly	H2SO4, pH<2, 4°C	NA	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)					Number of Containers	COMMENTS
MW-124-194	12/2/2013	10:15	Water	x					1	16
MW-37D-194	12/2/2013	10:44	Water	x					1	17
MW-40D-194	12/2/2013	14:54	Water	x					1	18
MW-44-070-194	12/2/2013	10:32	Water	x					1	19
MW-44-115-194	12/2/2013	13:53	Water	x					1	20
MW-44-125-194	12/2/2013	12:37	Water	x					1	21
MW-45-095a-194	12/2/2013	15:28	Water	x					1	22
MW-65-160-194	12/2/2013	12:24	Water	x					1	23
MW-65-225-194	12/2/2013	13:14	Water	x					1	24
MW-24BR-194	12/3/2013	8:26	Water	x					1	25
MW-31-060-194	12/3/2013	15:35	Water	x					1	26
MW-33-040-194	12/3/2013	9:28	Water	x					1	27
MW-33-090-194	12/3/2013	11:07	Water	x					1	28
MW-33-150-194	12/3/2013	12:35	Water	x					1	29

	Signatures	Date/Time
Approved by		
Sampled by		12-3-13 1620
Relinquished by		
Received by		12/3/13
Relinquished by		12/3/13 1910
Received by		12/3/13

Shipping Details

Method of Shipment: Courier
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Analytical Services Lab
Lab Phone:

12 #2

ATTN:
Sample Custody
and
Kathy Mckenzie

Special Instructions:

Report Copy to
Shawn Duffy

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/3/2013
COC Number: 22

			Container:	125 ml Poly			
			Preservatives:	H2SO4, pH<2, 4°C			
			Filtered:	NA			
			Holding Time:	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-33-210-194	12/3/2013	13:44	Water	X		1	30
MW-38S-194	12/3/2013	10:40	Water	X		1	31
MW-66-165-194	12/3/2013	9:14	Water	X		1	32
MW-69-195-194	12/3/2013	13:06	Water	X		1	33
MW-92-194	12/3/2013	10:27	Water	X		1	34
					TOTAL NUMBER OF CONTAINERS	19	

M3448

	Signatures	Date/Time
Approved by		
Sampled by		12-3-13 1620
Relinquished by		
Received by		
Relinquished by		12/3/13 1912
Received by		12/3/13 1912

Shipping Details
Method of Shipment: Courier
On Ice: yes / no 3 3 C
Airbill No: 1R+2
Lab Name
Lab Phone

ATTN:
Sample Custody
Report Copy to

Special Instructions

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3448 Date Received: 12/10/13

Client/Project: Iqpochi Checked By: CC

Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or - (On File) COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID TH173 Exp. 2/14 1.4 °C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock - 2013-GMP-194-Q4

ASL Report #: M3521
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 26, 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 #: M3521

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M352101	MW-20-070-194	12/11/13 08:40	12/18/13
M352102	MW-20-100-194	12/11/13 09:52	12/18/13
M352103	MW-51-194	12/11/13 11:55	12/18/13
M352104	MW-62-065-194	12/11/13 13:20	12/18/13
M352105	MW-71-035-194	12/11/13 15:15	12/18/13
M352106	MW-10-194	12/12/13 14:00	12/18/13
M352107	MW-57-070-194	12/12/13 12:14	12/18/13
M352108	MW-66-230-194	12/12/13 10:54	12/18/13
M352109	MW-68-180-194	12/12/13 09:42	12/18/13
M352110	MW-98-194	12/12/13 07:00	12/18/13
M352111	MW-09-194	12/09/13 11:12	12/18/13
M352112	MW-25-194	12/09/13 15:31	12/18/13
M352113	MW-67-225-194	12/09/13 08:56	12/18/13
M352114	MW-67-260-194	12/09/13 09:32	12/18/13
M352115	MW-12-194	12/10/13 10:53	12/18/13
M352116	MW-59-100-194	12/10/13 12:32	12/18/13
M352117	MW-70BR-225-194	12/10/13 10:04	12/18/13
M352118	PGE-07BR-194	12/10/13 13:32	12/18/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3521

Project: PGE Topock **Project #:** 423575.MP.02.GM.01

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-070-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352101

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	8.05		MG/L	20	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-100-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352102

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	9.50		MG/L	20	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-51-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352103

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	11.1		MG/L	20	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-065-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352104

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.93		MG/L	10	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-71-035-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352105

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	2.27		MG/L	10	3 ML	E353.2	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-10-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352106

Date Received: 12/18/13

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	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-57-070-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352107

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	6.83		MG/L	10	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66-230-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352108

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	14.9		MG/L	20	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-180-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352109

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	27.8		MG/L	50	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-98-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352110

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	28.0		MG/L	50	3 ML	E353.2	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-09-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352111

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	9.84		MG/L	20	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-25-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352112

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	6.99		MG/L	10	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-225-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352113

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	21.5		MG/L	50	3 ML	E353.2	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-260-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352114

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.29		MG/L	5	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-12-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352115

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	12.7		MG/L	50	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-59-100-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352116

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.89		MG/L	10	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-70BR-225-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352117

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.76		MG/L	10	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PGE-07BR-194

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M352118

Date Received: 12/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.162		MG/L	1	3 ML	E353.2	12/18/13

EB131224-13:24-M3521-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB10-121813

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB10-121813

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	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB11-121813

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB11-121813

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	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB12-121813

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB12-121813

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	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB6-121813

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB6-121813

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	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB7-121813

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB7-121813

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	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB8-121813

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB8-121813

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	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB9-121813

SDG No.: M3521

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB9-121813

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	12/18/13

FORM I GEN CHEM

EB131224-13:24-M3521-W

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3521

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS3W1218

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/18/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1509

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.477	99	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3521

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS4W1218

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/18/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1627

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.498	104	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3521

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS5W1218

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/18/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1650

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.500	104	90-110	

* Values outside of QC limits

Comments:

0.6°C ice

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/12/2013
COC Number: 31

m3521

				Container:	125 ml Poly			
				Preservatives:	H2SO4, pH<2, 4°C			
				Filtered:	NA			
				Holding Time:	28			
	DATE	TIME	Matrix		Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-20-070-194	12/11/2013	8:40	Water		x		1	1
MW-20-100-194	12/11/2013	9:52	Water		x		1	2
MW-51-194	12/11/2013	11:55	Water		x		1	3
MW-62-065-194	12/11/2013	13:20	Water		x		1	4
MW-71-035-194	12/11/2013	15:15	Water		x		1	5
MW-10-194	12/12/2013	14:00	Water		x		1	6
MW-57-070-194	12/12/2013	12:14	Water		x		1	7
MW-66-230-194	12/12/2013	10:54	Water		x		1	8
MW-68-180-194	12/12/2013	9:42	Water		x		1	9
MW-98-194	12/12/2013	7:00	Water		x		1	10
						TOTAL NUMBER OF CONTAINERS	10	

Rick Thomas Rick Thomas 12/18/13 1130

	Signatures	Date/Time
Approved by		
Sampled by		12-12-13 1540
Relinquished by		12/12/13 1540
Received by		12/12/13
Relinquished by		
Received by		

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: CH2M Hill Applied Sciences Lab
Lab Phone:

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:

Report Copy to
Shawn Duffy

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/10/2013
COC Number: 29

M3521

				Container:	125 ml Poly			
				Preservatives:	H2SO4, pH<2, 4°C			
				Filtered:	NA			
				Holding Time:	28			
	DATE	TIME	Matrix		Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-09-194	12/9/2013	11:12	Water		X		1	11
MW-25-194	12/9/2013	15:31	Water		X		1	12
MW-67-225-194	12/9/2013	8:56	Water		X		1	13
MW-67-260-194	12/9/2013	9:32	Water		X		1	14
MW-12-194	12/10/2013	10:53	Water		X		1	15
MW-59-100-194	12/10/2013	12:32	Water		X		1	16
MW-70BR-225-194	12/10/2013	10:04	Water		X		1	17
PGE-07BR-194	12/10/2013	13:32	Water		X		1	18
						TOTAL NUMBER OF CONTAINERS	8	

Paul Thomann Paul Thomann 12/11/13 1130

	Signatures	Date/Time
Approved by		
Sampled by		12-10-13 1610
Relinquished by		
Received by		12/10/13 1610
Relinquished by		
Received by		

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences
Lab Phone:

ATTN:
Sample Custody
and
Kathy McKinney

Special Instructions:

Report Copy to
Shawn Duffy

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3521 Date Received: 12/18/13
Client/Project: Topock Checked By: CC
Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____
Shipping ID: _____ -- or - (On File) COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID TH173 Exp. 3/14 6.6 °C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock - 2013-GMP-194-Q4

ASL Report #: M3565
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 02, 2014

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 #: M3565

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M356501	MW-32-020-194	12/16/13 13:34	12/24/13
M356502	MW-36-100-194	12/16/13 12:22	12/24/13
M356503	MW-64BR-194	12/16/13 11:30	12/24/13
M356504	MW-123-194	12/17/13 07:00	12/24/13
M356505	MW-20-130-194	12/17/13 09:38	12/24/13
M356506	MW-50-200-194	12/17/13 08:10	12/24/13
M356507	MW-58BR-194	12/17/13 14:13	12/24/13
M356508	MW-66BR-270-194	12/17/13 06:42	12/24/13
M356509	TW-01-194	12/17/13 11:52	12/24/13
M356510	MW-68BR-280-194	12/18/13 09:30	12/24/13
M356511	PGE-08-194	12/18/13 16:06	12/24/13
M356512	MW-14-194	12/19/13 10:40	12/24/13
M356513	PM-03-194	12/19/13 12:34	12/24/13
M356514	PM-04-194	12/19/13 12:19	12/24/13
M356515	TW-02D-194	12/19/13 13:56	12/24/13
M356516	TW-02S-194	12/19/13 13:47	12/24/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3565

Project: PGE Topock **Project #:** 423575.MP.02.GM.01

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-32-020-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356501

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0427		MG/L	1	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-100-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356502

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0840		MG/L	1	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-64BR-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356503

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.15		MG/L	5	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-123-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356504

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	12.9		MG/L	50	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-130-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356505

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	12.4		MG/L	50	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-200-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356506

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	4.97		MG/L	50	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-58BR-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356507

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.299		MG/L	1	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66BR-270-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356508

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0148		MG/L	1	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-01-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356509

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	7.87		MG/L	50	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68BR-280-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356510

Date Received: 12/24/13

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	12/31/13

FORM I GEN CHEM

EB131231-16:51-M3565-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PGE-08-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356511

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0219		MG/L	1	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-14-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356512

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.24		MG/L	10	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PM-03-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356513

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.24		MG/L	10	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PM-04-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356514

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	2.28		MG/L	10	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-02D-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356515

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.08		MG/L	5	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-02S-194

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M356516

Date Received: 12/24/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	2.73		MG/L	5	3 ML	E353.2	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-123113

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-123113

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	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-123113

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-123113

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	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-123113

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB3-123113

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	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-123113

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB4-123113

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	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-123113

SDG No.: M3565

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-123113

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	12/31/13

EB131231-16:51-M3565-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3565

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS1W1231

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/31/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1408

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.458	96	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3565

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS3W1231

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 12/31/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1512

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.477	99	90-110	

* Values outside of QC limits

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/17/2013
COC Number: 35

M3868

				Container:			
				Preservatives:			
				Filtered:			
				Holding Time:			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-32-020-194	12/16/2013	13:34	Water	X		1	1
MW-36-100-194	12/16/2013	12:22	Water	X		1	2
MW-64BR-194	12/16/2013	11:30	Water	X		1	3
MW-123-194	12/17/2013	7:00	Water	X		1	4
MW-20-130-194	12/17/2013	9:38	Water	X		1	5
MW-50-200-194	12/17/2013	8:10	Water	X		1	6
MW-58BR-194	12/17/2013	14:13	Water	X		1	7
MW-66BR-270-194	12/17/2013	6:42	Water	X		1	8
TW-01-194	12/17/2013	11:52	Water	X		1	9
					TOTAL NUMBER OF CONTAINERS	9	

Carmen Coll 12/24/13 1220

	Signatures	Date/Time
Approved by		
Sampled by		12-17-13 1610
Relinquished by		
Received by		17DEC13 1610
Relinquished by		17DEC13 1804
Received by		

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Analytical Services Lab
Lab Phone:

ATTN.
Sample Custody
Kathy McKinley

Special Instructions:

Report Copy to
Shawn Duffy

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date:
COC Number: CHMC-GMP194

			Container:	125 ml Poly			
			Preservatives:	H2SO4, pH<2, 4°C			
			Filtered:	NA			
			Holding Time:	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-68BR-280-194	12/18/2013	9:30	Water	x		1	10
PGE-08-194	12/18/2013	16:06	Water	x		1	11
MW-14-194	12/19/2013	10:40	Water	x		1	12
PM-03-194	12/19/2013	12:34	Water	x		1	13
PM-04-194	12/19/2013	12:19	Water	x		1	14
TW-02D-194	12/19/2013	13:56	Water	x		1	15
TW-02S-194	12/19/2013	13:47	Water	x		1	16
					TOTAL NUMBER OF CONTAINERS	7	

Carmen Cole 12/24/13 1220

	Signatures	Date/Time
Approved by		
Sampled by		12-19-13 1520
Relinquished by		12/19/13 15
Received by		12/19/13 17
Relinquished by		
Received by		

Shipping Details
Method of Shipment FedEx
On Ice: (yes) / no
Airbill No: 1E#2
Lab Name: CH2M HILL - Applied Sciences Lab
Lab Phone:

ATTN:
Sample Custody
Kathy McFarlane

Special Instructions:

Report Copy to
Shawn Duffy

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3S6S
Date Received: 12/24/13
Client/Project: Topock
Checked By: CC
Packing Material: Ice Blue Ice Box Bubble Wrap HD (circle all that apply)
Checked By: _____
Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID__TH173__ Exp. 3/14 1.8 °C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

November 21, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011378

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 05, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Calcium possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011378-016, N011378-018 for Molybdenum due to failed Internal Standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc. *3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691*

Advanced Technology Laboratories, Inc.

Date: *21-Nov-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011378
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011378-001A	MW-27-020-194	Water	11/4/2013 10:47:00 AM	11/5/2013	11/21/2013
N011378-001B	MW-27-020-194	Water	11/4/2013 10:47:00 AM	11/5/2013	11/21/2013
N011378-001C	MW-27-020-194	Water	11/4/2013 10:47:00 AM	11/5/2013	11/21/2013
N011378-002A	MW-27-060-194	Water	11/4/2013 11:47:00 AM	11/5/2013	11/21/2013
N011378-002B	MW-27-060-194	Water	11/4/2013 11:47:00 AM	11/5/2013	11/21/2013
N011378-002C	MW-27-060-194	Water	11/4/2013 11:47:00 AM	11/5/2013	11/21/2013
N011378-003A	MW-27-085-194	Water	11/4/2013 12:47:00 PM	11/5/2013	11/21/2013
N011378-003B	MW-27-085-194	Water	11/4/2013 12:47:00 PM	11/5/2013	11/21/2013
N011378-003C	MW-27-085-194	Water	11/4/2013 12:47:00 PM	11/5/2013	11/21/2013
N011378-004A	MW-30-030-194	Water	11/4/2013 3:02:00 PM	11/5/2013	11/21/2013
N011378-004B	MW-30-030-194	Water	11/4/2013 3:02:00 PM	11/5/2013	11/21/2013
N011378-005A	MW-30-050-194	Water	11/4/2013 4:08:00 PM	11/5/2013	11/21/2013
N011378-005B	MW-30-050-194	Water	11/4/2013 4:08:00 PM	11/5/2013	11/21/2013
N011378-005C	MW-30-050-194	Water	11/4/2013 4:08:00 PM	11/5/2013	11/21/2013
N011378-006A	MW-41D-194	Water	11/4/2013 10:47:00 AM	11/5/2013	11/21/2013
N011378-006B	MW-41D-194	Water	11/4/2013 10:47:00 AM	11/5/2013	11/21/2013
N011378-007A	MW-41M-194	Water	11/4/2013 12:23:00 PM	11/5/2013	11/21/2013
N011378-007B	MW-41M-194	Water	11/4/2013 12:23:00 PM	11/5/2013	11/21/2013
N011378-008A	MW-41S-194	Water	11/4/2013 12:54:00 PM	11/5/2013	11/21/2013
N011378-008B	MW-41S-194	Water	11/4/2013 12:54:00 PM	11/5/2013	11/21/2013
N011378-009A	MW-21-194	Water	11/5/2013 3:14:00 PM	11/5/2013	11/21/2013
N011378-009B	MW-21-194	Water	11/5/2013 3:14:00 PM	11/5/2013	11/21/2013
N011378-010A	MW-28-025-194	Water	11/5/2013 8:35:00 AM	11/5/2013	11/21/2013
N011378-010B	MW-28-025-194	Water	11/5/2013 8:35:00 AM	11/5/2013	11/21/2013
N011378-010C	MW-28-025-194	Water	11/5/2013 8:35:00 AM	11/5/2013	11/21/2013
N011378-011A	MW-28-090-194	Water	11/5/2013 9:15:00 AM	11/5/2013	11/21/2013
N011378-011B	MW-28-090-194	Water	11/5/2013 9:15:00 AM	11/5/2013	11/21/2013
N011378-011C	MW-28-090-194	Water	11/5/2013 9:15:00 AM	11/5/2013	11/21/2013
N011378-012A	MW-29-194	Water	11/5/2013 10:50:00 AM	11/5/2013	11/21/2013

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

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011378
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011378-012B	MW-29-194	Water	11/5/2013 10:50:00 AM	11/5/2013	11/21/2013
N011378-012C	MW-29-194	Water	11/5/2013 10:50:00 AM	11/5/2013	11/21/2013
N011378-013A	MW-42-030-194	Water	11/5/2013 1:16:00 PM	11/5/2013	11/21/2013
N011378-013B	MW-42-030-194	Water	11/5/2013 1:16:00 PM	11/5/2013	11/21/2013
N011378-014A	MW-42-055-194	Water	11/5/2013 1:52:00 PM	11/5/2013	11/21/2013
N011378-014B	MW-42-055-194	Water	11/5/2013 1:52:00 PM	11/5/2013	11/21/2013
N011378-014C	MW-42-055-194	Water	11/5/2013 1:52:00 PM	11/5/2013	11/21/2013
N011378-015A	MW-42-065-194	Water	11/5/2013 2:34:00 PM	11/5/2013	11/21/2013
N011378-015B	MW-42-065-194	Water	11/5/2013 2:34:00 PM	11/5/2013	11/21/2013
N011378-015C	MW-42-065-194	Water	11/5/2013 2:34:00 PM	11/5/2013	11/21/2013
N011378-016A	MW-72BR-200-194	Water	11/5/2013 11:55:00 AM	11/5/2013	11/21/2013
N011378-016B	MW-72BR-200-194	Water	11/5/2013 11:55:00 AM	11/5/2013	11/21/2013
N011378-016C	MW-72BR-200-194	Water	11/5/2013 11:55:00 AM	11/5/2013	11/21/2013
N011378-017A	MW-91-194	Water	11/5/2013 8:00:00 AM	11/5/2013	11/21/2013
N011378-017B	MW-91-194	Water	11/5/2013 8:00:00 AM	11/5/2013	11/21/2013
N011378-017C	MW-91-194	Water	11/5/2013 8:00:00 AM	11/5/2013	11/21/2013
N011378-018A	MW-99-194	Water	11/5/2013 8:47:00 AM	11/5/2013	11/21/2013
N011378-018B	MW-99-194	Water	11/5/2013 8:47:00 AM	11/5/2013	11/21/2013
N011378-018C	MW-99-194	Water	11/5/2013 8:47:00 AM	11/5/2013	11/21/2013
N011378-019A	OW-03D-194	Water	11/5/2013 2:30:00 PM	11/5/2013	11/21/2013
N011378-019B	OW-03D-194	Water	11/5/2013 2:30:00 PM	11/5/2013	11/21/2013

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-020-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	900	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 11:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	950	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	9800	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-030-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	5300	0.10	0.10		umhos/cm	1	11/6/2013

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-050-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 4:08:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41D-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41S-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	4900	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-21-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 3:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	8900	0.10	0.10		umhos/cm	1	11/6/2013

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-025-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106C**	QC Batch: **R91063**			PrepDate:			Analyst: **LCC**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 9:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	11/6/2013

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-29-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 10:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	1800	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-030-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 1:16:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	11/6/2013

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 1:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	11/6/2013

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	7100	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72BR-200-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	2300	0.10	0.10		umhos/cm	1	11/6/2013

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-99-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	11/6/2013

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03D-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131106D**	QC Batch: **R91064**			PrepDate:			Analyst: **LCC**
Specific Conductance	9000	0.10	0.10		umhos/cm	1	11/6/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

Date: *21-Nov-13*

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011378-010B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91063**
Client ID: **ZZZZZZ** Batch ID: **R91063** TestNo: **EPA 120.1** Analysis Date: **11/6/2013** SeqNo: **1677956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6660.000	0.10						6680	0.300	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011378-011B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91064**
Client ID: **ZZZZZZ** Batch ID: **R91064** TestNo: **EPA 120.1** Analysis Date: **11/6/2013** SeqNo: **1677958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6670.000	0.10						6660	0.150	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-020-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	150	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 11:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	190	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	190	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	230	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	230	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-030-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	470	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	470	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-050-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 4:08:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	200	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	200	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41D-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	41	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	41	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	37	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	37	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41S-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	57	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	57	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-21-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 3:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	530	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	530	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-025-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	250	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

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

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 9:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	250	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-29-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 10:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	400	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	400	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 1:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	310	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	310	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	380	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	380	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72BR-200-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	22	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	22	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	450	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	450	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-99-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	17	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	17	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03D-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131108G**	QC Batch: **R91098**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	33	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/8/2013
Alkalinity, Total (As CaCO3)	33	1.2	5.0		mg/L	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *21-Nov-13*

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91098** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91098**
Client ID: **LCSW** Batch ID: **R91098** TestNo: **SM 2320 B** Analysis Date: **11/8/2013** SeqNo: **1679404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	104.348	5.0	100.0	0	104	85	115				
Alkalinity, Total (As CaCO3)	108.696	5.0	100.0	0	109	85	115				

Sample ID: **MB-R91098** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91098**
Client ID: **PBW** Batch ID: **R91098** TestNo: **SM 2320 B** Analysis Date: **11/8/2013** SeqNo: **1679405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.174	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.174	5.0									

Sample ID: **N011378-001B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91098**
Client ID: **ZZZZZZ** Batch ID: **R91098** TestNo: **SM 2320 B** Analysis Date: **11/8/2013** SeqNo: **1679407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	150.000	5.0						150.0	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)	150.000	5.0						150.0	0	30	

Sample ID: **N011378-002B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91098**
Client ID: **ZZZZZZ** Batch ID: **R91098** TestNo: **SM 2320 B** Analysis Date: **11/8/2013** SeqNo: **1679409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	289.130	5.0	100.0	189.1	100	75	125				
Alkalinity, Total (As CaCO3)	289.130	5.0	100.0	189.1	100	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011378-002B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91098**
Client ID: **ZZZZZZ** Batch ID: **R91098** TestNo: **SM 2320 B** Analysis Date: **11/8/2013** SeqNo: **1679410**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	289.130	5.0	100.0	189.1	100	75	125	289.1	0	20	
Alkalinity, Total (As CaCO3)	289.130	5.0	100.0	189.1	100	75	125	289.1	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-020-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	76	0.52	10		mg/L	20	11/11/2013 10:41 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	210	0.76	10		mg/L	20	11/11/2013 10:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 11:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	83	0.52	10		mg/L	20	11/11/2013 10:54 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Fluoride	0.62	0.0068	0.10		mg/L	1	11/11/2013 11:07 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	180	0.76	10		mg/L	20	11/11/2013 10:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT: CH2M HILL
Lab Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011378-003

Client Sample ID: MW-27-085-194
Collection Date: 11/4/2013 12:47:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	2800	26	500		mg/L	1000	11/11/2013 11:19 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Fluoride	4.1	0.034	0.50		mg/L	5	11/11/2013 11:45 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	1000	3.8	50		mg/L	100	11/11/2013 11:32 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-030-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	1200	13	250		mg/L	500	11/11/2013 11:57 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	600	1.9	25		mg/L	50	11/11/2013 12:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-050-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 4:08:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	110	0.52	10		mg/L	20	11/11/2013 02:16 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	200	0.76	10		mg/L	20	11/11/2013 02:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41D-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	7400	52	1000		mg/L	2000	11/11/2013 02:29 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	760	3.8	50		mg/L	100	11/11/2013 02:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	4900	26	500		mg/L	1000	11/11/2013 03:26 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	530	3.8	50		mg/L	100	11/11/2013 03:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41S-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	1400	13	250		mg/L	500	11/11/2013 03:51 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	270	1.9	25		mg/L	50	11/11/2013 04:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-21-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 3:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	1900	13	250		mg/L	500	11/11/2013 04:16 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	1600	7.6	100		mg/L	200	11/11/2013 04:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-025-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	1900	13	250		mg/L	500	11/11/2013 04:42 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	580	3.8	50		mg/L	100	11/11/2013 04:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 9:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	1900	13	250		mg/L	500	11/11/2013 05:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Fluoride	2.9	0.034	0.50		mg/L	5	11/11/2013 05:57 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	570	3.8	50		mg/L	100	11/11/2013 05:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-29-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 10:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	240	1.3	25		mg/L	50	11/11/2013 06:22 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	270	1.9	25		mg/L	50	11/11/2013 06:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 1:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	160	0.52	10		mg/L	20	11/11/2013 06:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	220	0.76	10		mg/L	20	11/11/2013 06:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	1800	13	250		mg/L	500	11/11/2013 07:00 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	660	3.8	50		mg/L	100	11/11/2013 07:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72BR-200-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	5300	26	500		mg/L	1000	11/11/2013 07:26 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	670	3.8	50		mg/L	100	11/11/2013 07:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	300	2.6	50		mg/L	100	11/11/2013 07:51 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	310	0.76	10		mg/L	20	11/11/2013 08:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-99-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	5300	26	500		mg/L	1000	11/11/2013 08:41 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	670	3.8	50		mg/L	100	11/11/2013 08:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03D-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Chloride	2800	13	250		mg/L	500	11/11/2013 09:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131111A** QC Batch: **R91155** PrepDate: Analyst: **QBM**							
Sulfate	400	1.9	25		mg/L	50	11/11/2013 09:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91155_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **PBW** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91155_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **LCSW** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682810**

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: **N011378-001BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	125.380	10	50.00	76.02	98.7	80	120				

Sample ID: **N011378-002BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	83.120	10						83.40	0.336	20	

Sample ID: **N011378-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	134.300	10	50.00	83.40	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011378-002BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	134.060	10	50.00	83.40	101	80	120	134.3	0.179	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R91155_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **PBW** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682787**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID: **LCS-R91155_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **LCSW** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.447	0.10	2.500	0	97.9	90	110				

Sample ID: **N011378-002BDUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.635	0.10						0.6180	2.71	20	

Sample ID: **N011378-002BMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.903	0.10	2.500	0.6180	91.4	80	120				

Sample ID: **N011378-002BMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.881	0.10	2.500	0.6180	90.5	80	120	2.903	0.761	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91155_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **PBW** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91155_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **LCSW** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.951	0.50	5.000	0	99.0	90	110				

Sample ID: **N011378-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	314.620	10	100.0	212.1	103	80	120				

Sample ID: **N011378-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	175.120	10						178.3	1.79	20	

Sample ID: **N011378-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	287.180	10	100.0	178.3	109	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011378-002BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91155**
Client ID: **ZZZZZZ** Batch ID: **R91155** TestNo: **EPA 300.0** Analysis Date: **11/11/2013** SeqNo: **1682881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	278.240	10	100.0	178.3	100	80	120	287.2	3.16	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-020-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131118A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	73000	58	500		ug/L	1	11/18/2013 03:50 PM
Iron	94	1.3	20		ug/L	1	11/18/2013 03:50 PM
Magnesium	23000	11	100		ug/L	1	11/18/2013 03:50 PM
Sodium	80000	370	2500		ug/L	5	11/15/2013 12:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 11:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131118A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	69000	58	500		ug/L	1	11/18/2013 03:21 PM
Iron	260	1.3	20		ug/L	1	11/18/2013 03:21 PM
Magnesium	16000	11	100		ug/L	1	11/18/2013 03:21 PM
Sodium	110000	370	2500		ug/L	5	11/15/2013 12:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131118A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	230000	58	500		ug/L	1	11/18/2013 03:25 PM
Iron	130	1.3	20		ug/L	1	11/18/2013 03:25 PM
Magnesium	45000	11	100		ug/L	1	11/18/2013 03:25 PM
Sodium	2100000	9100	62000		ug/L	125	11/15/2013 02:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-030-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131118A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	52000	58	500		ug/L	1	11/18/2013 03:31 PM
Iron	340	1.3	20		ug/L	1	11/18/2013 03:31 PM
Magnesium	37000	11	100		ug/L	1	11/18/2013 03:31 PM
Sodium	1100000	9100	62000		ug/L	125	11/15/2013 02:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-050-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 4:08:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131118A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	57000	58	500		ug/L	1	11/18/2013 03:35 PM
Iron	39	1.3	20		ug/L	1	11/18/2013 03:35 PM
Magnesium	15000	11	100		ug/L	1	11/18/2013 03:35 PM
Sodium	160000	370	2500		ug/L	5	11/15/2013 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41D-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	420000	58	500		ug/L	1	11/9/2013 10:38 AM
Iron	37	1.3	20		ug/L	1	11/9/2013 10:38 AM
Magnesium	32000	11	100		ug/L	1	11/9/2013 10:38 AM
Sodium	4400000	46000	310000		ug/L	625	11/15/2013 03:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	420000	58	500		ug/L	1	11/9/2013 10:43 AM
Iron	ND	1.3	20		ug/L	1	11/9/2013 10:43 AM
Magnesium	35000	11	100		ug/L	1	11/9/2013 10:43 AM
Sodium	2700000	9100	62000		ug/L	125	11/15/2013 03:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41S-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	120000	58	500		ug/L	1	11/9/2013 10:48 AM
Iron	ND	1.3	20		ug/L	1	11/9/2013 10:48 AM
Magnesium	16000	11	100		ug/L	1	11/9/2013 10:48 AM
Sodium	940000	9100	62000		ug/L	125	11/15/2013 03:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-21-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 3:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	170000	58	500		ug/L	1	11/9/2013 10:54 AM
Iron	ND	1.3	20		ug/L	1	11/9/2013 10:54 AM
Magnesium	55000	11	100		ug/L	1	11/9/2013 10:54 AM
Sodium	2000000	9100	62000		ug/L	125	11/15/2013 03:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-025-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	100000	58	500		ug/L	1	11/9/2013 10:59 AM
Iron	ND	1.3	20		ug/L	1	11/9/2013 10:59 AM
Magnesium	29000	11	100		ug/L	1	11/9/2013 10:59 AM
Sodium	83000	370	2500		ug/L	5	11/15/2013 01:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 9:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	220000	58	500		ug/L	1	11/9/2013 11:05 AM
Iron	750	1.3	20		ug/L	1	11/9/2013 11:05 AM
Magnesium	42000	11	100		ug/L	1	11/9/2013 11:05 AM
Sodium	1300000	9100	62000		ug/L	125	11/15/2013 03:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-29-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 10:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	99000	58	500		ug/L	1	11/9/2013 11:10 AM
Iron	760	1.3	20		ug/L	1	11/9/2013 11:10 AM
Magnesium	42000	11	100		ug/L	1	11/9/2013 11:10 AM
Sodium	320000	730	5000		ug/L	10	11/15/2013 03:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 1:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	11000	58	500		ug/L	1	11/9/2013 11:14 AM
Iron	59	1.3	20		ug/L	1	11/9/2013 11:14 AM
Magnesium	3100	11	100		ug/L	1	11/9/2013 11:14 AM
Sodium	350000	730	5000		ug/L	10	11/15/2013 03:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	160000	58	500		ug/L	1	11/9/2013 11:19 AM
Iron	76	1.3	20		ug/L	1	11/9/2013 11:19 AM
Magnesium	42000	11	100		ug/L	1	11/9/2013 11:19 AM
Sodium	1500000	9100	62000		ug/L	125	11/15/2013 03:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72BR-200-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131109A**	QC Batch: **44328**				PrepDate:	**11/8/2013**	Analyst: **JAA**
Calcium	320000	58	500		ug/L	1	11/9/2013 11:25 AM
Iron	ND	1.3	20		ug/L	1	11/9/2013 11:25 AM
Magnesium	3300	11	100		ug/L	1	11/9/2013 11:25 AM
Sodium	3300000	9100	62000		ug/L	125	11/15/2013 03:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT: CH2M HILL
Lab Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011378-017

Client Sample ID: MW-91-194
Collection Date: 11/5/2013 8:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 6010B				
RunID: **ICP2_131109A**	QC Batch: **R91198**			PrepDate:			Analyst: **JAA**
Calcium	100000	58	500		ug/L	1	11/9/2013 11:40 AM
Iron	730	1.3	20		ug/L	1	11/9/2013 11:40 AM
Magnesium	41000	11	100		ug/L	1	11/9/2013 11:40 AM
Sodium	310000	730	5000		ug/L	10	11/15/2013 03:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-99-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 6010B				
RunID: **ICP2_131109A**	QC Batch: **R91198**			PrepDate:			Analyst: **JAA**
Calcium	320000	58	500		ug/L	1	11/9/2013 11:45 AM
Iron	ND	1.3	20		ug/L	1	11/9/2013 11:45 AM
Magnesium	3400	11	100		ug/L	1	11/9/2013 11:45 AM
Sodium	3600000	9100	62000		ug/L	125	11/15/2013 03:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03D-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 6010B				
RunID: **ICP2_131109A**	QC Batch: **R91198**			PrepDate:			Analyst: **JAA**
Calcium	180000	58	500		ug/L	1	11/9/2013 11:50 AM
Iron	ND	1.3	20		ug/L	1	11/9/2013 11:50 AM
Magnesium	16000	11	100		ug/L	1	11/9/2013 11:50 AM
Sodium	1900000	9100	62000		ug/L	125	11/15/2013 03:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *21-Nov-13*

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44328** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/8/2013** RunNo: **91245**
Client ID: **PBW** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS2-44328** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/8/2013** RunNo: **91245**
Client ID: **LCSW** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687322**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	19714.696	500	20000	0	98.6	85	115				

Sample ID: **N011378-002A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/8/2013** RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687326**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	128002.178	2500	20000	106000	110	75	125				

Sample ID: **N011378-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/8/2013** RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	130859.997	2500	20000	106000	124	75	125	128000	2.21	20	

Sample ID: **MB-44328** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/8/2013** RunNo: **91246**
Client ID: **PBW** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/18/2013** SeqNo: **1687432**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	2.930	20									
Magnesium	ND	100									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-44328** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/8/2013** RunNo: **91246**
Client ID: **LCSW** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/18/2013** SeqNo: **1687433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9583.124	500	10000	0	95.8	85	115				
Iron	107.560	20	100.0	0	108	85	115				
Magnesium	10132.454	100	10000	0	101	85	115				

Sample ID: **N011378-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/8/2013** RunNo: **91246**
Client ID: **ZZZZZZ** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/18/2013** SeqNo: **1687438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	79875.066	500	10000	73180	66.9	75	125				S
Iron	181.998	20	100.0	94.09	87.9	75	125				
Magnesium	31580.356	100	10000	22630	89.5	75	125				

Sample ID: **N011378-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/8/2013** RunNo: **91246**
Client ID: **ZZZZZZ** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/18/2013** SeqNo: **1687439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	82079.631	500	10000	73180	89.0	75	125	79880	2.72	20	
Iron	182.457	20	100.0	94.09	88.4	75	125	182.0	0.252	20	
Magnesium	32345.666	100	10000	22630	97.1	75	125	31580	2.39	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-020-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	1.3	0.027	0.10		µg/L	1	11/12/2013 10:55 AM
Manganese	95	0.13	2.5		µg/L	5	11/12/2013 11:00 AM
Molybdenum	5.5	0.15	0.50		µg/L	1	11/12/2013 10:55 AM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 11:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	6.3	0.027	0.10		µg/L	1	11/12/2013 11:23 AM
Manganese	190	0.13	2.5		µg/L	5	11/12/2013 02:34 PM
Molybdenum	4.0	0.15	0.50		µg/L	1	11/12/2013 11:23 AM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	1.3	0.027	0.10		µg/L	1	11/12/2013 11:31 AM
Manganese	17	0.026	0.50		µg/L	1	11/12/2013 11:31 AM
Molybdenum	22	0.15	0.50		µg/L	1	11/12/2013 11:31 AM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 11:31 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-030-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	0.84	0.027	0.10		µg/L	1	11/12/2013 11:36 AM
Manganese	21	0.026	0.50		µg/L	1	11/12/2013 11:36 AM
Molybdenum	20	0.15	0.50		µg/L	1	11/12/2013 11:36 AM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 11:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-050-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 4:08:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**			PrepDate:	**11/6/2013**		Analyst: **CEI**
Arsenic	2.7	0.027	0.10		µg/L	1	11/12/2013 12:09 PM
Manganese	110	0.026	0.50		µg/L	1	11/12/2013 12:09 PM
Molybdenum	5.0	0.15	0.50		µg/L	1	11/12/2013 12:09 PM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 12:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41D-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**			PrepDate:	**11/6/2013**		Analyst: **CEI**
Arsenic	2.1	0.027	0.10		µg/L	1	11/12/2013 12:15 PM
Manganese	58	0.026	0.50		µg/L	1	11/12/2013 12:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**			PrepDate:	**11/6/2013**		Analyst: **CEI**
Arsenic	1.8	0.027	0.10		µg/L	1	11/12/2013 12:20 PM
Manganese	ND	0.026	0.50		µg/L	1	11/12/2013 12:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41S-194
Lab Order:	N011378	**Collection Date:**	11/4/2013 12:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	1.7	0.027	0.10		µg/L	1	11/12/2013 12:26 PM
Manganese	ND	0.026	0.50		µg/L	1	11/12/2013 12:26 PM
Molybdenum	16	0.15	0.50		µg/L	1	11/12/2013 12:26 PM
Selenium	0.61	0.069	0.50		µg/L	1	11/12/2013 12:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-21-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 3:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/12/2013 12:31 PM
Molybdenum	73	0.15	0.50		µg/L	1	11/12/2013 12:31 PM
Selenium	40	0.069	0.50		µg/L	1	11/12/2013 12:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-025-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	1.0	0.027	0.10		µg/L	1	11/12/2013 03:48 PM
Manganese	1.5	0.026	0.50		µg/L	1	11/12/2013 03:48 PM
Molybdenum	4.7	0.15	0.50		µg/L	1	11/12/2013 03:48 PM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 03:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 9:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	11/12/2013 12:42 PM
Manganese	85	0.026	0.50		µg/L	1	11/12/2013 12:42 PM
Molybdenum	19	0.15	0.50		µg/L	1	11/12/2013 12:42 PM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 12:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-29-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 10:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	6.4	0.027	0.10		µg/L	1	11/12/2013 12:48 PM
Manganese	210	0.13	2.5		µg/L	5	11/14/2013 02:59 PM
Molybdenum	12	0.15	0.50		µg/L	1	11/12/2013 12:48 PM
Selenium	0.89	0.069	0.50		µg/L	1	11/12/2013 12:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-030-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 1:16:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	3.1	0.027	0.10		µg/L	1	11/12/2013 12:53 PM
Molybdenum	22	0.15	0.50		µg/L	1	11/12/2013 12:53 PM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 12:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 1:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	11	0.027	0.10		µg/L	1	11/12/2013 12:59 PM
Manganese	23	0.026	0.50		µg/L	1	11/12/2013 12:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**			PrepDate:	**11/6/2013**		Analyst: **CEI**
Arsenic	2.2	0.027	0.10		µg/L	1	11/12/2013 01:16 PM
Manganese	840	0.13	2.5		µg/L	5	11/12/2013 03:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72BR-200-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	14	0.027	0.10		µg/L	1	11/12/2013 01:21 PM
Manganese	ND	0.026	0.50		µg/L	1	11/12/2013 01:21 PM
Molybdenum	78	0.76	2.5		µg/L	5	11/12/2013 04:05 PM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 01:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	6.1	0.027	0.10		µg/L	1	11/12/2013 04:10 PM
Manganese	220	0.13	2.5		µg/L	5	11/14/2013 03:05 PM
Molybdenum	12	0.15	0.50		µg/L	1	11/12/2013 04:10 PM
Selenium	0.77	0.069	0.50		µg/L	1	11/12/2013 04:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-99-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 8:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	13	0.027	0.10		µg/L	1	11/12/2013 01:32 PM
Manganese	ND	0.026	0.50		µg/L	1	11/12/2013 01:32 PM
Molybdenum	80	0.76	2.5		µg/L	5	11/12/2013 04:16 PM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 01:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *21-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03D-194
Lab Order:	N011378	**Collection Date:**	11/5/2013 2:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011378-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131112A**	QC Batch: **44299**				PrepDate:	**11/6/2013**	Analyst: **CEI**
Arsenic	2.3	0.027	0.10		µg/L	1	11/12/2013 02:01 PM
Manganese	ND	0.026	0.50		µg/L	1	11/12/2013 02:01 PM
Molybdenum	24	0.15	0.50		µg/L	1	11/12/2013 02:01 PM
Selenium	ND	0.069	0.50		µg/L	1	11/12/2013 02:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *21-Nov-13*

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44299** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/6/2013** RunNo: **91167**
Client ID: **PBW** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	0.047	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-44299** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/6/2013** RunNo: **91167**
Client ID: **LCSW** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.791	0.10	10.00	0	97.9	85	115				
Manganese	96.356	0.50	100.0	0	96.4	85	115				
Molybdenum	9.752	0.50	10.00	0	97.5	85	115				
Selenium	9.354	0.50	10.00	0	93.5	85	115				

Sample ID: **N011378-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/6/2013** RunNo: **91167**
Client ID: **ZZZZZZ** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.303	0.10	10.00	1.312	89.9	75	125				
Molybdenum	15.598	0.50	10.00	5.452	101	75	125				
Selenium	8.284	0.50	10.00	0.1319	81.5	75	125				

Sample ID: **N011378-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/6/2013** RunNo: **91167**
Client ID: **ZZZZZZ** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.386	0.10	10.00	1.312	90.7	75	125	10.30	0.802	20	
Molybdenum	15.944	0.50	10.00	5.452	105	75	125	15.60	2.20	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011378-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/6/2013** RunNo: **91167**
Client ID: **ZZZZZZ** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.249	0.50	10.00	0.1319	81.2	75	125	8.284	0.421	20	

Sample ID: **N011378-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/6/2013** RunNo: **91167**
Client ID: **ZZZZZZ** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	180.852	2.5	100.0	94.87	86.0	75	125				

Sample ID: **N011378-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/6/2013** RunNo: **91167**
Client ID: **ZZZZZZ** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	181.458	2.5	100.0	94.87	86.6	75	125	180.9	0.335	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/5/2013
COC Number: 3

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-27-020-194	11/4/2013	10:47	Water	X	X	X	X		X	X	X	N011378-1	~~8~~	4
MW-27-060-194	11/4/2013	11:47	Water	X	X	X		X	X	X	X	-2	~~8~~	4
MW-27-085-194	11/4/2013	12:47	Water	X	X	X		X	X	X	X	-3	~~8~~	4
MW-30-030-194	11/4/2013	15:02	Water	X	X	X	X		X	X		-4	~~8~~	3
MW-30-050-194	11/4/2013	16:08	Water	X	X	X	X		X	X	X	-5	~~8~~	4
MW-41D-194	11/4/2013	10:47	Water	X	X		X		X	X		-6	~~5~~	3
MW-41M-194	11/4/2013	12:23	Water	X	X		X		X	X		-7	~~8~~	3
MW-41S-194	11/4/2013	12:54	Water	X	X	X	X		X	X		-8	~~8~~	3 DAL
MW-21-194	11/5/2013	15:14	Water		X	X	X		X	X		-9	~~7~~	3 P
MW-28-025-194	11/5/2013	8:35	Water	X	X	X	X		X	X	X	-10	~~8~~	4
MW-28-090-194	11/5/2013	9:15	Water	X	X	X		X	X	X	X	-11	~~8~~	4
MW-29-194	11/5/2013	10:50	Water	X	X	X	X		X	X	X	-12	~~8~~	4
MW-42-030-194	11/5/2013	13:16	Water	X		X			X			-13	3	
MW-42-055-194	11/5/2013	13:52	Water	X	X		X		X	X	X	-14	~~8~~	4

	Signatures	Date/Time
Approved by		11-5-13
Sampled by		1630
Relinquished by		
Received by		05NOV13 1630
Relinquished by		05NOV13 1827
Received by		05 NOV13 1827

Shipping Details
Method of Shipment: courier
On Ice: yes / no 2.6 1.2
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/5/2013
COC Number: 3

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			Number of Containers	COMMENTS
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C				
			Filtered:	Field	Field	Field	NA	NA	NA	NA	NA				
			Holding Time:	180	180	180	7	7	7	7	28				
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)				
MW-42-065-194	11/5/2013	14:34	Water	X	X		X		X	X	X	N011378 - 15		~~8~~ 4	
MW-72BR-200-194	11/5/2013	11:55	Water	X	X	X	X		X	X	X	- 16		~~8~~ 4	
MW-91-194	11/5/2013	8:00	Water	X	X	X	X		X	X	X	- 17		~~8~~ 4	
MW-99-194	11/5/2013	8:47	Water	X	X	X	X		X	X	X	- 18		~~8~~ 4	
OW-03D-194	11/5/2013	14:30	Water	X	X	X	X		X	X		- 19		~~8~~ 3	
												TOTAL NUMBER OF CONTAINERS		69	

	Signatures	Date/Time
Approved by		11-5-13 1630
Sampled by		
Relinquished by		
Received by		05NOV13 1630
Relinquished by		05NOV13 1827
Received by		05NOV13 1827

Shipping Details
Method of Shipment: courier
On Ice: yes no 24102
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody and Marlon

Special Instructions:

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:	11/5/2013	Workorder:	N011378
Rep sample Temp (Deg C):	2.6	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 11/6/2013

Reviewed By:

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

06-Nov-13

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**SM4500-NH3C**		
N011378-001C / MW-27-020-194	Water	11/4/2013 10:47:00 AM	32OZP	1		
N011378-002C / MW-27-060-194	Water	11/4/2013 11:47:00 AM	32OZP	1		
N011378-003C / MW-27-085-194	Water	11/4/2013 12:47:00 PM	32OZP	1		
N011378-005C / MW-30-050-194	Water	11/4/2013 4:08:00 PM	32OZP	1		
N011378-010C / MW-28-025-194	Water	11/5/2013 8:35:00 AM	32OZP	1		
N011378-011C / MW-28-090-194	Water	11/5/2013 9:15:00 AM	32OZP	1		
N011378-012C / MW-29-194	Water	11/5/2013 10:50:00 AM	32OZP	1		
N011378-014C / MW-42-055-194	Water	11/5/2013 1:52:00 PM	32OZP	1		
N011378-015C / MW-42-065-194	Water	11/5/2013 2:34:00 PM	32OZP	1		
N011378-016C / MW-72BR-200-194	Water	11/5/2013 11:55:00 AM	32OZP	1		
N011378-017C / MW-91-194	Water	11/5/2013 8:00:00 AM	32OZP	1		
N011378-018C / MW-99-194	Water	11/5/2013 8:47:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N011378 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by: Normal TAT

Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

		Date/Time			Date/Time
Relinquished by:	Hanah Glodoviza	11/6/2013 17:00	**Received by:**		
Relinquished by:			**Received by:**		

Sample ID: **N011378-001B @ pH 7.65**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.5mL)

= **0.02174 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 $CaCO_3$), mg/L = (6.90) (0.02174 N) (1) * 1000

= 150.006 **mg/L**

Reporting results in two significant figures,

11/9/2013

150
= ~~1~~5 **mg/L** as CaCO3

11/21/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02174 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (6.90 mL) (0.02174) (1) * 1000

= 150.006 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	OH Alkalinity as $CaCO_3$	CO_3 Alkalinity as $CaCO_3$	HCO_3 Alkalinity as $CaCO_3$
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 150.006 **mg/L**

Reporting results in two significant figures,

11/9/2013

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = ~~15~~ 150 **mg/L**

11/21/2013

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 **N011378-007B** concentration in mg/L is calculated as follows:

Chloride, mg/L = 4.898 * 1000

= 4898

Reporting result in two significant figures,

Chloride, mg/L = 4900

Nancy 11/19/2013

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Iron concentration, in µg/L, in the original sample as follows:

Iron, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011378-006A**, the concentration in µg/L is calculated as follows:

Iron, µg/L = 0.036646757 * 1 * (25/25) * 1000

= 36.646757

Reporting results in two significant figures,

Iron, µg/L = 37

11/21/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011378
Test Method: EPA 6010
Analysis Date: 11/15/13

Matrix: Water
Batch No.: 44328

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011378-002A-DT 25X	Sodium	ug/L	109866.06430	PASSED	106027.5298	3.62%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011378
Test Method: EPA 6010
Analysis Date: 11/18/13

Matrix: Water
Batch No.: 44328

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for Fe. The calculated concentration was< 25X the RL. However the PS @2X passed criteria.
Dilution Test of Ca failed.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011378-001A-DT 5X	Calcium	ug/L	80966.357700	FAILED	73182.377120	10.64%	10
N011378-001A-DT 5X	Iron	ug/L	78.992183350	NA	94.092378320	16.05%	10
N011378-001A-DT 5X	Magnesium	ug/L	24117.738970	PASSED	22633.626410	6.56%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *19-Nov-13*

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011378-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	153462.685	2500	50000	~~0~~ 106027	~~307~~ 94.9	80	120				~~S~~

Sample ID: **N011378-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91246**
Client ID: **ZZZZZZ** Batch ID: **44328** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/18/2013** SeqNo: **1687444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	87109.850	1000	5000	73180	279	80	120				S
Iron	4698.014	40	5000	94.09	92.1	80	120				
Magnesium	28620.438	200	5000	22630	120	80	120				

Harvey 11/21/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 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 **N011378-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.31187488934858 * 1 * (25/25)

= 1.31187488934858

Reporting results in two significant figures,

Arsenic, ug/L = 1.3

11/21/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N011378
Test Method: EPA 6020
Analysis Date: 11/12/13

Matrix: Water
Batch No.: 44299

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 are <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011378-001A-DT 5X	Arsenic	µg/L	1.456278232	NA	1.311874889	11.01%	10
N011378-001A-DT 25X	Manganese	µg/L	97.39418045	PASS	94.87404497	2.66%	10
N011378-001A-DT 5X	Molybdenum	µg/L	5.360094243	NA	5.452156033	1.69%	10
N011378-001A-DT 5X	Selenium	µg/L	0	NA	0.131875238	100.00%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *15-Nov-13*

CLIENT: CH2M HILL
Work Order: N011378
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011378-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91167**
Client ID: **ZZZZZZ** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.875	0.20	20.00	1.312	97.8	80	120				
Molybdenum	27.204	1.0	20.00	5.452	109	80	120				
Selenium	18.017	1.0	20.00	0.1319	89.4	80	120				

Sample ID: **N011378-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91167**
Client ID: **ZZZZZZ** Batch ID: **44299** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/12/2013** SeqNo: **1683403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	568.774	2.5	500.0	94.87	94.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

January 13, 2014

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011402

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 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.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

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.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 300.0:

Dilution was necessary on sample N011402-002 due to high Chloride concentration.

Analytical Comments for EPA 6010B_Dissolved:

Dilution was necessary on samples N011402-009, N011402-013 since plasma was extinguished when samples were analyzed at no dilution.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium and Sodium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011402-006, N011402-008, N011402-012, N011402-013, N011402-014, N011402-015 due to failed Internal Standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.

Date: *25-Nov-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011402
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011402-001A	MW-16-194	Water	11/6/2013 2:22:00 PM	11/7/2013	11/25/2013
N011402-001B	MW-16-194	Water	11/6/2013 2:22:00 PM	11/7/2013	11/25/2013
N011402-001C	MW-16-194	Water	11/6/2013 2:22:00 PM	11/7/2013	11/25/2013
N011402-002A	MW-32-035-194	Water	11/6/2013 4:51:00 PM	11/7/2013	11/25/2013
N011402-002B	MW-32-035-194	Water	11/6/2013 4:51:00 PM	11/7/2013	11/25/2013
N011402-002C	MW-32-035-194	Water	11/6/2013 4:51:00 PM	11/7/2013	11/25/2013
N011402-002D	MW-32-035-194	Water	11/6/2013 4:51:00 PM	11/7/2013	11/25/2013
N011402-003A	MW-37S-194	Water	11/6/2013 11:50:00 AM	11/7/2013	11/25/2013
N011402-003B	MW-37S-194	Water	11/6/2013 11:50:00 AM	11/7/2013	11/25/2013
N011402-003C	MW-37S-194	Water	11/6/2013 11:50:00 AM	11/7/2013	11/25/2013
N011402-004A	MW-43-025-194	Water	11/6/2013 8:23:00 AM	11/7/2013	11/25/2013
N011402-004B	MW-43-025-194	Water	11/6/2013 8:23:00 AM	11/7/2013	11/25/2013
N011402-004C	MW-43-025-194	Water	11/6/2013 8:23:00 AM	11/7/2013	11/25/2013
N011402-004D	MW-43-025-194	Water	11/6/2013 8:23:00 AM	11/7/2013	11/25/2013
N011402-005A	MW-43-075-194	Water	11/6/2013 9:17:00 AM	11/7/2013	11/25/2013
N011402-005B	MW-43-075-194	Water	11/6/2013 9:17:00 AM	11/7/2013	11/25/2013
N011402-005C	MW-43-075-194	Water	11/6/2013 9:17:00 AM	11/7/2013	11/25/2013
N011402-005D	MW-43-075-194	Water	11/6/2013 9:17:00 AM	11/7/2013	11/25/2013
N011402-006A	MW-43-090-194	Water	11/3/2013 9:56:00 AM	11/7/2013	11/25/2013
N011402-006B	MW-43-090-194	Water	11/3/2013 9:56:00 AM	11/7/2013	11/25/2013
N011402-006C	MW-43-090-194	Water	11/3/2013 9:56:00 AM	11/7/2013	11/25/2013
N011402-006D	MW-43-090-194	Water	11/3/2013 9:56:00 AM	11/7/2013	11/25/2013
N011402-007A	MW-48-194	Water	11/6/2013 3:05:00 PM	11/7/2013	11/25/2013
N011402-007B	MW-48-194	Water	11/6/2013 3:05:00 PM	11/7/2013	11/25/2013
N011402-007C	MW-48-194	Water	11/6/2013 3:05:00 PM	11/7/2013	11/25/2013
N011402-008A	MW-49-135-194	Water	11/6/2013 11:06:00 AM	11/7/2013	11/25/2013
N011402-008B	MW-49-135-194	Water	11/6/2013 11:06:00 AM	11/7/2013	11/25/2013
N011402-008C	MW-49-135-194	Water	11/6/2013 11:06:00 AM	11/7/2013	11/25/2013
N011402-008D	MW-49-135-194	Water	11/6/2013 11:06:00 AM	11/7/2013	11/25/2013

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011402
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011402-009A	MW-49-275-194	Water	11/6/2013 2:07:00 PM	11/7/2013	11/25/2013
N011402-009B	MW-49-275-194	Water	11/6/2013 2:07:00 PM	11/7/2013	11/25/2013
N011402-009C	MW-49-275-194	Water	11/6/2013 2:07:00 PM	11/7/2013	11/25/2013
N011402-009D	MW-49-275-194	Water	11/6/2013 2:07:00 PM	11/7/2013	11/25/2013
N011402-010A	MW-50-095-194	Water	11/6/2013 10:00:00 AM	11/7/2013	11/25/2013
N011402-010B	MW-50-095-194	Water	11/6/2013 10:00:00 AM	11/7/2013	11/25/2013
N011402-010C	MW-50-095-194	Water	11/6/2013 10:00:00 AM	11/7/2013	11/25/2013
N011402-010D	MW-50-095-194	Water	11/6/2013 10:00:00 AM	11/7/2013	11/25/2013
N011402-011A	TW-05-194	Water	11/6/2013 8:46:00 AM	11/7/2013	11/25/2013
N011402-011B	TW-05-194	Water	11/6/2013 8:46:00 AM	11/7/2013	11/25/2013
N011402-011C	TW-05-194	Water	11/6/2013 8:46:00 AM	11/7/2013	11/25/2013
N011402-012A	MW-31-135-194	Water	11/7/2013 3:45:00 PM	11/7/2013	11/25/2013
N011402-012B	MW-31-135-194	Water	11/7/2013 3:45:00 PM	11/7/2013	11/25/2013
N011402-012C	MW-31-135-194	Water	11/7/2013 3:45:00 PM	11/7/2013	11/25/2013
N011402-012D	MW-31-135-194	Water	11/7/2013 3:45:00 PM	11/7/2013	11/25/2013
N011402-013A	MW-49-365-194	Water	11/7/2013 10:04:00 AM	11/7/2013	11/25/2013
N011402-013B	MW-49-365-194	Water	11/7/2013 10:04:00 AM	11/7/2013	11/25/2013
N011402-013C	MW-49-365-194	Water	11/7/2013 10:04:00 AM	11/7/2013	11/25/2013
N011402-013D	MW-49-365-194	Water	11/7/2013 10:04:00 AM	11/7/2013	11/25/2013
N011402-014A	MW-57-185-194	Water	11/7/2013 11:08:00 AM	11/7/2013	11/25/2013
N011402-014B	MW-57-185-194	Water	11/7/2013 11:08:00 AM	11/7/2013	11/25/2013
N011402-014C	MW-57-185-194	Water	11/7/2013 11:08:00 AM	11/7/2013	11/25/2013
N011402-014D	MW-57-185-194	Water	11/7/2013 11:08:00 AM	11/7/2013	11/25/2013
N011402-015A	MW-97-194	Water	11/7/2013 7:35:00 AM	11/7/2013	11/25/2013
N011402-015B	MW-97-194	Water	11/7/2013 7:35:00 AM	11/7/2013	11/25/2013
N011402-015C	MW-97-194	Water	11/7/2013 7:35:00 AM	11/7/2013	11/25/2013
N011402-015D	MW-97-194	Water	11/7/2013 7:35:00 AM	11/7/2013	11/25/2013

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-16-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	920	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-035-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 4:51:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37S-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	5000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-025-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 9:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	9700	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-194
Lab Order:	N011402	**Collection Date:**	11/3/2013 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-48-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 3:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-135-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	24000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-095-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	4800	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-05-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-135-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 3:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-365-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	40000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-97-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 7:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131108F**	QC Batch: **R91095**			PrepDate:			Analyst: **LCC**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	11/8/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011402-001B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91095**
Client ID: **ZZZZZZ** Batch ID: **R91095** TestNo: **EPA 120.1** Analysis Date: **11/8/2013** SeqNo: **1679324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	920.000	0.10						922.0	0.217	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-035-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 4:51:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131111A**	QC Batch: **44347**			PrepDate:	**11/11/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	8300	100	100		mg/L	1	11/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-44347** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/11/2013** RunNo: **91144**
Client ID: **PBW** Batch ID: **44347** TestNo: **SM2540C** Analysis Date: **11/11/2013** SeqNo: **1682074**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **LCS-44347** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/11/2013** RunNo: **91144**
Client ID: **LCSW** Batch ID: **44347** TestNo: **SM2540C** Analysis Date: **11/11/2013** SeqNo: **1682075**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	972.000	10	1000	0	97.2	80	120				

Sample ID: **N011384-014C-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/11/2013** RunNo: **91144**
Client ID: **ZZZZZZ** Batch ID: **44347** TestNo: **SM2540C** Analysis Date: **11/11/2013** SeqNo: **1682077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	783.000	10						788.0	0.637	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-16-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	100	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	100	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-035-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 4:51:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	580	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	580	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37S-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	53	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	53	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-025-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	220	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 9:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	600	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	600	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-194
Lab Order:	N011402	**Collection Date:**	11/3/2013 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	320	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	320	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-48-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 3:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	28	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	28	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-135-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	62	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	62	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	34	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	34	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-095-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	58	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	58	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-05-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	36	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	36	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-135-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 3:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	34	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	34	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-365-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	32	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	32	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Lab Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011402-014

Client Sample ID: MW-57-185-194
Collection Date: 11/7/2013 11:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	53	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	53	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-97-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 7:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131109A**	QC Batch: **R91099**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	41	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2013
Alkalinity, Total (As CaCO3)	41	1.2	5.0		mg/L	1	11/9/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91099** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91099**
Client ID: **LCSW** Batch ID: **R91099** TestNo: **SM 2320 B** Analysis Date: **11/9/2013** SeqNo: **1679446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	98.291	5.0	100.0	0	98.3	85	115				
Alkalinity, Total (As CaCO3)	102.564	5.0	100.0	0	103	85	115				

Sample ID: **MB-R91099** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91099**
Client ID: **PBW** Batch ID: **R91099** TestNo: **SM 2320 B** Analysis Date: **11/9/2013** SeqNo: **1679447**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.137	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.137	5.0									

Sample ID: **N011402-001C-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91099**
Client ID: **ZZZZZZ** Batch ID: **R91099** TestNo: **SM 2320 B** Analysis Date: **11/9/2013** SeqNo: **1679449**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	100.427	5.0						100.4	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)	100.427	5.0						100.4	0	30	

Sample ID: **N011402-003C-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91099**
Client ID: **ZZZZZZ** Batch ID: **R91099** TestNo: **SM 2320 B** Analysis Date: **11/9/2013** SeqNo: **1679452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	149.573	5.0	100.0	53.42	96.2	75	125				
Alkalinity, Total (As CaCO3)	149.573	5.0	100.0	53.42	96.2	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011402-003C-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91099**
Client ID: **ZZZZZZ** Batch ID: **R91099** TestNo: **SM 2320 B** Analysis Date: **11/9/2013** SeqNo: **1679453**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	149.573	5.0	100.0	53.42	96.2	75	125	149.6	0	20	
Alkalinity, Total (As CaCO3)	149.573	5.0	100.0	53.42	96.2	75	125	149.6	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-16-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	180	1.3	25		mg/L	50	11/14/2013 06:57 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	120	0.76	10		mg/L	20	11/14/2013 08:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT: CH2M HILL
Lab Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011402-002

Client Sample ID: MW-32-035-194
Collection Date: 11/6/2013 4:51:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Bromide	ND	0.16	2.5		mg/L	5	11/14/2013 09:04 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	3500	26	500		mg/L	1000	11/14/2013 08:38 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	1600	7.6	100		mg/L	200	11/14/2013 08:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37S-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	1500	13	250		mg/L	500	11/14/2013 10:19 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	260	1.9	25		mg/L	50	11/14/2013 10:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-025-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	100	0.52	10		mg/L	20	11/14/2013 11:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	270	1.9	25		mg/L	50	11/14/2013 11:35 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 9:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	2500	26	500		mg/L	1000	11/15/2013 12:25 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	1500	7.6	100		mg/L	200	11/15/2013 12:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-194
Lab Order:	N011402	**Collection Date:**	11/3/2013 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	5200	26	500		mg/L	1000	11/15/2013 12:51 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	1600	7.6	100		mg/L	200	11/15/2013 01:03 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-48-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 3:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	6000	26	500		mg/L	1000	11/15/2013 01:16 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	550	3.8	50		mg/L	100	11/15/2013 01:29 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-135-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	4100	26	500		mg/L	1000	11/15/2013 01:41 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	750	3.8	50		mg/L	100	11/15/2013 01:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Chloride	8100	52	1000		mg/L	2000	11/15/2013 02:07 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131114B** QC Batch: **R91244** PrepDate: Analyst: **QBM**							
Sulfate	1300	7.6	100		mg/L	200	11/15/2013 02:19 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT: CH2M HILL
Lab Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011402-010

Client Sample ID: MW-50-095-194
Collection Date: 11/6/2013 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Chloride	1400	13	250		mg/L	500	11/15/2013 01:14 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Sulfate	260	1.9	25		mg/L	50	11/15/2013 01:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit

Results are wet unless otherwise specified

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-05-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Chloride	4400	26	500		mg/L	1000	11/15/2013 01:39 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Sulfate	510	3.8	50		mg/L	100	11/15/2013 01:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-135-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 3:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Chloride	3600	26	500		mg/L	1000	11/15/2013 02:04 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Sulfate	470	3.8	50		mg/L	100	11/15/2013 02:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-365-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Chloride	14000	52	1000		mg/L	2000	11/15/2013 02:29 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Sulfate	1100	7.6	100		mg/L	200	11/15/2013 02:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Chloride	6100	52	1000		mg/L	2000	11/15/2013 02:55 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Sulfate	720	3.8	50		mg/L	100	11/15/2013 03:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-97-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 7:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Chloride	5700	26	500		mg/L	1000	11/15/2013 03:45 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131115A** QC Batch: **R91225** PrepDate: Analyst: **QBM**							
Sulfate	710	3.8	50		mg/L	100	11/15/2013 03:58 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **LCS-R91244_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **LCSW** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.455	0.50	2.500	0	98.2	90	110				

Sample ID: **MB-R91244_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **PBW** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **N011402-002BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.005	2.5						1.025	0	20	

Sample ID: **N011402-002BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	11.890	2.5	12.50	1.025	86.9	80	120				

Sample ID: **N011402-002BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	11.975	2.5	12.50	1.025	87.6	80	120	11.89	0.712	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91225_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **PBW** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91225_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **LCSW** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.352	0.50	2.500	0	94.1	90	110				

Sample ID: **N011402-010BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **ZZZZZZ** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2654.500	250	1250	1432	97.8	80	120				

Sample ID: **N011402-010BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **ZZZZZZ** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2623.500	250	1250	1432	95.3	80	120	2654	1.17	20	

Sample ID: **N011402-011BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **ZZZZZZ** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4334.000	500						4378	1.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R91244_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **LCSW** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.378	0.50	2.500	0	95.1	90	110				

Sample ID: **MB-R91244_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **PBW** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **N011402-001BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	295.350	25	125.0	177.0	94.7	80	120				

Sample ID: **N011402-001BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	298.350	25	125.0	177.0	97.1	80	120	295.4	1.01	20	

Sample ID: **N011402-003BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1508.500	250						1537	1.87	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011402-003BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2738.000	250	1250	1537	96.1	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91225_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **PBW** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91225_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **LCSW** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.918	0.50	5.000	0	98.4	90	110				

Sample ID: **N011402-010BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **ZZZZZZ** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	505.950	25	250.0	261.3	97.9	80	120				

Sample ID: **N011402-010BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **ZZZZZZ** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	503.400	25	250.0	261.3	96.8	80	120	506.0	0.505	20	

Sample ID: **N011402-011BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91225**
Client ID: **ZZZZZZ** Batch ID: **R91225** TestNo: **EPA 300.0** Analysis Date: **11/15/2013** SeqNo: **1686752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	505.100	50						507.5	0.474	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R91244_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **LCSW** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.768	0.50	5.000	0	95.4	90	110				

Sample ID: **MB-R91244_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **PBW** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **N011402-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	216.760	10	100.0	121.1	95.6	80	120				

Sample ID: **N011402-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	221.360	10	100.0	121.1	100	80	120	216.8	2.10	20	

Sample ID: **N011402-003BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	262.500	25						256.1	2.47	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011402-003BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91244**
Client ID: **ZZZZZZ** Batch ID: **R91244** TestNo: **EPA 300.0** Analysis Date: **11/14/2013** SeqNo: **1687305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	507.850	25	250.0	256.1	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-16-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Aluminum	ND	6.2	50		ug/L	1	11/14/2013 01:53 PM
Calcium	26000	58	500		ug/L	1	11/14/2013 01:53 PM
Iron	ND	1.3	20		ug/L	1	11/14/2013 01:53 PM
Magnesium	4800	11	100		ug/L	1	11/14/2013 01:53 PM
Potassium	4300	16	2500		ug/L	5	11/15/2013 04:23 PM
Sodium	220000	1800	12000		ug/L	25	11/15/2013 04:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-035-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 4:51:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **CEI**
Calcium	450000	580	5000		ug/L	10	11/20/2013 09:43 PM
Iron	10000	1.3	20		ug/L	1	11/14/2013 01:58 PM
Magnesium	210000	11	100		ug/L	1	11/14/2013 01:58 PM
Potassium	23000	16	2500		ug/L	5	11/15/2013 04:51 PM
Sodium	2500000	9100	62000		ug/L	125	11/15/2013 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37S-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	170000	58	500		ug/L	1	11/14/2013 02:04 PM
Iron	ND	1.3	20		ug/L	1	11/14/2013 02:04 PM
Magnesium	22000	11	100		ug/L	1	11/14/2013 02:04 PM
Sodium	1000000	9100	62000		ug/L	125	11/15/2013 06:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-025-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	99000	58	500		ug/L	1	11/14/2013 02:09 PM
Iron	3200	1.3	20		ug/L	1	11/14/2013 02:09 PM
Magnesium	44000	11	100		ug/L	1	11/14/2013 02:09 PM
Sodium	110000	370	2500		ug/L	5	11/15/2013 05:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 9:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **CEI**
Calcium	470000	580	5000		ug/L	10	11/20/2013 09:46 PM
Iron	5000	1.3	20		ug/L	1	11/14/2013 02:13 PM
Magnesium	97000	11	100		ug/L	1	11/14/2013 02:13 PM
Sodium	2000000	9100	62000		ug/L	125	11/15/2013 06:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-194
Lab Order:	N011402	**Collection Date:**	11/3/2013 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **CEI**
Calcium	600000	580	5000		ug/L	10	11/20/2013 09:50 PM
Iron	2800	1.3	20		ug/L	1	11/14/2013 02:19 PM
Magnesium	210000	11	100		ug/L	1	11/14/2013 02:19 PM
Sodium	3300000	9100	62000		ug/L	125	11/15/2013 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-48-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 3:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	380000	58	500		ug/L	1	11/14/2013 02:25 PM
Iron	ND	1.3	20		ug/L	1	11/14/2013 02:25 PM
Magnesium	31000	11	100		ug/L	1	11/14/2013 02:25 PM
Sodium	3600000	9100	62000		ug/L	125	11/15/2013 06:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-135-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	340000	58	500		ug/L	1	11/14/2013 02:30 PM
Iron	510	1.3	20		ug/L	1	11/14/2013 02:30 PM
Magnesium	31000	11	100		ug/L	1	11/14/2013 02:30 PM
Sodium	2500000	9100	62000		ug/L	125	11/15/2013 06:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	260000	290	2500		ug/L	5	11/14/2013 02:49 PM
Iron	ND	6.7	100		ug/L	5	11/14/2013 02:49 PM
Magnesium	6900	56	500		ug/L	5	11/14/2013 02:49 PM
Sodium	6000000	46000	310000		ug/L	625	11/15/2013 06:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-095-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	130000	58	500		ug/L	1	11/14/2013 03:00 PM
Iron	ND	1.3	20		ug/L	1	11/14/2013 03:00 PM
Magnesium	14000	11	100		ug/L	1	11/14/2013 03:00 PM
Sodium	960000	9100	62000		ug/L	125	11/15/2013 07:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-05-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	400000	58	500		ug/L	1	11/14/2013 03:05 PM
Iron	ND	1.3	20		ug/L	1	11/14/2013 03:05 PM
Magnesium	24000	11	100		ug/L	1	11/14/2013 03:05 PM
Sodium	2700000	9100	62000		ug/L	125	11/15/2013 07:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-135-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 3:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	350000	58	500		ug/L	1	11/14/2013 03:10 PM
Iron	ND	1.3	20		ug/L	1	11/14/2013 03:10 PM
Magnesium	22000	11	100		ug/L	1	11/14/2013 03:10 PM
Sodium	2300000	9100	62000		ug/L	125	11/15/2013 07:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-365-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	410000	290	2500		ug/L	5	11/14/2013 03:22 PM
Iron	120	6.7	100		ug/L	5	11/14/2013 03:22 PM
Magnesium	9800	56	500		ug/L	5	11/14/2013 03:22 PM
Sodium	7500000	46000	310000		ug/L	625	11/15/2013 07:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	350000	58	500		ug/L	1	11/14/2013 03:27 PM
Iron	ND	1.3	20		ug/L	1	11/14/2013 03:27 PM
Magnesium	3300	11	100		ug/L	1	11/14/2013 03:27 PM
Sodium	3900000	9100	62000		ug/L	125	11/15/2013 07:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-97-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 7:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131114C**	QC Batch: **44341**			PrepDate:	**11/11/2013**		Analyst: **JAA**
Calcium	370000	58	500		ug/L	1	11/14/2013 03:32 PM
Iron	ND	1.3	20		ug/L	1	11/14/2013 03:32 PM
Magnesium	3400	11	100		ug/L	1	11/14/2013 03:32 PM
Sodium	4000000	9100	62000		ug/L	125	11/15/2013 07:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44341** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91218**
Client ID: **PBW** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2013** SeqNo: **1686353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	50									
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **N011392-001B-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91218**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2013** SeqNo: **1686358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9891.290	50	10000	0	98.9	75	125				
Calcium	90672.247	500	10000	75060	156	75	125				S
Iron	124.459	20	100.0	6.349	118	75	125				
Magnesium	22365.271	100	10000	11770	106	75	125				

Sample ID: **N011392-001B-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91218**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2013** SeqNo: **1686359**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10092.899	50	10000	0	101	75	125	9891	2.02	20	
Calcium	88702.773	500	10000	75060	136	75	125	90670	2.20	20	S
Iron	127.265	20	100.0	6.349	121	75	125	124.5	2.23	20	
Magnesium	22331.643	100	10000	11770	106	75	125	22370	0.150	20	

Sample ID: **LCS-44341** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91218**
Client ID: **LCSW** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2013** SeqNo: **1686392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9963.406	50	10000	0	99.6	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-44341** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91218**
Client ID: **LCSW** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2013** SeqNo: **1686392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9554.620	500	10000	0	95.5	85	115				
Iron	113.597	20	100.0	0	114	85	115				
Magnesium	10360.108	100	10000	0	104	85	115				

Sample ID: **MB-44341** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91245**
Client ID: **PBW** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	500									
Sodium	ND	500									

Sample ID: **N011402-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	29095.203	2500	20000	4258	124	75	125				

Sample ID: **N011402-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	216250.470	12000	20000	218200	-9.93	75	125				S

Sample ID: **N011402-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	28442.518	2500	20000	4258	121	75	125	29100	2.27	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011402-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	225184.935	12000	20000	218200	34.7	75	125	216300	4.05	20	S

Sample ID: **LCS2-44341** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/11/2013** RunNo: **91245**
Client ID: **LCSW** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	19050.380	500	20000	0	95.3	85	115				
Sodium	18338.431	500	20000	0	91.7	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Jan-14*

CLIENT: CH2M HILL
Lab Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011402-001

Client Sample ID: MW-16-194
Collection Date: 11/6/2013 2:22:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:		**11/8/2013**	Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	11/19/2013 10:34 AM
Arsenic	9.1	0.027	0.10		µg/L	1	11/19/2013 10:34 AM
Barium	27	0.030	1.0		µg/L	1	11/19/2013 10:34 AM
Beryllium	ND	0.010	0.50		µg/L	1	11/21/2013 12:41 PM
Boron	260	2.7	50		µg/L	1	11/21/2013 12:41 PM
Cadmium	ND	0.013	0.50		µg/L	1	11/21/2013 12:41 PM
Cobalt	ND	0.017	0.50		µg/L	1	11/19/2013 10:34 AM
Copper	ND	0.040	1.0		µg/L	1	11/21/2013 12:41 PM
Lead	ND	0.011	1.0		µg/L	1	11/19/2013 10:34 AM
Manganese	ND	0.026	0.50		µg/L	1	11/19/2013 10:34 AM
Molybdenum	12	0.15	0.50		µg/L	1	11/19/2013 10:34 AM
Nickel	1.7	0.032	1.0		µg/L	1	11/19/2013 10:34 AM
Selenium	1.5	0.069	0.50		µg/L	1	11/19/2013 10:34 AM
Silver	ND	0.094	0.50		µg/L	1	11/19/2013 10:34 AM
Thallium	ND	0.0080	0.50		µg/L	1	11/19/2013 10:34 AM
Vanadium	30	0.16	1.0		µg/L	1	11/19/2013 10:34 AM
Zinc	ND	0.23	10		µg/L	1	11/19/2013 10:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-035-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 4:51:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Arsenic	23	0.027	0.10		µg/L	1	11/19/2013 11:07 AM
Boron	1200	14	250		µg/L	5	11/21/2013 01:08 PM
Manganese	1100	0.64	12		µg/L	25	11/21/2013 01:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37S-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Arsenic	1.6	0.027	0.10		µg/L	1	11/19/2013 12:26 PM
Manganese	ND	0.026	0.50		µg/L	1	11/19/2013 12:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-025-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:		**11/8/2013**	Analyst: **CEI**
Arsenic	19	0.027	0.10		µg/L	1	11/19/2013 12:38 PM
Manganese	250	0.13	2.5		µg/L	5	11/19/2013 12:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 9:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:		**11/8/2013**	Analyst: **CEI**
Arsenic	12	0.027	0.10		µg/L	1	11/19/2013 12:49 PM
Manganese	640	0.13	2.5		µg/L	5	11/19/2013 12:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-194
Lab Order:	N011402	**Collection Date:**	11/3/2013 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Arsenic	3.1	0.13	0.50		µg/L	5	11/19/2013 12:54 PM
Manganese	820	0.13	2.5		µg/L	5	11/19/2013 12:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-48-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 3:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/19/2013 01:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-135-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 11:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Arsenic	1.9	0.13	0.50		µg/L	5	11/19/2013 01:16 PM
Manganese	260	0.13	2.5		µg/L	5	11/19/2013 01:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Manganese	170	0.13	2.5		µg/L	5	11/19/2013 01:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-095-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/19/2013 01:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-05-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 8:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/19/2013 02:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-135-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 3:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:		**11/8/2013**	Analyst: **CEI**
Arsenic	3.4	0.027	0.10		µg/L	1	11/19/2013 02:17 PM
Manganese	ND	0.026	0.50		µg/L	1	11/19/2013 02:17 PM
Molybdenum	28	0.76	2.5		µg/L	5	11/19/2013 02:12 PM
Selenium	ND	0.34	2.5		µg/L	5	11/19/2013 02:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-365-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:	**11/8/2013**		Analyst: **CEI**
Manganese	ND	0.13	2.5		µg/L	5	11/19/2013 02:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:		**11/8/2013**	Analyst: **CEI**
Arsenic	14	0.67	2.5		µg/L	25	11/19/2013 03:37 PM
Manganese	250	0.64	12		µg/L	25	11/19/2013 03:37 PM
Molybdenum	81	3.8	12		µg/L	25	11/19/2013 03:37 PM
Selenium	ND	1.7	12		µg/L	25	11/19/2013 03:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-97-194
Lab Order:	N011402	**Collection Date:**	11/7/2013 7:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131119A**	QC Batch: **44337**			PrepDate:		**11/8/2013**	Analyst: **CEI**
Arsenic	14	0.13	0.50		µg/L	5	11/19/2013 02:56 PM
Manganese	220	0.13	2.5		µg/L	5	11/19/2013 02:56 PM
Molybdenum	85	0.76	2.5		µg/L	5	11/19/2013 02:56 PM
Selenium	ND	0.34	2.5		µg/L	5	11/19/2013 02:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

Date: *13-Jan-14*

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44337** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91336**
Client ID: **PBW** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/19/2013** SeqNo: **1689178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Vanadium	0.421	1.0									
Zinc	ND	10									

Sample ID: **LCS-44337** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91336**
Client ID: **LCSW** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/19/2013** SeqNo: **1689179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.687	0.50	10.00	0	107	85	115				
Arsenic	9.986	0.10	10.00	0	99.9	85	115				
Barium	102.771	1.0	100.0	0	103	85	115				
Cobalt	10.206	0.50	10.00	0	102	85	115				
Lead	10.970	1.0	10.00	0	110	85	115				
Manganese	98.654	0.50	100.0	0	98.7	85	115				
Molybdenum	9.851	0.50	10.00	0	98.5	85	115				
Nickel	10.031	1.0	10.00	0	100	85	115				
Selenium	9.567	0.50	10.00	0	95.7	85	115				
Silver	10.257	0.50	10.00	0	103	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-44337** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91336**
Client ID: **LCSW** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/19/2013** SeqNo: **1689179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	10.599	0.50	10.00	0	106	85	115				
Vanadium	9.790	1.0	10.00	0	97.9	85	115				
Zinc	99.943	10	100.0	0	99.9	85	115				

Sample ID: **N011402-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91336**
Client ID: **ZZZZZZ** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/19/2013** SeqNo: **1689183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.599	0.50	10.00	0	106	75	125				
Arsenic	18.540	0.10	10.00	9.068	94.7	75	125				
Barium	124.788	1.0	100.0	26.65	98.1	75	125				
Cobalt	9.321	0.50	10.00	0	93.2	75	125				
Lead	10.801	1.0	10.00	0	108	75	125				
Manganese	86.651	0.50	100.0	0	86.7	75	125				
Molybdenum	22.247	0.50	10.00	11.63	106	75	125				
Nickel	10.917	1.0	10.00	1.696	92.2	75	125				
Selenium	9.640	0.50	10.00	1.477	81.6	75	125				
Silver	9.259	0.50	10.00	0	92.6	75	125				
Thallium	10.869	0.50	10.00	0.1157	108	75	125				
Vanadium	41.198	1.0	10.00	30.44	108	75	125				
Zinc	85.923	10	100.0	1.191	84.7	75	125				

Sample ID: **N011402-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91336**
Client ID: **ZZZZZZ** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/19/2013** SeqNo: **1689184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.657	0.50	10.00	0	107	75	125	10.60	0.551	20	
Arsenic	18.339	0.10	10.00	9.068	92.7	75	125	18.54	1.09	20	
Barium	124.926	1.0	100.0	26.65	98.3	75	125	124.8	0.111	20	
Cobalt	9.263	0.50	10.00	0	92.6	75	125	9.321	0.623	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011402-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91336**
Client ID: **ZZZZZZ** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/19/2013** SeqNo: **1689184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.865	1.0	10.00	0	109	75	125	10.80	0.587	20	
Manganese	86.586	0.50	100.0	0	86.6	75	125	86.65	0.0749	20	
Molybdenum	21.986	0.50	10.00	11.63	104	75	125	22.25	1.18	20	
Nickel	10.794	1.0	10.00	1.696	91.0	75	125	10.92	1.13	20	
Selenium	9.579	0.50	10.00	1.477	81.0	75	125	9.640	0.637	20	
Silver	9.351	0.50	10.00	0	93.5	75	125	9.259	0.996	20	
Thallium	10.974	0.50	10.00	0.1157	109	75	125	10.87	0.963	20	
Vanadium	40.070	1.0	10.00	30.44	96.3	75	125	41.20	2.77	20	
Zinc	86.461	10	100.0	1.191	85.3	75	125	85.92	0.624	20	

Sample ID: **MB-44337** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91363**
Client ID: **PBW** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	ND	0.50									
Boron	2.940	50									
Cadmium	ND	0.50									
Copper	ND	1.0									

Sample ID: **LCS-44337** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91363**
Client ID: **LCSW** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	9.305	0.50	10.00	0	93.1	85	115				
Boron	967.369	50	1000	0	96.7	85	115				
Cadmium	10.711	0.50	10.00	0	107	85	115				
Copper	10.475	1.0	10.00	0	105	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011402-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91363**
Client ID: **ZZZZZZ** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	8.892	0.50	10.00	0	88.9	75	125				
Boron	1110.797	50	1000	258.7	85.2	75	125				
Cadmium	9.594	0.50	10.00	0	95.9	75	125				
Copper	8.376	1.0	10.00	0	83.8	75	125				

Sample ID: **N011402-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/8/2013** RunNo: **91363**
Client ID: **ZZZZZZ** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	9.065	0.50	10.00	0	90.7	75	125	8.892	1.93	20	
Boron	1109.936	50	1000	258.7	85.1	75	125	1111	0.0776	20	
Cadmium	9.581	0.50	10.00	0	95.8	75	125	9.594	0.131	20	
Copper	8.833	1.0	10.00	0	88.3	75	125	8.376	5.31	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *25-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-16-194
Lab Order:	N011402	**Collection Date:**	11/6/2013 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011402-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_131112D**	QC Batch: **44355**			PrepDate: **11/12/2013**			Analyst: **LCC**
Mercury	ND	0.038	0.20		µg/L	1	11/12/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **LCS-44355** SampType: **LCS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/12/2013** RunNo: **91143**
Client ID: **LCSW** Batch ID: **44355** TestNo: **EPA 7470A** Analysis Date: **11/12/2013** SeqNo: **1682000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.576	0.20	5.000	0	112	85	115				

Sample ID: **MB-44355** SampType: **MBLK** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/12/2013** RunNo: **91143**
Client ID: **PBW** Batch ID: **44355** TestNo: **EPA 7470A** Analysis Date: **11/12/2013** SeqNo: **1682003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **N011402-001A-MS** SampType: **MS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/12/2013** RunNo: **91143**
Client ID: **ZZZZZZ** Batch ID: **44355** TestNo: **EPA 7470A** Analysis Date: **11/12/2013** SeqNo: **1682005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.433	0.20	5.000	0	109	75	125				

Sample ID: **N011402-001A-MSD** SampType: **MSD** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/12/2013** RunNo: **91143**
Client ID: **ZZZZZZ** Batch ID: **44355** TestNo: **EPA 7470A** Analysis Date: **11/12/2013** SeqNo: **1682006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.455	0.20	5.000	0	109	75	125	5.433	0.406	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/7/2013
COC Number: 8

				Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF BKG metals:See list	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	7	7	28			
	DATE	TIME	Matrix														
MW-16-194	11/6/2013	14:22	Water		X					X	X		X		N011402-1	~~4~~	3
MW-32-035-194	11/6/2013	16:51	Water	X		X			X		X	X	X	X	-2	~~7~~	4
MW-37S-194	11/6/2013	11:50	Water	X			X			X	X		X		-3	~~5~~	3
MW-43-025-194	11/6/2013	8:23	Water	X			X			X	X		X	X	-4	~~6~~	4
MW-43-075-194	11/6/2013	9:17	Water	X			X			X	X		X	X	-5	~~6~~	4
MW-43-090-194	11/6/2013	9:56	Water	X			X			X	X		X	X	-6	~~6~~	4
MW-48-194	11/6/2013	15:05	Water				X			X	X		X		-7	~~4~~	3
MW-49-135-194	11/6/2013	11:06	Water	X			X			X	X		X	X	-8	~~6~~	4
MW-49-275-194	11/6/2013	14:07	Water				X			X	X		X	X	-9	~~5~~	4
MW-50-095-194	11/6/2013	10:00	Water				X			X	X		X	X	-10	~~5~~	4
TW-05-194	11/6/2013	8:46	Water				X			X	X		X		-11	~~4~~	3
MW-31-135-194	11/7/2013	15:45	Water	X			X	X		X	X		X	X	-12	~~9~~	4
MW-49-365-194	11/7/2013	10:04	Water				X			X	X		X	X	-13	~~5~~	4
MW-57-185-194	11/7/2013	11:08	Water	X			X	X		X	X		X	X	-14	~~8~~	4

	Signatures	Date/Time
Approved by		11-7-13
Sampled by		1605
Relinquished by		
Received by		07NOV13 1605
Relinquished by		07NOV13 1911
Received by		07NOV13 1911

Shipping Details
Method of Shipment: courier
On Ice: yes / no 4.2, 3.2, 2.2, 1.2
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

104

52

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/7/2013
COC Number: 8

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF BKG metals:See list	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-97-194	11/7/2013	7:35	Water	X			X	X		X	X		X	X	N011402 - 15	~~8~~ 4	
															TOTAL NUMBER OF CONTAINERS		

	Signatures	Date/Time
Approved by		11-7-13 1605
Sampled by		
Relinquished by		
Received by		07NOV13 1605
Relinquished by		07NOV13 1911
Received by		07NOV13 1911

Shipping Details
Method of Shipment: courier
On Ice: (Yes) No 4.2, 3.2, 2.2, 1.2
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

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:	11/7/2013	Workorder:	N011402
Rep sample Temp (Deg C):	4.2, 3.2, 2.2	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: MBC for: 11/8/2013

Reviewed By:

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N011402-002B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(60.7622-60.6788)*1000000}{10}$$
$$= 8340.00 \text{ mg/L}$$

Reporting result in two significant figures,

8300
TDS = 830 mg/L

11/12/2013

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 11/11/2013								TDS/CONDUCTIVITY
Date Finished: 11/12/2013	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-44347	100	61.5675	61.5676	1	1	1.00		
LCS-44347	100	60.4522	60.5494	972	1	972.00		
N011384-014C	100	60.3557	60.4345	788	1	788.00	1178	0.67
N011384-014C-DUP	100	60.3383	60.4166	783	1	783.00	1178	0.66
N011384-015C	100	60.8471	60.9213	742	1	742.00	1309	0.57
N011384-016C	100	60.9954	61.0786	832	1	832.00	1210	0.69
N011384-031C	100	61.2232	61.2536	304	1	304.00	422	0.72
N011384-032C	100	63.0045	63.0336	291	1	291.00	362	0.80
N011384-033C	100	60.7871	60.8188	317	1	317.00	395	0.80
N011393-001C	100	59.914	59.968	540	1	540.00	692	0.78
N011394-001C	100	61.0303	61.0685	382	1	382.00	487	0.78
N011394-002C	100	62.2839	62.3241	402	1	402.00	524	0.77
N011394-003C	100	60.7357	60.7771	414	1	414.00	564	0.73
N011394-004C	100	64.2638	64.3082	444	1	444.00	556	0.80
N011394-007C	100	60.5491	60.5804	313	1	313.00	441	0.71
N011394-008C	100	61.135	61.179	440	1	440.00	616	0.71
N011394-009C	100	58.2905	58.3359	454	1	454.00	565	0.80
N011394-012C	100	61.687	61.7278	408	1	408.00	570	0.72
N011394-013C	100	60.9239	60.974	501	1	501.00	753	0.67
N011394-014C	100	60.0011	60.0531	520	1	520.00	695	0.75
N011402-002B	10	60.6788	60.7622	834	10	8340.00	12630	0.66
N011418-004D	100	60.6332	60.7297	965	1	965.00	1427	0.68
N011419-003D	100	59.9275	60.0552	1277	1	1277.00	1804	0.71

11/12/2013

Sample ID: **N011402-001C @ pH 8.09**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.7mL)

= **0.02137 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 $CaCO_3$), mg/L = (4.70) (0.02137 N) (1) * 1000

= 100.439 **mg/L**

Reporting results in two significant figures,

11/9/2013

100
= ~~1~~0 **mg/L** as CaCO3

11/25/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02137 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (4.70 mL) (0.02137) (1) * 1000

= 100.439 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 100.439 **mg/L**

Reporting results in two significant figures,

11/9/2013

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = ~~10~~ 100 **mg/L**

11/25/2013

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 **N011402-009B** concentration in mg/L is calculated as follows:

Chloride, mg/L = 4.059 * 2000

= 8118

Reporting result in two significant figures,

Chloride, mg/L = 8100

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Iron concentration, in µg/L, in the original sample as follows:

Iron, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011402-002A**, the concentration in µg/L is calculated as follows:

Iron, µg/L = 10.10317327 * 1 * (25/25) * 1000

= 10103.17327

Reporting results in two significant figures,

Iron, µg/L = 10000

Harvey 11/25/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011402
Test Method: EPA 6010
Analysis Date: 11/14/13

Matrix: Water
Batch No.: 44341

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for Al and Fe. The calculated concentration was <25X RL. However, PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011392-001B-DT 5X	Aluminum	ug/L	0	NA	0		10
N011392-001B-DT 5X	Calcium	ug/L	71374.410050	PASSED	75063.679870	4.91%	10
N011392-001B-DT 5X	Iron	ug/L	0	NA	6.3489123140	100.00%	10
N011392-001B-DT 5X	Magnesium	ug/L	12159.704415	PASSED	11772.579100	3.29%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011402
Test Method: EPA 6010
Analysis Date: 11/15/13

Matrix: Water
Batch No.: 44341

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for K. The calculated concentration was < 25X the RL. However, PS @5X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011402-001A-DT 25X	Potassium	ug/L	4701.25461	NA	4258.3342325	10.40%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011402
Test Method: EPA 6010
Analysis Date: 11/15/2013 & 11/20/2013

Matrix: Water
Batch No.: 44341

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: JAA & MI

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011402-001A-DT 125X	Sodium	ug/L	199511.61775	PASSED	218237.07090	8.58%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *21-Nov-13*

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011392-001B-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91218**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2013** SeqNo: **1686357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5401.733	100	5000	0	108	80	120				
Calcium	77778.360	1000	5000	75063 ~~0~~	54.3 ~~1560~~	80	120				S
Iron	5165.584	40	5000	6.3489 ~~0~~	103	80	120				
Magnesium	16825.946	200	5000	11772.6 ~~0~~	101 ~~337~~	80	120				~~S~~

Sample ID: **N011402-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	54800.896	2500	50000	4258	101	80	120				

Sample ID: **N011402-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91245**
Client ID: **ZZZZZZ** Batch ID: **44341** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/15/2013** SeqNo: **1687386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	476638.266	12000	250000	218200	103	80	120				

Nancy 11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 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 **N011402-003A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.62063529686123 * 1 * (25/25)

= 1.62063529686123

Reporting results in two significant figures,

Arsenic, ug/L = 1.6

Nancy 11/25/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N011402
Test Method: EPA 6020
Analysis Date: 11/19/13

Matrix: Water
Batch No.: 44337

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Sb, Cr, Co, Pb, Mn, Mo, Ni, Se, Ag, Tl, Zn. The calculated values are <25X RL. PS @2X passed criteria.
Dilution test failed to As and V. However, PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011402-001A-DT 5X	Antimony	µg/L	0	NA	0		
N011402-001A-DT 5X	Arsenic	µg/L	10.16898249	FAILED	9.067977508	12.14%	10%
N011402-001A-DT 5X	Barium	µg/L	28.03016205	PASSED	26.65199111	5.17%	10%
N011402-001A-DT 5X	Chromium	µg/L	9.49887911	NA	8.627851852	10.10%	10%
N011402-001A-DT 5X	Cobalt	µg/L	0	NA	0		10%
N011402-001A-DT 5X	Lead	µg/L	0	NA	0		10%
N011402-001A-DT 5X	Manganese	µg/L	0	NA	0		10%
N011402-001A-DT 5X	Molybdenum	µg/L	11.74173826	NA	11.62588851	1.00%	10%
N011402-001A-DT 5X	Nickel	µg/L	1.638748355	NA	1.696257486	3.39%	10%
N011402-001A-DT 5X	Selenium	µg/L	1.699154275	NA	1.47671185	15.06%	10%
N011402-001A-DT 5X	Silver	µg/L	0	NA	0		10%
N011402-001A-DT 5X	Thallium	µg/L	0.101110711	NA	0.115748248	12.65%	10%
N011402-001A-DT 5X	Vanadium	µg/L	33.68370253	FAILED	30.4439652	10.64%	10%
N011402-001A-DT 5X	Zinc	µg/L	1.535043293	NA	1.190719957	28.92%	10%

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N011402
Test Method: EPA 6020
Analysis Date: 11/21/13

Matrix: Water
Batch No.: 44337

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to B, Be, Cu & Cd. The calculated values were <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011402-001A-DT 5X	Beryllium	µg/L	0	NA	0		10%
N011402-001A-DT 5X	Boron	µg/L	305.0699341	NA	258.7435168	17.90%	10%
N011402-001A-DT 5X	Cadmium	µg/L	0	NA	0		10%
N011402-001A-DT 5X	Copper	µg/L	0	NA	0		10%

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N011402
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011402-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91336**
Client ID: **ZZZZZZ** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/19/2013** SeqNo: **1689182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.693	1.0	20.00	0	108	75	125				
Arsenic	28.959	0.20	20.00	9.068	99.5	75	125				
Barium	225.653	2.0	200.0	26.65	99.5	75	125				
Chromium	28.454	2.0	20.00	8.628	99.1	75	125				
Cobalt	19.442	1.0	20.00	0	97.2	75	125				
Lead	20.308	2.0	20.00	0	102	75	125				
Manganese	184.432	1.0	200.0	0	92.2	75	125				
Molybdenum	33.163	1.0	20.00	11.63	108	75	125				
Nickel	20.463	2.0	20.00	1.696	93.8	75	125				
Selenium	18.831	1.0	20.00	1.477	86.8	75	125				
Silver	19.636	1.0	20.00	0	98.2	75	125				
Thallium	21.098	1.0	20.00	0.1157	105	75	125				
Vanadium	50.730	2.0	20.00	30.44	101	75	125				
Zinc	181.703	20	200.0	1.191	90.3	75	125				

Sample ID: **N011402-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91363**
Client ID: **ZZZZZZ** Batch ID: **44337** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	18.426	1.0	20.00	0	92.1	75	125				
Boron	2062.425	100	2000	258.7	90.2	75	125				
Cadmium	12.683	1.0	20.00	0	63.4	75	125				S
Copper	18.282	2.0	20.00	0	91.4	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.

Sample Calculation

Work Order No.:	**N011402**
Test Method:	**EPA 7470**
Matrix:	**Aqueous**

FORMULA:

Calculate the Mercury concentration in ug/L in the original sample as follows:

Hg = [A] [DF]

where:

A = ug/L, instrument calculated concentration
DF = dilution factor

For: **N011402-001A**

The concentration in ug/L is calculated as follows:

Hg = [A] [DF]

Hg = [-0.05290] [1]

Hg = -0.05290 ug/L

Reporting results in two significant figures,

Hg = ND ug/L

11/18/2013

January 13, 2014

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011442

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 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.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

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. **Date:** *27-Nov-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011442

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) on QC samples N011442-021A-MS/MSD are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Nov-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011442
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011442-001A	MW-15-194	Water	11/11/2013 12:50:00 PM	11/12/2013	11/27/2013
N011442-001B	MW-15-194	Water	11/11/2013 12:50:00 PM	11/12/2013	11/27/2013
N011442-002A	MW-17-194	Water	11/11/2013 11:24:00 AM	11/12/2013	11/27/2013
N011442-002B	MW-17-194	Water	11/11/2013 11:24:00 AM	11/12/2013	11/27/2013
N011442-003A	MW-18-194	Water	11/11/2013 10:22:00 AM	11/12/2013	11/27/2013
N011442-003B	MW-18-194	Water	11/11/2013 10:22:00 AM	11/12/2013	11/27/2013
N011442-004A	MW-23-060-194	Water	11/11/2013 3:02:00 PM	11/12/2013	11/27/2013
N011442-004B	MW-23-060-194	Water	11/11/2013 3:02:00 PM	11/12/2013	11/27/2013
N011442-004C	MW-23-060-194	Water	11/11/2013 3:02:00 PM	11/12/2013	11/27/2013
N011442-005A	MW-23-080-194	Water	11/11/2013 4:25:00 PM	11/12/2013	11/27/2013
N011442-005B	MW-23-080-194	Water	11/11/2013 4:25:00 PM	11/12/2013	11/27/2013
N011442-005C	MW-23-080-194	Water	11/11/2013 4:25:00 PM	11/12/2013	11/27/2013
N011442-006A	MW-36-020-194	Water	11/11/2013 3:27:00 PM	11/12/2013	11/27/2013
N011442-006B	MW-36-020-194	Water	11/11/2013 3:27:00 PM	11/12/2013	11/27/2013
N011442-006C	MW-36-020-194	Water	11/11/2013 3:27:00 PM	11/12/2013	11/27/2013
N011442-007A	MW-36-040-194	Water	11/11/2013 11:45:00 AM	11/12/2013	11/27/2013
N011442-007B	MW-36-040-194	Water	11/11/2013 11:45:00 AM	11/12/2013	11/27/2013
N011442-007C	MW-36-040-194	Water	11/11/2013 11:45:00 AM	11/12/2013	11/27/2013
N011442-008A	MW-36-050-194	Water	11/11/2013 10:09:00 AM	11/12/2013	11/27/2013
N011442-008B	MW-36-050-194	Water	11/11/2013 10:09:00 AM	11/12/2013	11/27/2013
N011442-008C	MW-36-050-194	Water	11/11/2013 10:09:00 AM	11/12/2013	11/27/2013
N011442-009A	MW-36-070-194	Water	11/11/2013 2:20:00 PM	11/12/2013	11/27/2013
N011442-009B	MW-36-070-194	Water	11/11/2013 2:20:00 PM	11/12/2013	11/27/2013
N011442-009C	MW-36-070-194	Water	11/11/2013 2:20:00 PM	11/12/2013	11/27/2013
N011442-010A	MW-36-090-194	Water	11/11/2013 1:05:00 PM	11/12/2013	11/27/2013
N011442-010B	MW-36-090-194	Water	11/11/2013 1:05:00 PM	11/12/2013	11/27/2013
N011442-010C	MW-36-090-194	Water	11/11/2013 1:05:00 PM	11/12/2013	11/27/2013
N011442-011A	MW-40S-194	Water	11/11/2013 9:04:00 AM	11/12/2013	11/27/2013
N011442-011B	MW-40S-194	Water	11/11/2013 9:04:00 AM	11/12/2013	11/27/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011442
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011442-012A	MW-95-194	Water	11/11/2013 7:25:00 AM	11/12/2013	11/27/2013
N011442-012B	MW-95-194	Water	11/11/2013 7:25:00 AM	11/12/2013	11/27/2013
N011442-012C	MW-95-194	Water	11/11/2013 7:25:00 AM	11/12/2013	11/27/2013
N011442-013A	MW-35-060-194	Water	11/12/2013 2:04:00 PM	11/12/2013	11/27/2013
N011442-013B	MW-35-060-194	Water	11/12/2013 2:04:00 PM	11/12/2013	11/27/2013
N011442-013C	MW-35-060-194	Water	11/12/2013 2:04:00 PM	11/12/2013	11/27/2013
N011442-014A	MW-35-135-194	Water	11/12/2013 2:52:00 PM	11/12/2013	11/27/2013
N011442-014B	MW-35-135-194	Water	11/12/2013 2:52:00 PM	11/12/2013	11/27/2013
N011442-014C	MW-35-135-194	Water	11/12/2013 2:52:00 PM	11/12/2013	11/27/2013
N011442-015A	MW-39-040-194	Water	11/12/2013 10:50:00 AM	11/12/2013	11/27/2013
N011442-015B	MW-39-040-194	Water	11/12/2013 10:50:00 AM	11/12/2013	11/27/2013
N011442-016A	MW-39-050-194	Water	11/12/2013 2:02:00 PM	11/12/2013	11/27/2013
N011442-016B	MW-39-050-194	Water	11/12/2013 2:02:00 PM	11/12/2013	11/27/2013
N011442-016C	MW-39-050-194	Water	11/12/2013 2:02:00 PM	11/12/2013	11/27/2013
N011442-017A	MW-39-060-194	Water	11/12/2013 2:57:00 PM	11/12/2013	11/27/2013
N011442-017B	MW-39-060-194	Water	11/12/2013 2:57:00 PM	11/12/2013	11/27/2013
N011442-017C	MW-39-060-194	Water	11/12/2013 2:57:00 PM	11/12/2013	11/27/2013
N011442-018A	MW-39-070-194	Water	11/12/2013 9:35:00 AM	11/12/2013	11/27/2013
N011442-018B	MW-39-070-194	Water	11/12/2013 9:35:00 AM	11/12/2013	11/27/2013
N011442-018C	MW-39-070-194	Water	11/12/2013 9:35:00 AM	11/12/2013	11/27/2013
N011442-019A	MW-39-080-194	Water	11/12/2013 1:20:00 PM	11/12/2013	11/27/2013
N011442-019B	MW-39-080-194	Water	11/12/2013 1:20:00 PM	11/12/2013	11/27/2013
N011442-019C	MW-39-080-194	Water	11/12/2013 1:20:00 PM	11/12/2013	11/27/2013
N011442-020A	MW-47-055-194	Water	11/12/2013 10:56:00 AM	11/12/2013	11/27/2013
N011442-020B	MW-47-055-194	Water	11/12/2013 10:56:00 AM	11/12/2013	11/27/2013
N011442-020C	MW-47-055-194	Water	11/12/2013 10:56:00 AM	11/12/2013	11/27/2013
N011442-021A	MW-47-115-194	Water	11/12/2013 12:10:00 PM	11/12/2013	11/27/2013
N011442-021B	MW-47-115-194	Water	11/12/2013 12:10:00 PM	11/12/2013	11/27/2013
N011442-021C	MW-47-115-194	Water	11/12/2013 12:10:00 PM	11/12/2013	11/27/2013
N011442-022A	TW-04-194	Water	11/12/2013 10:22:00 AM	11/12/2013	11/27/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011442
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011442-022B	TW-04-194	Water	11/12/2013 10:22:00 AM	11/12/2013	11/27/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-15-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 12:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1400	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-17-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1200	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-18-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1200	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-080-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 4:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-020-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:27:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	5500	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-040-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1300	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-050-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	920	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-070-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	930	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-090-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 1:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40S-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 9:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1300	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-95-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 7:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	5400	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	6600	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-135-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	9200	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-040-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-050-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 9:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	1800	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-080-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	5600	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-055-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	4500	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-115-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-04-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131113B**	QC Batch: **R91159**			PrepDate:			Analyst: **LCC**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	11/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011442-010B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91159**
Client ID: **ZZZZZZ** Batch ID: **R91159** TestNo: **EPA 120.1** Analysis Date: **11/13/2013** SeqNo: **1683165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1041.000	0.10						1043	0.192	10	

Sample ID: **N011442-020B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91159**
Client ID: **ZZZZZZ** Batch ID: **R91159** TestNo: **EPA 120.1** Analysis Date: **11/13/2013** SeqNo: **1683176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4500.000	0.10						4490	0.222	10	

Sample ID: **N011442-022B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91159**
Client ID: **ZZZZZZ** Batch ID: **R91159** TestNo: **EPA 120.1** Analysis Date: **11/13/2013** SeqNo: **1683179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19110.000	0.10						19080	0.157	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-15-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 12:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	82	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	82	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-17-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	56	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	56	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-18-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	84	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	84	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	8	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	26	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	34	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-080-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 4:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	26	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	69	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	95	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-020-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:27:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	650	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	650	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-040-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	280	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	280	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-050-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	190	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	190	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-070-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	160	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-090-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 1:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	190	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	190	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-95-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 7:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131115F**	QC Batch: **R91227**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	640	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/15/2013
Alkalinity, Total (As CaCO3)	640	1.2	5.0		mg/L	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	69	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	69	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-135-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	50	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	50	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-050-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	190	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	190	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	230	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	230	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 9:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	250	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-080-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	310	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	310	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-055-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	60	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	60	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-115-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	50	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	50	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-04-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131118B**	QC Batch: **R91235**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	44	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/18/2013
Alkalinity, Total (As CaCO3)	44	1.2	5.0		mg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Nov-13*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91227** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91227**
Client ID: **LCSW** Batch ID: **R91227** TestNo: **SM 2320 B** Analysis Date: **11/15/2013** SeqNo: **1686809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	99.138	5.0	100.0	0	99.1	85	115				
Alkalinity, Total (As CaCO3)	99.138	5.0	100.0	0	99.1	85	115				

Sample ID: **MB-R91227** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91227**
Client ID: **PBW** Batch ID: **R91227** TestNo: **SM 2320 B** Analysis Date: **11/15/2013** SeqNo: **1686810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.155	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.155	5.0									

Sample ID: **N011442-009B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91227**
Client ID: **ZZZZZZ** Batch ID: **R91227** TestNo: **SM 2320 B** Analysis Date: **11/15/2013** SeqNo: **1686820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	174.569	5.0						163.8	6.37	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)	174.569	5.0						163.8	6.37	30	

Sample ID: **N011442-010B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91227**
Client ID: **ZZZZZZ** Batch ID: **R91227** TestNo: **SM 2320 B** Analysis Date: **11/15/2013** SeqNo: **1686822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	287.716	5.0	100.0	187.5	100	75	125				
Alkalinity, Total (As CaCO3)	289.871	5.0	100.0	187.5	102	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011442-010B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91227**
Client ID: **ZZZZZZ** Batch ID: **R91227** TestNo: **SM 2320 B** Analysis Date: **11/15/2013** SeqNo: **1686823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	288.793	5.0	100.0	187.5	101	75	125	287.7	0.374	20	
Alkalinity, Total (As CaCO3)	288.793	5.0	100.0	187.5	101	75	125	289.9	0.372	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91235** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91235**
Client ID: **LCSW** Batch ID: **R91235** TestNo: **SM 2320 B** Analysis Date: **11/18/2013** SeqNo: **1687008**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.917	5.0	100.0	0	97.9	85	115				
Alkalinity, Total (As CaCO3)	102.083	5.0	100.0	0	102	85	115				

Sample ID: **MB-R91235** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91235**
Client ID: **PBW** Batch ID: **R91235** TestNo: **SM 2320 B** Analysis Date: **11/18/2013** SeqNo: **1687009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.083	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.083	5.0									

Sample ID: **N011442-021B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91235**
Client ID: **ZZZZZZ** Batch ID: **R91235** TestNo: **SM 2320 B** Analysis Date: **11/18/2013** SeqNo: **1687018**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	50.000	5.0						50.00	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)	50.000	5.0						50.00	0	30	

Sample ID: **N011442-022B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91235**
Client ID: **ZZZZZZ** Batch ID: **R91235** TestNo: **SM 2320 B** Analysis Date: **11/18/2013** SeqNo: **1687020**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	145.833	5.0	100.0	43.75	102	75	125				
Alkalinity, Total (As CaCO3)	145.833	5.0	100.0	43.75	102	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011442-022B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91235**
Client ID: **ZZZZZZ** Batch ID: **R91235** TestNo: **SM 2320 B** Analysis Date: **11/18/2013** SeqNo: **1687021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	143.750	5.0	100.0	43.75	100	75	125	145.8	1.44	20	
Alkalinity, Total (As CaCO3)	143.750	5.0	100.0	43.75	100	75	125	145.8	1.44	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-15-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 12:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	370	2.6	50		mg/L	100	11/18/2013 08:42 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	120	0.38	5.0		mg/L	10	11/18/2013 08:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-17-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	130	1.3	25		mg/L	50	11/18/2013 09:07 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	390	1.9	25		mg/L	50	11/18/2013 09:07 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-18-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	300	2.6	50		mg/L	100	11/18/2013 10:23 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	87	0.38	5.0		mg/L	10	11/18/2013 10:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	5500	26	500		mg/L	1000	11/18/2013 10:48 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	650	3.8	50		mg/L	100	11/18/2013 11:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-080-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 4:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	5600	26	500		mg/L	1000	11/18/2013 11:14 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	840	3.8	50		mg/L	100	11/18/2013 11:26 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-020-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:27:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	860	5.2	100		mg/L	200	11/18/2013 11:39 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	1200	7.6	100		mg/L	200	11/18/2013 11:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-040-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	160	1.3	25		mg/L	50	11/18/2013 11:52 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	190	0.76	10		mg/L	20	11/18/2013 12:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-050-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	89	0.52	10		mg/L	20	11/18/2013 12:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	190	0.76	10		mg/L	20	11/18/2013 12:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-070-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	87	0.52	10		mg/L	20	11/18/2013 01:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	200	0.76	10		mg/L	20	11/18/2013 01:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-090-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 1:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	92	0.52	10		mg/L	20	11/18/2013 01:20 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	200	0.76	10		mg/L	20	11/18/2013 01:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-95-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 7:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	840	5.2	100		mg/L	200	11/18/2013 02:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	1300	7.6	100		mg/L	200	11/18/2013 02:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	2100	13	250		mg/L	500	11/18/2013 01:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	330	1.9	25		mg/L	50	11/18/2013 02:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-135-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	3000	26	500		mg/L	1000	11/18/2013 02:23 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	660	3.8	50		mg/L	100	11/18/2013 02:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-050-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	140	1.3	25		mg/L	50	11/18/2013 05:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	210	0.76	10		mg/L	20	11/18/2013 06:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	210	1.3	25		mg/L	50	11/18/2013 03:52 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	220	0.76	10		mg/L	20	11/18/2013 04:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 9:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	280	1.3	25		mg/L	50	11/18/2013 04:29 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	250	1.9	25		mg/L	50	11/18/2013 04:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-080-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	1400	13	250		mg/L	500	11/18/2013 04:42 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	550	3.8	50		mg/L	100	11/18/2013 04:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-055-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	1400	5.2	100		mg/L	200	11/18/2013 05:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	250	0.76	10		mg/L	20	11/18/2013 05:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-115-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	4300	26	500		mg/L	1000	11/18/2013 06:23 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	710	3.8	50		mg/L	100	11/18/2013 06:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-04-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Chloride	7300	52	1000		mg/L	2000	11/18/2013 06:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131118A** QC Batch: **R91338** PrepDate: Analyst: **QBM**							
Sulfate	1100	3.8	50		mg/L	100	11/18/2013 07:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Nov-13*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91338_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **PBW** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91338_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **LCSW** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.435	0.50	2.500	0	97.4	90	110				

Sample ID: **N011442-002BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **ZZZZZZ** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	126.200	25						127.5	1.02	20	

Sample ID: **N011442-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **ZZZZZZ** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	249.150	25	125.0	127.5	97.3	80	120				

Sample ID: **N011442-002BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **ZZZZZZ** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	249.500	25	125.0	127.5	97.6	80	120	249.2	0.140	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011442-006BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **ZZZZZZ** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1335.200	100	500.0	859.4	95.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91338_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **PBW** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91338_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **LCSW** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.846	0.50	5.000	0	96.9	90	110				

Sample ID: **N011442-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **ZZZZZZ** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	386.900	25						389.4	0.657	20	

Sample ID: **N011442-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **ZZZZZZ** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	635.800	25	250.0	389.4	98.5	80	120				

Sample ID: **N011442-002BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **ZZZZZZ** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	637.600	25	250.0	389.4	99.3	80	120	635.8	0.283	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011442-006BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91338**
Client ID: **ZZZZZZ** Batch ID: **R91338** TestNo: **EPA 300.0** Analysis Date: **11/18/2013** SeqNo: **1689392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	2255.000	100	1000	1248	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-15-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 12:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	88000	58	500		ug/L	1	11/21/2013 02:18 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 02:18 AM
Magnesium	22000	11	100		ug/L	1	11/21/2013 02:18 AM
Sodium	190000	730	5000		ug/L	10	11/25/2013 03:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-17-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Aluminum	ND	6.2	50		ug/L	1	11/21/2013 02:48 AM
Calcium	63000	58	500		ug/L	1	11/21/2013 02:48 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 02:48 AM
Magnesium	9200	11	100		ug/L	1	11/21/2013 02:48 AM
Potassium	7600	16	2500		ug/L	5	11/25/2013 01:31 PM
Sodium	220000	1800	12000		ug/L	25	11/25/2013 01:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-18-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	77000	58	500		ug/L	1	11/21/2013 02:53 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 02:53 AM
Magnesium	12000	11	100		ug/L	1	11/21/2013 02:53 AM
Sodium	170000	370	2500		ug/L	5	11/25/2013 01:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	800000	580	5000		ug/L	10	11/21/2013 08:33 AM
Iron	44	1.3	20		ug/L	1	11/21/2013 02:57 AM
Magnesium	7500	11	100		ug/L	1	11/21/2013 02:57 AM
Sodium	2900000	9100	62000		ug/L	125	11/25/2013 03:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-080-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 4:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	740000	580	5000		ug/L	10	11/21/2013 08:37 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 03:02 AM
Magnesium	4400	11	100		ug/L	1	11/21/2013 03:02 AM
Sodium	3100000	9100	62000		ug/L	125	11/25/2013 04:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-020-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:27:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	41000	58	500		ug/L	1	11/21/2013 03:08 AM
Iron	660	1.3	20		ug/L	1	11/21/2013 03:08 AM
Magnesium	50000	11	100		ug/L	1	11/21/2013 03:08 AM
Sodium	1200000	9100	62000		ug/L	125	11/25/2013 04:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-040-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	66000	58	500		ug/L	1	11/21/2013 03:12 AM
Iron	610	1.3	20		ug/L	1	11/21/2013 03:12 AM
Magnesium	16000	11	100		ug/L	1	11/21/2013 03:12 AM
Sodium	210000	730	5000		ug/L	10	11/25/2013 04:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-050-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	78000	58	500		ug/L	1	11/21/2013 03:40 AM
Iron	150	1.3	20		ug/L	1	11/21/2013 03:40 AM
Magnesium	16000	11	100		ug/L	1	11/21/2013 03:40 AM
Sodium	100000	370	2500		ug/L	5	11/25/2013 02:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-070-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate:	**11/14/2013**	Analyst: **CEI**
Calcium	55000	58	500		ug/L	1	11/21/2013 03:44 AM
Iron	24	1.3	20		ug/L	1	11/21/2013 03:44 AM
Magnesium	10000	11	100		ug/L	1	11/21/2013 03:44 AM
Sodium	150000	370	2500		ug/L	5	11/25/2013 02:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT: CH2M HILL
Lab Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011442-010

Client Sample ID: MW-36-090-194
Collection Date: 11/11/2013 1:05:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	7000	58	500		ug/L	1	11/21/2013 03:49 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 03:49 AM
Magnesium	750	11	100		ug/L	1	11/21/2013 03:49 AM
Sodium	270000	730	5000		ug/L	10	11/25/2013 04:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-95-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 7:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	78000	58	500		ug/L	1	11/21/2013 03:53 AM
Iron	1300	1.3	20		ug/L	1	11/21/2013 03:53 AM
Magnesium	100000	11	100		ug/L	1	11/21/2013 03:53 AM
Sodium	1700000	9100	62000		ug/L	125	11/25/2013 04:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT: CH2M HILL
Lab Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011442-013

Client Sample ID: MW-35-060-194
Collection Date: 11/12/2013 2:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	330000	58	500		ug/L	1	11/21/2013 03:59 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 03:59 AM
Magnesium	38000	11	100		ug/L	1	11/21/2013 03:59 AM
Sodium	1400000	9100	62000		ug/L	125	11/25/2013 04:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-135-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	250000	58	500		ug/L	1	11/21/2013 04:04 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 04:04 AM
Magnesium	27000	11	100		ug/L	1	11/21/2013 04:04 AM
Sodium	2000000	9100	62000		ug/L	125	11/25/2013 04:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT: CH2M HILL
Lab Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011442-016

Client Sample ID: MW-39-050-194
Collection Date: 11/12/2013 2:02:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	34000	58	500		ug/L	1	11/21/2013 04:09 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 04:09 AM
Magnesium	11000	11	100		ug/L	1	11/21/2013 04:09 AM
Sodium	240000	730	5000		ug/L	10	11/25/2013 04:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	26000	58	500		ug/L	1	11/21/2013 04:14 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 04:14 AM
Magnesium	7600	11	100		ug/L	1	11/21/2013 04:14 AM
Sodium	290000	730	5000		ug/L	10	11/25/2013 04:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 9:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	23000	58	500		ug/L	1	11/21/2013 04:18 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 04:18 AM
Magnesium	4500	11	100		ug/L	1	11/21/2013 04:18 AM
Sodium	420000	1800	12000		ug/L	25	11/25/2013 04:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT: CH2M HILL
Lab Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011442-019

Client Sample ID: MW-39-080-194
Collection Date: 11/12/2013 1:20:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	140000	58	500		ug/L	1	11/21/2013 04:23 AM
Iron	24	1.3	20		ug/L	1	11/21/2013 04:23 AM
Magnesium	33000	11	100		ug/L	1	11/21/2013 04:23 AM
Sodium	1200000	9100	62000		ug/L	125	11/25/2013 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-055-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	190000	58	500		ug/L	1	11/21/2013 04:36 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 04:36 AM
Magnesium	27000	11	100		ug/L	1	11/21/2013 04:36 AM
Sodium	720000	1800	12000		ug/L	25	11/25/2013 05:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-115-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	380000	58	500		ug/L	1	11/21/2013 04:42 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 04:42 AM
Magnesium	31000	11	100		ug/L	1	11/21/2013 04:42 AM
Sodium	2700000	9100	62000		ug/L	125	11/25/2013 05:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-04-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44358**				PrepDate: **11/14/2013**		Analyst: **CEI**
Calcium	450000	580	5000		ug/L	10	11/21/2013 08:50 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 04:47 AM
Magnesium	44000	11	100		ug/L	1	11/21/2013 04:47 AM
Sodium	4700000	18000	120000		ug/L	250	11/25/2013 05:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Nov-13*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44358** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91347**
Client ID: **PBW** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	50									
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **N011442-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91347**
Client ID: **ZZZZZZ** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9606.334	50	10000	0	96.1	75	125				
Calcium	98493.592	500	10000	87890	106	75	125				
Iron	105.983	20	100.0	0	106	75	125				
Magnesium	31293.264	100	10000	21530	97.7	75	125				

Sample ID: **N011442-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91347**
Client ID: **ZZZZZZ** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9568.040	50	10000	0	95.7	75	125	9606	0.399	20	
Calcium	98974.547	500	10000	87890	111	75	125	98490	0.487	20	
Iron	113.169	20	100.0	0	113	75	125	106.0	6.56	20	
Magnesium	31476.035	100	10000	21530	99.5	75	125	31290	0.582	20	

Sample ID: **LCS-44358** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91347**
Client ID: **LCSW** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9428.098	50	10000	0	94.3	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-44358** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91347**
Client ID: **LCSW** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9438.991	500	10000	0	94.4	85	115				
Iron	105.089	20	100.0	0	105	85	115				
Magnesium	9499.647	100	10000	0	95.0	85	115				

Sample ID: **MB-44358** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91395**
Client ID: **PBW** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	33.694	500									
Sodium	ND	500									

Sample ID: **LCS2-44358** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91395**
Client ID: **LCSW** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	19361.171	500	20000	0	96.8	85	115				
Sodium	19682.236	500	20000	0	98.4	85	115				

Sample ID: **N011442-002A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91395**
Client ID: **ZZZZZZ** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	249102.185	12000	20000	217500	158	75	125				S

Sample ID: **N011442-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91395**
Client ID: **ZZZZZZ** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	232220.602	12000	20000	217500	73.7	75	125	249100	7.01	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011442-002A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91395**
Client ID: **ZZZZZZ** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693472**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	31482.012	12000	20000	7619	119	75	125				

Sample ID: **N011442-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/14/2013** RunNo: **91395**
Client ID: **ZZZZZZ** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693473**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	30416.437	12000	20000	7619	114	75	125	31480	3.44	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-15-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 12:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/22/2013 02:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Jan-14*

CLIENT: CH2M HILL
Lab Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011442-002

Client Sample ID: MW-17-194
Collection Date: 11/11/2013 11:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	11/22/2013 02:14 PM
Arsenic	1.3	0.027	0.10		µg/L	1	11/22/2013 02:14 PM
Barium	21	0.030	1.0		µg/L	1	11/22/2013 02:14 PM
Beryllium	ND	0.010	0.50		µg/L	1	11/22/2013 02:14 PM
Boron	210	2.7	50		µg/L	1	11/22/2013 02:14 PM
Cadmium	ND	0.013	0.50		µg/L	1	11/22/2013 02:14 PM
Cobalt	ND	0.017	0.50		µg/L	1	11/22/2013 02:14 PM
Copper	ND	0.040	1.0		µg/L	1	11/22/2013 02:14 PM
Lead	ND	0.011	1.0		µg/L	1	11/22/2013 02:14 PM
Manganese	ND	0.026	0.50		µg/L	1	11/22/2013 02:14 PM
Molybdenum	17	0.15	0.50		µg/L	1	11/22/2013 02:14 PM
Nickel	ND	0.032	1.0		µg/L	1	11/22/2013 02:14 PM
Selenium	7.8	0.069	0.50		µg/L	1	11/22/2013 02:14 PM
Silver	ND	0.094	0.50		µg/L	1	11/22/2013 02:14 PM
Thallium	ND	0.0080	0.50		µg/L	1	11/22/2013 02:14 PM
Vanadium	5.0	0.16	1.0		µg/L	1	11/22/2013 02:14 PM
Zinc	ND	0.23	10		µg/L	1	11/22/2013 02:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-18-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/22/2013 02:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	3.0	0.027	0.10		µg/L	1	11/22/2013 02:25 PM
Manganese	ND	0.026	0.50		µg/L	1	11/22/2013 02:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-080-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 4:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**				PrepDate: **11/15/2013**		Analyst: **CEI**
Arsenic	3.0	0.027	0.10		µg/L	1	11/22/2013 02:30 PM
Manganese	ND	0.026	0.50		µg/L	1	11/22/2013 02:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-020-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 3:27:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	11/22/2013 02:36 PM
Manganese	84	0.026	0.50		µg/L	1	11/22/2013 02:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-040-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**				PrepDate:	**11/15/2013**	Analyst: **CEI**
Arsenic	4.7	0.027	0.10		µg/L	1	11/22/2013 02:41 PM
Manganese	150	0.026	0.50		µg/L	1	11/22/2013 02:41 PM
Molybdenum	8.8	0.15	0.50		µg/L	1	11/22/2013 02:41 PM
Selenium	ND	0.069	0.50		µg/L	1	11/22/2013 02:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-050-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 10:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	3.6	0.027	0.10		µg/L	1	11/22/2013 02:47 PM
Manganese	190	0.13	2.5		µg/L	5	11/25/2013 12:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-070-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	3.5	0.027	0.10		µg/L	1	11/22/2013 03:04 PM
Manganese	120	0.026	0.50		µg/L	1	11/22/2013 03:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-090-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 1:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	20	0.027	0.10		µg/L	1	11/22/2013 03:09 PM
Manganese	2.1	0.026	0.50		µg/L	1	11/22/2013 03:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40S-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 9:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	11/22/2013 03:15 PM
Manganese	ND	0.026	0.50		µg/L	1	11/22/2013 03:15 PM
Molybdenum	11	0.15	0.50		µg/L	1	11/22/2013 03:15 PM
Selenium	2.2	0.069	0.50		µg/L	1	11/22/2013 03:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-95-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 7:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	1.2	0.027	0.10		µg/L	1	11/22/2013 03:20 PM
Manganese	240	0.13	2.5		µg/L	5	11/25/2013 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**				PrepDate:	**11/15/2013**	Analyst: **CEI**
Arsenic	0.91	0.027	0.10		µg/L	1	11/22/2013 03:26 PM
Manganese	ND	0.026	0.50		µg/L	1	11/22/2013 03:26 PM
Molybdenum	8.4	0.15	0.50		µg/L	1	11/22/2013 03:26 PM
Selenium	0.74	0.069	0.50		µg/L	1	11/22/2013 03:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-135-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**				PrepDate: **11/15/2013**		Analyst: **CEI**
Arsenic	0.85	0.027	0.10		µg/L	1	11/22/2013 03:31 PM
Manganese	ND	0.026	0.50		µg/L	1	11/22/2013 03:31 PM
Molybdenum	25	0.15	0.50		µg/L	1	11/22/2013 03:31 PM
Selenium	1.1	0.069	0.50		µg/L	1	11/22/2013 03:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-040-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	17	0.027	0.10		µg/L	1	11/22/2013 04:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-050-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**				PrepDate:	**11/15/2013**	Analyst: **CEI**
Arsenic	3.5	0.027	0.10		µg/L	1	11/22/2013 04:57 PM
Manganese	65	0.026	0.50		µg/L	1	11/25/2013 10:58 AM
Molybdenum	6.1	0.15	0.50		µg/L	1	11/22/2013 04:57 PM
Selenium	ND	0.069	0.50		µg/L	1	11/22/2013 04:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 2:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**				PrepDate:	**11/15/2013**	Analyst: **CEI**
Arsenic	5.2	0.027	0.10		µg/L	1	11/22/2013 05:02 PM
Manganese	27	0.026	0.50		µg/L	1	11/25/2013 11:04 AM
Molybdenum	11	0.15	0.50		µg/L	1	11/22/2013 05:02 PM
Selenium	ND	0.069	0.50		µg/L	1	11/22/2013 05:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 9:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131125A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/25/2013 11:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-080-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131125A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/25/2013 11:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-055-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131122A**	QC Batch: **44401**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Arsenic	1.2	0.027	0.10		µg/L	1	11/22/2013 05:19 PM
Manganese	ND	0.026	0.50		µg/L	1	11/25/2013 11:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-115-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131125A**	QC Batch: **44403**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/25/2013 11:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-04-194
Lab Order:	N011442	**Collection Date:**	11/12/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131125A**	QC Batch: **44403**			PrepDate:	**11/15/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/25/2013 11:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *13-Jan-14*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44401** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91383**
Client ID: **PBW** Batch ID: **44401** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/22/2013** SeqNo: **1692374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Beryllium	ND	0.50									
Boron	ND	50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Vanadium	0.268	1.0									
Zinc	ND	10									

Sample ID: **LCS-44401** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91383**
Client ID: **LCSW** Batch ID: **44401** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/22/2013** SeqNo: **1692375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.362	0.50	10.00	0	104	85	115				
Arsenic	9.742	0.10	10.00	0	97.4	85	115				
Barium	100.788	1.0	100.0	0	101	85	115				
Beryllium	9.453	0.50	10.00	0	94.5	85	115				
Boron	938.496	50	1000	0	93.8	85	115				
Cadmium	10.126	0.50	10.00	0	101	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-44401** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91383**
Client ID: **LCSW** Batch ID: **44401** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/22/2013** SeqNo: **1692375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	9.795	0.50	10.00	0	97.9	85	115				
Copper	9.952	1.0	10.00	0	99.5	85	115				
Lead	10.400	1.0	10.00	0	104	85	115				
Manganese	95.871	0.50	100.0	0	95.9	85	115				
Molybdenum	9.585	0.50	10.00	0	95.9	85	115				
Nickel	9.588	1.0	10.00	0	95.9	85	115				
Selenium	9.531	0.50	10.00	0	95.3	85	115				
Silver	10.049	0.50	10.00	0	100	85	115				
Thallium	9.897	0.50	10.00	0	99.0	85	115				
Vanadium	9.442	1.0	10.00	0	94.4	85	115				
Zinc	96.983	10	100.0	0	97.0	85	115				

Sample ID: **N011442-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91383**
Client ID: **ZZZZZZ** Batch ID: **44401** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/22/2013** SeqNo: **1692394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.256	0.50	10.00	0	103	75	125				
Arsenic	10.719	0.10	10.00	1.545	91.7	75	125				
Barium	142.589	1.0	100.0	53.16	89.4	75	125				
Beryllium	9.704	0.50	10.00	0	97.0	75	125				
Boron	1295.615	50	1000	274.8	102	75	125				
Cadmium	8.714	0.50	10.00	0	87.1	75	125				
Cobalt	8.604	0.50	10.00	0	86.0	75	125				
Copper	8.565	1.0	10.00	0	85.6	75	125				
Lead	10.167	1.0	10.00	0	102	75	125				
Manganese	81.151	0.50	100.0	0	81.2	75	125				
Molybdenum	26.850	0.50	10.00	16.18	107	75	125				
Nickel	8.939	1.0	10.00	0.3072	86.3	75	125				
Selenium	11.663	0.50	10.00	2.735	89.3	75	125				
Silver	9.374	0.50	10.00	0	93.7	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011442-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91383**
Client ID: **ZZZZZZ** Batch ID: **44401** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/22/2013** SeqNo: **1692394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	10.200	0.50	10.00	0.03849	102	75	125				
Vanadium	21.652	1.0	10.00	11.64	100	75	125				
Zinc	83.458	10	100.0	2.596	80.9	75	125				

Sample ID: **N011442-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91383**
Client ID: **ZZZZZZ** Batch ID: **44401** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/22/2013** SeqNo: **1692395**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.277	0.50	10.00	0	103	75	125	10.26	0.207	20	
Arsenic	10.570	0.10	10.00	1.545	90.3	75	125	10.72	1.40	20	
Barium	142.529	1.0	100.0	53.16	89.4	75	125	142.6	0.0422	20	
Beryllium	9.750	0.50	10.00	0	97.5	75	125	9.704	0.479	20	
Boron	1285.536	50	1000	274.8	101	75	125	1296	0.781	20	
Cadmium	8.789	0.50	10.00	0	87.9	75	125	8.714	0.857	20	
Cobalt	8.406	0.50	10.00	0	84.1	75	125	8.604	2.32	20	
Copper	8.412	1.0	10.00	0	84.1	75	125	8.565	1.80	20	
Lead	10.148	1.0	10.00	0	101	75	125	10.17	0.188	20	
Manganese	81.110	0.50	100.0	0	81.1	75	125	81.15	0.0507	20	
Molybdenum	26.822	0.50	10.00	16.18	106	75	125	26.85	0.106	20	
Nickel	8.773	1.0	10.00	0.3072	84.7	75	125	8.939	1.88	20	
Selenium	11.270	0.50	10.00	2.735	85.4	75	125	11.66	3.43	20	
Silver	9.338	0.50	10.00	0	93.4	75	125	9.374	0.378	20	
Thallium	10.153	0.50	10.00	0.03849	101	75	125	10.20	0.459	20	
Vanadium	21.416	1.0	10.00	11.64	97.8	75	125	21.65	1.10	20	
Zinc	82.925	10	100.0	2.596	80.3	75	125	83.46	0.640	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44403** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91392**
Client ID: **PBW** Batch ID: **44403** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1692961**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-44403** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91392**
Client ID: **LCSW** Batch ID: **44403** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1692962**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.453	0.50	100.0	0	94.5	85	115				

Sample ID: **N011442-021A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91392**
Client ID: **ZZZZZZ** Batch ID: **44403** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1692970**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	14.509	0.50	100.0	0	14.5	75	125				S

Sample ID: **N011442-021A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91392**
Client ID: **ZZZZZZ** Batch ID: **44403** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1692971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	14.745	0.50	100.0	0	14.7	75	125	14.51	1.61	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Nov-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-17-194
Lab Order:	N011442	**Collection Date:**	11/11/2013 11:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011442-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_131118A**	QC Batch: **44408**			PrepDate:	**11/15/2013**		Analyst: **LCC**
Mercury	ND	0.038	0.20		µg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Nov-13*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **LCS-44408** SampType: **LCS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91231**
Client ID: **LCSW** Batch ID: **44408** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.644	0.20	5.000	0	92.9	85	115				

Sample ID: **MB-44408** SampType: **MBLK** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91231**
Client ID: **PBW** Batch ID: **44408** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **N011442-002A-MS** SampType: **MS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91231**
Client ID: **ZZZZZZ** Batch ID: **44408** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.926	0.20	5.000	0	119	75	125				

Sample ID: **N011442-002A-MSD** SampType: **MSD** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91231**
Client ID: **ZZZZZZ** Batch ID: **44408** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687057**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	6.025	0.20	5.000	0	121	75	125	5.926	1.66	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 11

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF BKG metals:See list	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Metals (6020A) FF Mn	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-15-194	11/11/2013	12:50	Water			X			X	X	X		N011442-1	~~4~~	3
MW-17-194	11/11/2013	11:24	Water		X				X	X	X		-2	~~4~~	3
MW-18-194	11/11/2013	10:22	Water			X			X	X	X		-3	~~4~~	3
MW-23-060-194	11/11/2013	15:02	Water	X		X			X	X	X	X	-4	~~8~~	4
MW-23-080-194	11/11/2013	16:25	Water	X		X			X	X	X	X	-5	~~8~~	4
MW-36-020-194	11/11/2013	15:27	Water	X		X			X	X	X	X	-6	~~8~~	4
MW-36-040-194	11/11/2013	11:45	Water	X		X	X		X	X	X	X	-7	~~8~~	4 BKL
MW-36-050-194	11/11/2013	10:09	Water	X		X			X	X	X	X	-8	~~8~~	4
MW-36-070-194	11/11/2013	14:20	Water	X		X			X	X	X	X	-9	~~8~~	4
MW-36-090-194	11/11/2013	13:05	Water	X		X			X	X	X	X	-10	~~8~~	4
MW-40S-194	11/11/2013	9:04	Water	X			X	X		X			-11	~~4~~	3
MW-95-194	11/11/2013	7:25	Water	X		X			X	X	X	X	-12	~~8~~	4
MW-35-060-194	11/12/2013	14:04	Water	X		X	X		X	X	X	X	-13	~~8~~	4
MW-35-135-194	11/12/2013	14:52	Water	X		X	X		X	X	X	X	-14	~~8~~	4

	Signatures	Date/Time
Approved by		11-12-13
Sampled by		1625
Relinquished by		
Received by		12NOV13 1625
Relinquished by		12NOV13 1828
Received by		12NOV13 1828

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 3.2, 2.9, 3.4, 3.1 1R2
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 11

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF BKG metals:See list	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Metals (6020A) FF Mn	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-39-040-194	11/12/2013	10:50	Water	X						X			H011442 - 15	~~2~~	3
MW-39-050-194	11/12/2013	14:02	Water	X		X	X		X	X	X	X	-16	~~2~~	4
MW-39-060-194	11/12/2013	14:57	Water	X		X	X		X	X	X	X	-17	~~2~~	4
MW-39-070-194	11/12/2013	9:35	Water			X			X	X	X	X	-18	~~5~~	4
MW-39-080-194	11/12/2013	13:20	Water			X			X	X	X	X	-19	~~5~~	4
MW-47-055-194	11/12/2013	10:56	Water	X		X			X	X	X	X	-20	~~5~~	4
MW-47-115-194	11/12/2013	12:10	Water			X			X	X	X	X	-21	~~5~~	4
TW-04-194	11/12/2013	10:22	Water			X			X	X	X		-22	~~4~~	3
													TOTAL NUMBER OF CONTAINERS	82	

	Signatures	Date/Time
Approved by		11-12-13 1625
Sampled by		
Relinquished by		
Received by		12NOV13 1625
Relinquished by		12NOV13 1828
Received by		12 NOV13 1828

Shipping Details

Method of Shipment: courier
On Ice: (yes) no 3.2, 2.9, 3.4, 3.1 1.82
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody and Marlon

Special Instructions:

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:	11/12/2013	Workorder:	N011442
Rep sample Temp (Deg C):	3.2, 2.9, 3.4, 3.1	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 11/13/2013

Reviewed By:

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler:

13-Nov-13

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
N011442-004C / MW-23-060-194	Water	11/11/2013 3:02:00 PM	32OZP	1		
N011442-005C / MW-23-080-194	Water	11/11/2013 4:25:00 PM	32OZP	1		
N011442-006C / MW-36-020-194	Water	11/11/2013 3:27:00 PM	32OZP	1		
N011442-007C / MW-36-040-194	Water	11/11/2013 11:45:00 AM	32OZP	1		
N011442-008C / MW-36-050-194	Water	11/11/2013 10:09:00 AM	32OZP	1		
N011442-009C / MW-36-070-194	Water	11/11/2013 2:20:00 PM	32OZP	1		
N011442-010C / MW-36-090-194	Water	11/11/2013 1:05:00 PM	32OZP	1		
N011442-012C / MW-95-194	Water	11/11/2013 7:25:00 AM	32OZP	1		
N011442-013C / MW-35-060-194	Water	11/12/2013 2:04:00 PM	32OZP	1		
N011442-014C / MW-35-135-194	Water	11/12/2013 2:52:00 PM	32OZP	1		
N011442-016C / MW-39-050-194	Water	11/12/2013 2:02:00 PM	32OZP	1		
N011442-017C / MW-39-060-194	Water	11/12/2013 2:57:00 PM	32OZP	1		
N011442-018C / MW-39-070-194	Water	11/12/2013 9:35:00 AM	32OZP	1		
N011442-019C / MW-39-080-194	Water	11/12/2013 1:20:00 PM	32OZP	1		
N011442-020C / MW-47-055-194	Water	11/12/2013 10:56:00 AM	32OZP	1		
N011442-021C / MW-47-115-194	Water	11/12/2013 12:10:00 PM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N011442 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT

Please analyze for Ammonia by SM 4500.Please send report to CH2M Hill. Please bill ATL Inc.

QSC# 523214535

		Date/Time			Date/Time
Relinquished by:	HEASEY SAYAS	13NOV13 1430	**Received by:**		
Relinquished by:			**Received by:**		

Sample ID: **N011442-001B @ pH 7.77**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.6mL)

= **0.02155 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 $CaCO_3$), mg/L = (3.80) (0.02155 N) (1) * 1000

= 81.89 **mg/L**

Reporting results in two significant figures,

= ~~81.0~~ 82 **mg/L** as CaCO3

11/18/2013 11/18/2013

11/27/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02155 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (3.80 mL) (0.02155) (1) * 1000

= 81.89 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	OH Alkalinity as $CaCO_3$	CO_3 Alkalinity as $CaCO_3$	HCO_3 Alkalinity as $CaCO_3$
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 81.89 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

82

HCO_3 Alkalinity as $CaCO_3$ = ~~81.~~00 **mg/L**

11/18/2013

11/18/2013

11/27/2013

Sample ID: **N011442-013B @ pH 7.54**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (12mL)

= **0.02083 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 $CaCO_3$), mg/L = (3.30) (0.02083 N) (1) * 1000

= 68.739 **mg/L**

Reporting results in two significant figures,

= 69.00 **mg/L** as CaCO3

11/18/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02083 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (3.30 mL) (0.02083) (1) * 1000

= 68.739 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 68.739 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 69.00 **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 **N011442-022B** concentration in mg/L is calculated as follows:

Chloride, mg/L = 3.627 * 2000

= 7254

Reporting result in two significant figures,

Chloride, mg/L = 7300

Morrey 11/27/2013

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Iron concentration, in µg/L, in the original sample as follows:

Iron, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011442-004A**, the concentration in µg/L is calculated as follows:

Iron, µg/L = 0.04418855167 * 1 * (25/25) * 1000

= 44.18855167

Reporting results in two significant figures,

Iron, µg/L = 44

Nancy 11/26/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011442
Test Method: EPA 6010
Analysis Date: 11/20/13

Matrix: Water
Batch No.: 44358

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable for Al & Fe. The calculated concentrations were < 25X the RL. However the PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011442-001A-DT 5X	Aluminum	ug/L	0	NA	0		10
N011442-001A-DT 5X	Calcium	ug/L	92628.519600	PASSED	87886.330080	5.40%	10
N011442-001A-DT 5X	Iron	ug/L	0	NA	0		10
N011442-001A-DT 5X	Magnesium	ug/L	22823.272980	PASSED	21527.316760	6.02%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011442
Test Method: EPA 6010
Analysis Date: 11/25/13

Matrix: Water
Batch No.: 44358

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for K and Na. The calculated concentration was< 25X the RL. However the PS @25X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011442-002A-DT 25X	Potassium	ug/L	9148.962225	NA	7619.197250	20.08%	10
N011442-002A-DT 125X	Sodium	ug/L	219014.36800	NA	217476.36490	0.71%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *26-Nov-13*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011442-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91347**
Client ID: **ZZZZZZ** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4869.855	100	5000	0	97.4	80	120				
Calcium	99693.171	1000	5000	87890	236	80	120				S
Iron	4762.062	40	5000	0	95.2	80	120				
Magnesium	26947.359	200	5000	21530	108	80	120				

Sample ID: **N011442-002-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91395**
Client ID: **ZZZZZZ** Batch ID: **44358** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	260204.131	12000	250000	~~9149~~ 7619	~~100~~ 101	80	120				
Sodium	467106.808	12000	250000	217500	99.9	80	120				

DT of Ca @5x is within criteria

11/26/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 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 **N011442-005A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 2.98940000707229 * 1 * (25/25)

= 2.98940000707229

Reporting results in two significant figures,

Arsenic, ug/L = 3.0

11/26/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N011442
Test Method: EPA 6020
Analysis Date: 11/22/13

Matrix: Water
Batch No.: 44401

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments: Analyzed By: Mary Claire Ignacio

Cd

Dilution test is not applicable to Sb, As, Be, B, Cr, Co, Cu, Pb, Ni, Se, Ag, Tl, V and Zn. The calculated values are <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011442-001A-DT 5X	Antimony	µg/L	0	NA	0		10%
N011442-001A-DT 5X	Arsenic	µg/L	1.632671229	NA	1.54476435	5.69%	10%
N011442-001A-DT 5X	Barium	µg/L	58.30692919	PASS	53.16392522	9.67%	10%
N011442-001A-DT 5X	Beryllium	µg/L	0	NA	0		10%
N011442-001A-DT 5X	Boron	µg/L	338.6352295	NA	274.7542333	23.25%	10%
N011442-001A-DT 5X	Cadmium	µg/L	0	NA	0		10%
N011442-001A-DT 5X	Chromium	µg/L	10.75278933	NA	10.68939606	0.59%	10%
N011442-001A-DT 5X	Cobalt	µg/L	0	NA	0		10%
N011442-001A-DT 5X	Copper	µg/L	3.239084292	NA	0		10%
N011442-001A-DT 5X	Lead	µg/L	0	NA	0		10%
N011442-001A-DT 5X	Molybdenum	µg/L	16.56750846	PASS	16.18252316	2.38%	10%
N011442-001A-DT 5X	Nickel	µg/L	0.414792445	NA	0.307245097	35.00%	10%
N011442-001A-DT 5X	Selenium	µg/L	3.117912282	NA	2.734804758	14.01%	10%
N011442-001A-DT 5X	Silver	µg/L	0	NA	0		10%
N011442-001A-DT 5X	Thallium	µg/L	0	NA	0.038489435	100.00%	10%
N011442-001A-DT 5X	Vanadium	µg/L	12.75	NA	11.637	9.56%	10%
N011442-001A-DT 5X	Zinc	µg/L	3.237007065	NA	2.595793043	24.70%	10%

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011442
Test Method: EPA 6020
Analysis Date: 11/25/13

Matrix: Water
Batch No.: 44401

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 is <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011442-001A-DT 5X	Manganese	µg/L	0	NA	0		10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011442
Test Method: EPA 6020
Analysis Date: 11/25/13

Matrix: Water
Batch No.: 44403

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 is <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011442-021A-DT 5X	Manganese	µg/L	0	NA	0		10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *26-Nov-13*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011442-001A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **91383**
Client ID: **ZZZZZZ**	Batch ID: **44401**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/22/2013**	SeqNo: **1692393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.005	1.0	20.00	0	105	80	120				
Arsenic	20.462	0.20	20.00	1.545	94.6	80	120				
Barium	247.112	2.0	200.0	53.16	97.0	80	120				
Beryllium	20.303	1.0	20.00	0	102	80	120				
Boron	2416.094	100	2000	274.8	107	80	120				
Cadmium	18.954	1.0	20.00	0	94.8	80	120				
Chromium	28.761	2.0	20.00	10.69	90.4	80	120				
Cobalt	17.515	1.0	20.00	0	87.6	80	120				
Copper	18.399	2.0	20.00	0	92.0	80	120				
Lead	21.169	2.0	20.00	0	106	80	120				
Manganese	174.818	1.0	200.0	0	87.4	80	120				
Molybdenum	38.511	1.0	20.00	16.18	112	80	120				
Nickel	18.289	2.0	20.00	0.3072	89.9	80	120				
Selenium	21.705	1.0	20.00	2.735	94.8	80	120				
Silver	19.617	1.0	20.00	0	98.1	80	120				
Thallium	20.293	1.0	20.00	0.03849	101	80	120				
Vanadium	29.704	2.0	20.00	11.64	90.3	80	120				
Zinc	175.623	20	200.0	2.596	86.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011442-021A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **91392**
Client ID: **ZZZZZZ**	Batch ID: **44403**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/25/2013**	SeqNo: **1692969**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.001	1.0	200.0	0	53.5	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

EPA 7470A_Dissolved

WC CH2M
REV.1.0
112912

Wet Chemistry Technical Batch Review Checklist (CH2MHILL)
ADVANCED TECHNOLOGY LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW: 44408

QC Batch Number: N011442 **Analyst:** LCC

ATL #: **Date Analyzed:** 11/18/2013

Method: 7470_Hg

	Ist Level Review			2nd Level Review		
Initial Calibration	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
3. ICV within ± 15% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X					
5. CCV within ± 15% of expected value.	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
Sample Information						
8. All samples are within linear range.	X					
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)	X					
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Date: 11/20/2013

2nd Level Reviewer 11/27/2013 Date:

SAMPLE CALCULATION

11/20/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Sample Calculation

Work Order No.:	**N011442**
Test Method:	**EPA 7470**
Matrix:	**Aqueous**

FORMULA:

Calculate the Mercury concentration in ug/L in the original sample as follows:

Hg = [A] [DF]

where:

A = ug/L, instrument calculated concentration
DF = dilution factor

For: **N011442-002A**

The concentration in ug/L is calculated as follows:

Hg = [A] [DF]

Hg = [-0.03020] [1]

Hg = -0.03020 ug/L

Reporting results in two significant figures,

Hg = ND ug/L

11/20/2013

SAMPLE PREPARATION LOG

11/20/2013

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

PREP BATCH REPORT

Prep Start Date: **11/15/2013 3:45:16**
Prep End Date: **11/15/2013 5:50:00**

Initials/ Date: SMu. 11/27/13

Prep Factor Units
mL / mL

Prep Batch **44408** Prep Code: **7470_PR_DIS** Technician: **Luisa C Cabasug**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-44408	Aqueous		25		0	0	50	2.000		
MB-44408	Aqueous		25		0	0	50	2.000		
N011442-002A	Water		25		0	0	50	2.000		
N011442-002A-MS	Water		25		0	0	50	2.000		
N011442-002A-MS	Water		25		0	0	50	2.000		
N011471-013A	Water		25		0	0	50	2.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
1559	Potassium Persulfate
6707	SODIUM CHLORIDE
6708	sulfuric acid
6712	POTASSIUM PERMANGANATE
6754	HYDROXYLAMINE HCl
6827	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-131114	500ppb Hg ICAL/CCV	ICAL/CCV	0.25
2MWST-131114	500ppb Hg ICV/LCS/LCSD/MS/MSD	ICV/LCS/LCSD	0.25

ANALYSIS RUN LOG

11/20/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

0

Injection Log Summary

Work Order No.: N011442
Test Method: EPA 7470

Matrix: Aqueous
Analyte: Mercury

Instrument ID: AA1
Instrument Description: M6000 Cetac Mercury Analyzer

Comments:

Analyzed By: luisa cabasug

Injection Log

Sample ID	DF	Date	Time	Concentration	Unit	Comments
Calibration Zero	1	11/18/13	16:44:09	0	PPB	
Standard #1	1	11/18/13	16:46:50	0.2	PPB	
Standard #2	1	11/18/13	16:49:33	1	PPB	
Standard #3	1	11/18/13	16:52:15	5	PPB	
Standard #4	1	11/18/13	16:54:59	10	PPB	
Standard #5	1	11/18/13	16:57:43	20	PPB	
ICV	1	11/18/13	17:00:26	10.89425	PPB	
ICB	1	11/18/13	17:03:07	-0.02592	PPB	
MB-44408	1	11/18/13	17:05:49	-0.04103	PPB	
LCS-44408	1	11/18/13	17:08:33	4.64399	PPB	
N011442-002A-MS	1	11/18/13	17:11:16	5.92593	PPB	
N011442-002A-MSD	1	11/18/13	17:13:59	6.02519	PPB	
N011442-002A	1	11/18/13	17:16:41	-0.03022	PPB	
N011471-013A	1	11/18/13	17:19:23	-0.03161	PPB	
CCV1	1	11/18/13	17:33:01	10.78946	PPB	
CCB1	1	11/18/13	17:35:43	-0.03379	PPB	

11/20/2013

INITIAL CALIBRATION DATA

SUMMARY

11/20/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Initial Calibration Summary

Work Order No.: N011442
Test Method: EPA 7470

Instrument ID: AA1
Instrument Description:) Cetac Mercury Analyzer

Intercept: ~~167.432~~ 51.551
Slope: ~~1101.926~~ 1034.454
Correlation: ~~0.99990~~ 0.99912

for 11/27/2013

	Stock	Working
Standard Concentration:	1000 PPM	500 PPB
ICAL Standard:	2MSST-130910A	MWST-131114A

Comments:

Analyzed By: luisa cabasug

Calibration Acceptance Criteria: > 0.995 Correlation

Sample ID	Date	Time	Std. Conc.	Units	Ave. Absorbance	Comments
Calibration Zero	18-Nov-13	16:44:09	0	PPB	22.9	
Standard #1	18-Nov-13	16:46:50	0.2	PPB	198.2	
Standard #2	18-Nov-13	16:49:33	1	PPB	1007.4	
Standard #3	18-Nov-13	16:52:15	5	PPB	4998.0	
Standard #4	18-Nov-13	16:54:59	10	PPB	11060.7	
Standard #5	18-Nov-13	16:57:43	20	PPB	20469.3	

* Please note that the instrument printout for the "Average Absorbance" were represented in three significant figures. The exact values are represented in the ICAL Summary for calculation purposes.

11/20/2013

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

11/20/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *20-Nov-13*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **CCV1** SampType: **CCV** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: RunNo: **91231**
Client ID: **CCV** Batch ID: **R91231** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.789	0.20	10.00	0	108	90	110				

Sample ID: **ICV** SampType: **ICV** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: RunNo: **91231**
Client ID: **ICV** Batch ID: **R91231** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.894	0.20	10.00	0	109	90	110				

11/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

11/20/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *20-Nov-13*

CLIENT: CH2M HILL
Work Order: N011442
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **CCB1** SampType: **CCB** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: RunNo: **91231**
Client ID: **CCB** Batch ID: **R91231** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687049**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	-0.03379	0.20									

Sample ID: **ICB** SampType: **ICB** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: RunNo: **91231**
Client ID: **ICB** Batch ID: **R91231** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	-0.02592	0.20									

11/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

December 03, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011471

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 14, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

Advanced Technology Laboratories, Inc. **Date:** *03-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011471

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on N011471-006 since plasma was extinguished when sample was analyzed at no dilution.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011471-002, N011471-004, N011471-006, N011471-007, N011471-008, N011471-009, N011471-010 and N011471-013 due to failed Internal Standards when samples were analyzed at no dilution.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Cadmium and Vanadium possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *03-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011471
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011471-001A	MW-13-194	Water	11/13/2013 11:17:00 AM	11/14/2013	12/3/2013
N011471-001B	MW-13-194	Water	11/13/2013 11:17:00 AM	11/14/2013	12/3/2013
N011471-002A	MW-38D-194	Water	11/13/2013 12:36:00 PM	11/14/2013	12/3/2013
N011471-002B	MW-38D-194	Water	11/13/2013 12:36:00 PM	11/14/2013	12/3/2013
N011471-003A	MW-52D-194	Water	11/13/2013 8:58:00 AM	11/14/2013	12/3/2013
N011471-003B	MW-52D-194	Water	11/13/2013 8:58:00 AM	11/14/2013	12/3/2013
N011471-003C	MW-52D-194	Water	11/13/2013 8:58:00 AM	11/14/2013	12/3/2013
N011471-004A	MW-52M-194	Water	11/13/2013 10:15:00 AM	11/14/2013	12/3/2013
N011471-004B	MW-52M-194	Water	11/13/2013 10:15:00 AM	11/14/2013	12/3/2013
N011471-004C	MW-52M-194	Water	11/13/2013 10:15:00 AM	11/14/2013	12/3/2013
N011471-005A	MW-52S-194	Water	11/13/2013 11:28:00 AM	11/14/2013	12/3/2013
N011471-005B	MW-52S-194	Water	11/13/2013 11:28:00 AM	11/14/2013	12/3/2013
N011471-005C	MW-52S-194	Water	11/13/2013 11:28:00 AM	11/14/2013	12/3/2013
N011471-006A	MW-53D-194	Water	11/13/2013 1:44:00 PM	11/14/2013	12/3/2013
N011471-006B	MW-53D-194	Water	11/13/2013 1:44:00 PM	11/14/2013	12/3/2013
N011471-006C	MW-53D-194	Water	11/13/2013 1:44:00 PM	11/14/2013	12/3/2013
N011471-007A	MW-53M-194	Water	11/13/2013 1:01:00 PM	11/14/2013	12/3/2013
N011471-007B	MW-53M-194	Water	11/13/2013 1:01:00 PM	11/14/2013	12/3/2013
N011471-007C	MW-53M-194	Water	11/13/2013 1:01:00 PM	11/14/2013	12/3/2013
N011471-008A	MW-62-110-194	Water	11/13/2013 1:25:00 PM	11/14/2013	12/3/2013
N011471-008B	MW-62-110-194	Water	11/13/2013 1:25:00 PM	11/14/2013	12/3/2013
N011471-008C	MW-62-110-194	Water	11/13/2013 1:25:00 PM	11/14/2013	12/3/2013
N011471-009A	MW-62-190-194	Water	11/13/2013 1:32:00 PM	11/14/2013	12/3/2013
N011471-009B	MW-62-190-194	Water	11/13/2013 1:32:00 PM	11/14/2013	12/3/2013
N011471-009C	MW-62-190-194	Water	11/13/2013 1:32:00 PM	11/14/2013	12/3/2013
N011471-010A	MW-96-194	Water	11/13/2013 7:20:00 AM	11/14/2013	12/3/2013
N011471-010B	MW-96-194	Water	11/13/2013 7:20:00 AM	11/14/2013	12/3/2013
N011471-010C	MW-96-194	Water	11/13/2013 7:20:00 AM	11/14/2013	12/3/2013
N011471-011A	OW-03M-194	Water	11/13/2013 9:02:00 AM	11/14/2013	12/3/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011471
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011471-011B	OW-03M-194	Water	11/13/2013 9:02:00 AM	11/14/2013	12/3/2013
N011471-012A	OW-03S-194	Water	11/13/2013 9:24:00 AM	11/14/2013	12/3/2013
N011471-012B	OW-03S-194	Water	11/13/2013 9:24:00 AM	11/14/2013	12/3/2013
N011471-013A	MW-22-194	Water	11/14/2013 8:42:00 AM	11/14/2013	12/3/2013
N011471-013B	MW-22-194	Water	11/14/2013 8:42:00 AM	11/14/2013	12/3/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-13-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 8:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	7800	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	7600	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-96-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 7:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	5400	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	1400	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-194
Lab Order:	N011471	**Collection Date:**	11/14/2013 8:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131115B**	QC Batch: **R91202**			PrepDate:			Analyst: **LCC**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	11/15/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011471-011B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91202**
Client ID: **ZZZZZZ** Batch ID: **R91202** TestNo: **EPA 120.1** Analysis Date: **11/15/2013** SeqNo: **1685492**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5440.000	0.10						5410	0.553	10	

Sample ID: **N011471-013B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91202**
Client ID: **ZZZZZZ** Batch ID: **R91202** TestNo: **EPA 120.1** Analysis Date: **11/15/2013** SeqNo: **1685495**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19890.000	0.10						19860	0.151	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-13-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	74	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	74	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-38D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 12:36:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	32	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	32	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 8:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	47	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	47	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	81	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	81	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	970	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	970	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	36	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	36	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	40	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	40	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	78	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	78	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	44	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	44	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-96-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 7:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	81	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	81	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	49	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	49	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	70	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	70	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-194
Lab Order:	N011471	**Collection Date:**	11/14/2013 8:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131119B**	QC Batch: **R91259**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	680	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/19/2013
Alkalinity, Total (As CaCO3)	680	1.2	5.0		mg/L	1	11/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *03-Dec-13*

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91259** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91259**
Client ID: **LCSW** Batch ID: **R91259** TestNo: **SM 2320 B** Analysis Date: **11/19/2013** SeqNo: **1687933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.458	5.0	100.0	0	97.5	85	115				
Alkalinity, Total (As CaCO3)	97.458	5.0	100.0	0	97.5	85	115				

Sample ID: **MB-R91259** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91259**
Client ID: **PBW** Batch ID: **R91259** TestNo: **SM 2320 B** Analysis Date: **11/19/2013** SeqNo: **1687934**

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: **N011471-011B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91259**
Client ID: **ZZZZZZ** Batch ID: **R91259** TestNo: **SM 2320 B** Analysis Date: **11/19/2013** SeqNo: **1687946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	52.966	5.0						48.73	8.33	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)	52.966	5.0						48.73	8.33	30	

Sample ID: **N011471-012B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91259**
Client ID: **ZZZZZZ** Batch ID: **R91259** TestNo: **SM 2320 B** Analysis Date: **11/19/2013** SeqNo: **1687948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	158.898	5.0	100.0	69.92	89.0	75	125				
Alkalinity, Total (As CaCO3)	158.898	5.0	100.0	69.92	89.0	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011471-012B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91259**
Client ID: **ZZZZZZ** Batch ID: **R91259** TestNo: **SM 2320 B** Analysis Date: **11/19/2013** SeqNo: **1687949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	158.898	5.0	100.0	69.92	89.0	75	125	158.9	0	20	
Alkalinity, Total (As CaCO3)	158.898	5.0	100.0	69.92	89.0	75	125	158.9	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-13-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	490	2.6	50		mg/L	100	11/20/2013 02:26 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	140	0.76	10		mg/L	20	11/20/2013 02:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-38D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 12:36:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	7700	52	1000		mg/L	2000	11/20/2013 05:36 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	710	3.8	50		mg/L	100	11/20/2013 05:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 8:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	7300	52	1000		mg/L	2000	11/20/2013 06:01 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	880	3.8	50		mg/L	100	11/20/2013 06:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	5100	26	500		mg/L	1000	11/20/2013 06:27 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	710	3.8	50		mg/L	100	11/20/2013 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	2600	13	250		mg/L	500	11/20/2013 06:52 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	360	1.9	25		mg/L	50	11/20/2013 07:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	8800	52	1000		mg/L	2000	11/20/2013 07:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	1200	3.8	50		mg/L	100	11/20/2013 07:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	6800	52	1000		mg/L	2000	11/20/2013 09:23 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	790	3.8	50		mg/L	100	11/20/2013 09:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	2600	13	250		mg/L	500	11/20/2013 09:49 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	520	3.8	50		mg/L	100	11/20/2013 10:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	6000	26	500		mg/L	1000	11/20/2013 10:39 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	720	3.8	50		mg/L	100	11/20/2013 10:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-96-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 7:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	5000	26	500		mg/L	1000	11/20/2013 11:04 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	700	3.8	50		mg/L	100	11/20/2013 11:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	1600	13	250		mg/L	500	11/20/2013 11:30 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	300	1.9	25		mg/L	50	11/20/2013 11:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	350	2.6	50		mg/L	100	11/20/2013 11:55 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	74	0.38	5.0		mg/L	10	11/21/2013 12:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-194
Lab Order:	N011471	**Collection Date:**	11/14/2013 8:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Chloride	8100	52	1000		mg/L	2000	11/21/2013 12:20 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131120A** QC Batch: **R91380** PrepDate: Analyst: **QBM**							
Sulfate	2200	7.6	100		mg/L	200	11/21/2013 12:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *03-Dec-13*

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91380_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **PBW** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691923**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91380_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **LCSW** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.459	0.50	2.500	0	98.4	90	110				

Sample ID: **N011471-005BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691939**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2612.000	250						2576	1.39	20	

Sample ID: **N011471-005BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691940**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3894.500	250	1250	2576	105	80	120				

Sample ID: **N011471-005BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3918.000	250	1250	2576	107	80	120	3894	0.602	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91380_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **PBW** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91380_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **LCSW** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.874	0.50	5.000	0	97.5	90	110				

Sample ID: **N011497-018DDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691964**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	427.400	50						418.7	2.06	20	

Sample ID: **N011497-018DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691965**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	918.400	50	500.0	418.7	99.9	80	120				

Sample ID: **N011497-018DMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	905.300	50	500.0	418.7	97.3	80	120	918.4	1.44	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011471-005BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	361.550	25						357.8	1.04	20	

Sample ID: **N011471-005BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	612.850	25	250.0	357.8	102	80	120				

Sample ID: **N011471-005BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91380**
Client ID: **ZZZZZZ** Batch ID: **R91380** TestNo: **EPA 300.0** Analysis Date: **11/20/2013** SeqNo: **1691981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	614.350	25	250.0	357.8	103	80	120	612.8	0.244	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-13-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	94000	58	500		ug/L	1	11/21/2013 05:06 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 05:06 AM
Magnesium	12000	11	100		ug/L	1	11/21/2013 05:06 AM
Sodium	290000	730	5000		ug/L	10	11/25/2013 12:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-38D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 12:36:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	400000	58	500		ug/L	1	11/21/2013 05:38 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 05:38 AM
Magnesium	6500	11	100		ug/L	1	11/21/2013 05:38 AM
Sodium	4700000	18000	120000		ug/L	250	11/25/2013 01:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 8:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	280000	58	500		ug/L	1	11/21/2013 05:44 AM
Iron	430	1.3	20		ug/L	1	11/21/2013 05:44 AM
Magnesium	15000	11	100		ug/L	1	11/21/2013 05:44 AM
Sodium	4600000	18000	120000		ug/L	250	11/25/2013 01:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	390000	58	500		ug/L	1	11/21/2013 05:49 AM
Iron	1000	1.3	20		ug/L	1	11/21/2013 05:49 AM
Magnesium	38000	11	100		ug/L	1	11/21/2013 05:49 AM
Sodium	3300000	9100	62000		ug/L	125	11/25/2013 12:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	440000	580	5000		ug/L	10	11/21/2013 08:59 AM
Iron	13000	1.3	20		ug/L	1	11/21/2013 05:55 AM
Magnesium	130000	11	100		ug/L	1	11/21/2013 05:55 AM
Sodium	1700000	9100	62000		ug/L	125	11/25/2013 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	310000	120	1000		ug/L	2	11/21/2013 09:21 AM
Iron	260	2.7	40		ug/L	2	11/21/2013 09:21 AM
Magnesium	14000	22	200		ug/L	2	11/21/2013 09:21 AM
Sodium	6300000	46000	310000		ug/L	625	11/25/2013 12:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	410000	58	500		ug/L	1	11/21/2013 07:08 AM
Iron	320	1.3	20		ug/L	1	11/21/2013 07:08 AM
Magnesium	25000	11	100		ug/L	1	11/21/2013 07:08 AM
Sodium	4400000	9100	62000		ug/L	125	11/25/2013 12:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	170000	58	500		ug/L	1	11/21/2013 07:14 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 07:14 AM
Magnesium	7800	11	100		ug/L	1	11/21/2013 07:14 AM
Sodium	1800000	9100	62000		ug/L	125	11/25/2013 12:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	350000	58	500		ug/L	1	11/21/2013 07:19 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 07:19 AM
Magnesium	12000	11	100		ug/L	1	11/21/2013 07:19 AM
Sodium	3700000	9100	62000		ug/L	125	11/25/2013 12:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-96-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 7:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	400000	58	500		ug/L	1	11/21/2013 07:24 AM
Iron	1000	1.3	20		ug/L	1	11/21/2013 07:24 AM
Magnesium	38000	11	100		ug/L	1	11/21/2013 07:24 AM
Sodium	3700000	9100	62000		ug/L	125	11/25/2013 12:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	96000	58	500		ug/L	1	11/21/2013 07:53 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 07:53 AM
Magnesium	8300	11	100		ug/L	1	11/21/2013 07:53 AM
Sodium	1100000	9100	62000		ug/L	125	11/25/2013 01:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**				PrepDate: **11/18/2013**		Analyst: **CEI**
Calcium	74000	58	500		ug/L	1	11/21/2013 07:58 AM
Iron	ND	1.3	20		ug/L	1	11/21/2013 07:58 AM
Magnesium	11000	11	100		ug/L	1	11/21/2013 07:58 AM
Sodium	200000	1800	12000		ug/L	25	11/25/2013 05:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-194
Lab Order:	N011471	**Collection Date:**	11/14/2013 8:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131120F**	QC Batch: **44419**			PrepDate:	**11/18/2013**		Analyst: **CEI**
Calcium	890000	580	5000		ug/L	10	11/21/2013 09:16 AM
Iron	10000	1.3	20		ug/L	1	11/21/2013 08:02 AM
Magnesium	230000	11	100		ug/L	1	11/21/2013 08:02 AM
Sodium	5400000	46000	310000		ug/L	625	11/25/2013 01:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44419** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/18/2013** RunNo: **91347**
Client ID: **PBW** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **N011471-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/18/2013** RunNo: **91347**
Client ID: **ZZZZZZ** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	100812.541	500	10000	93960	68.5	75	125				S
Iron	107.380	20	100.0	9.340	98.0	75	125				
Magnesium	21109.780	100	10000	12480	86.3	75	125				

Sample ID: **N011471-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/18/2013** RunNo: **91347**
Client ID: **ZZZZZZ** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	100757.325	500	10000	93960	68.0	75	125	100800	0.0548	20	S
Iron	110.578	20	100.0	9.340	101	75	125	107.4	2.93	20	
Magnesium	20512.783	100	10000	12480	80.3	75	125	21110	2.87	20	

Sample ID: **LCS-44419** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/18/2013** RunNo: **91347**
Client ID: **LCSW** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9759.118	500	10000	0	97.6	85	115				
Iron	106.428	20	100.0	0	106	85	115				
Magnesium	9988.277	100	10000	0	99.9	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44419** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/18/2013** RunNo: **91395**
Client ID: **PBW** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS2-44419** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/18/2013** RunNo: **91395**
Client ID: **LCSW** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	19155.965	500	20000	0	95.8	85	115				

Sample ID: **N011477-001B-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/18/2013** RunNo: **91395**
Client ID: **ZZZZZZ** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	73466.318	2500	20000	53620	99.2	75	125				

Sample ID: **N011477-001B-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/18/2013** RunNo: **91395**
Client ID: **ZZZZZZ** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	76491.277	2500	20000	53620	114	75	125	73470	4.03	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-13-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:17:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**				PrepDate: **11/19/2013**		Analyst: **CEI**
Arsenic	1.9	0.027	0.10		µg/L	1	11/27/2013 12:42 PM
Manganese	ND	0.026	0.50		µg/L	1	11/27/2013 12:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-38D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 12:36:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**				PrepDate: **11/19/2013**		Analyst: **CEI**
Arsenic	6.6	0.13	0.50		µg/L	5	11/27/2013 12:48 PM
Manganese	250	0.13	2.5		µg/L	5	11/27/2013 12:48 PM
Molybdenum	86	0.76	2.5		µg/L	5	12/2/2013 10:27 AM
Selenium	ND	0.34	2.5		µg/L	5	12/2/2013 10:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 8:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131202A**	QC Batch: **44434**				PrepDate: **11/19/2013**		Analyst: **CEI**
Arsenic	3.8	0.13	0.50		µg/L	5	12/2/2013 10:33 AM
Manganese	78	0.026	0.50		µg/L	1	12/2/2013 10:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**			PrepDate:	**11/19/2013**		Analyst: **CEI**
Arsenic	1.9	0.13	0.50		µg/L	5	11/27/2013 01:10 PM
Manganese	34	0.026	0.50		µg/L	1	11/27/2013 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 11:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131202A**	QC Batch: **44434**			PrepDate:	**11/19/2013**		Analyst: **CEI**
Arsenic	0.23	0.027	0.10		µg/L	1	12/2/2013 10:44 AM
Manganese	2100	0.64	12		µg/L	25	11/27/2013 01:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53D-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**			PrepDate:	**11/19/2013**		Analyst: **CEI**
Arsenic	3.1	0.13	0.50		µg/L	5	11/27/2013 01:48 PM
Manganese	1300	0.64	12		µg/L	25	11/27/2013 01:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**			PrepDate:	**11/19/2013**		Analyst: **CEI**
Arsenic	0.95	0.13	0.50		µg/L	5	11/27/2013 02:05 PM
Manganese	250	0.13	2.5		µg/L	5	11/27/2013 02:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**				PrepDate: **11/19/2013**		Analyst: **CEI**
Arsenic	6.6	0.027	0.10		µg/L	1	11/27/2013 02:22 PM
Manganese	59	0.026	0.50		µg/L	1	11/27/2013 02:22 PM
Molybdenum	46	0.76	2.5		µg/L	5	12/2/2013 10:50 AM
Selenium	3.0	0.34	2.5		µg/L	5	12/2/2013 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**				PrepDate: **11/19/2013**		Analyst: **CEI**
Arsenic	4.6	0.13	0.50		µg/L	5	11/27/2013 02:27 PM
Manganese	520	0.13	2.5		µg/L	5	11/27/2013 02:27 PM
Molybdenum	79	0.76	2.5		µg/L	5	12/2/2013 10:56 AM
Selenium	ND	0.34	2.5		µg/L	5	12/2/2013 10:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-96-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 7:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**			PrepDate:	**11/19/2013**		Analyst: **CEI**
Arsenic	1.9	0.13	0.50		µg/L	5	11/27/2013 02:38 PM
Manganese	35	0.026	0.50		µg/L	1	11/27/2013 02:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03M-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**			PrepDate:	**11/19/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/27/2013 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03S-194
Lab Order:	N011471	**Collection Date:**	11/13/2013 9:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131127A**	QC Batch: **44434**			PrepDate:	**11/19/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	11/27/2013 03:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-194
Lab Order:	N011471	**Collection Date:**	11/14/2013 8:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_131127A**	QC Batch: **44434**			PrepDate:	**11/19/2013**		Analyst: **CEI**
Antimony	ND	0.92	2.5		µg/L	5	11/27/2013 11:24 AM
Arsenic	14	0.13	0.50		µg/L	5	11/27/2013 11:24 AM
Barium	66	0.15	5.0		µg/L	5	11/27/2013 11:24 AM
Beryllium	ND	0.25	12		µg/L	25	11/27/2013 11:35 AM
Cadmium	ND	0.066	2.5		µg/L	5	11/27/2013 11:24 AM
Cobalt	2.8	0.017	0.50		µg/L	1	11/27/2013 11:30 AM
Copper	ND	0.20	5.0		µg/L	5	11/27/2013 11:24 AM
Lead	ND	0.26	25		µg/L	25	11/27/2013 11:35 AM
Manganese	5900	3.2	62		µg/L	125	12/2/2013 10:22 AM
Molybdenum	34	0.76	2.5		µg/L	5	11/27/2013 11:24 AM
Nickel	ND	0.16	5.0		µg/L	5	11/27/2013 11:24 AM
Selenium	ND	0.34	2.5		µg/L	5	11/27/2013 11:24 AM
Silver	ND	0.47	2.5		µg/L	5	11/27/2013 11:24 AM
Thallium	ND	0.20	12		µg/L	25	11/27/2013 11:35 AM
Vanadium	ND	0.16	1.0		µg/L	1	11/27/2013 11:30 AM
Zinc	ND	1.2	50		µg/L	5	11/27/2013 11:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *03-Dec-13*

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44434** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/19/2013** RunNo: **91434**
Client ID: **PBW** Batch ID: **44434** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1694418**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	0.038	1.0									
Selenium	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Vanadium	0.372	1.0									
Zinc	ND	10									

Sample ID: **LCS-44434** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/19/2013** RunNo: **91434**
Client ID: **LCSW** Batch ID: **44434** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1694419**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.892	0.50	10.00	0	109	85	115				
Arsenic	9.938	0.10	10.00	0	99.4	85	115				
Barium	111.875	1.0	100.0	0	112	85	115				
Beryllium	10.091	0.50	10.00	0	101	85	115				
Cadmium	10.927	0.50	10.00	0	109	85	115				
Cobalt	10.519	0.50	10.00	0	105	85	115				
Copper	9.772	1.0	10.00	0	97.7	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-44434** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/19/2013** RunNo: **91434**
Client ID: **LCSW** Batch ID: **44434** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1694419**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.950	1.0	10.00	0	110	85	115				
Manganese	100.867	0.50	100.0	0	101	85	115				
Molybdenum	10.240	0.50	10.00	0	102	85	115				
Nickel	10.160	1.0	10.00	0	102	85	115				
Selenium	9.650	0.50	10.00	0	96.5	85	115				
Silver	9.961	0.50	10.00	0	99.6	85	115				
Thallium	10.623	0.50	10.00	0	106	85	115				
Vanadium	10.020	1.0	10.00	0	100	85	115				
Zinc	100.129	10	100.0	0	100	85	115				

Sample ID: **N011477-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/19/2013** RunNo: **91434**
Client ID: **ZZZZZZ** Batch ID: **44434** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1694423**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.629	0.50	10.00	0	106	75	125				
Arsenic	13.369	0.10	10.00	3.727	96.4	75	125				
Barium	169.391	1.0	100.0	77.37	92.0	75	125				
Beryllium	9.881	0.50	10.00	0	98.8	75	125				
Cadmium	7.267	0.50	10.00	0	72.7	75	125				S
Cobalt	9.742	0.50	10.00	0.02072	97.2	75	125				
Copper	9.256	1.0	10.00	0.2665	89.9	75	125				
Lead	10.239	1.0	10.00	0	102	75	125				
Manganese	101.290	0.50	100.0	8.088	93.2	75	125				
Molybdenum	13.996	0.50	10.00	3.472	105	75	125				
Nickel	9.485	1.0	10.00	0.4011	90.8	75	125				
Selenium	8.901	0.50	10.00	0.1604	87.4	75	125				
Silver	9.424	0.50	10.00	0	94.2	75	125				
Thallium	10.848	0.50	10.00	0.03349	108	75	125				
Vanadium	5.727	1.0	10.00	5.518	2.09	75	125				S
Zinc	95.454	10	100.0	5.740	89.7	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011477-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/19/2013** RunNo: **91434**
Client ID: **ZZZZZZ** Batch ID: **44434** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1694424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.634	0.50	10.00	0	106	75	125	10.63	0.0435	20	
Arsenic	13.236	0.10	10.00	3.727	95.1	75	125	13.37	1.00	20	
Barium	163.858	1.0	100.0	77.37	86.5	75	125	169.4	3.32	20	
Beryllium	9.847	0.50	10.00	0	98.5	75	125	9.881	0.347	20	
Cadmium	7.430	0.50	10.00	0	74.3	75	125	7.267	2.21	20	S
Cobalt	9.758	0.50	10.00	0.02072	97.4	75	125	9.742	0.172	20	
Copper	8.813	1.0	10.00	0.2665	85.5	75	125	9.256	4.90	20	
Lead	10.160	1.0	10.00	0	102	75	125	10.24	0.780	20	
Manganese	101.261	0.50	100.0	8.088	93.2	75	125	101.3	0.0284	20	
Molybdenum	13.663	0.50	10.00	3.472	102	75	125	14.00	2.41	20	
Nickel	9.467	1.0	10.00	0.4011	90.7	75	125	9.485	0.190	20	
Selenium	9.421	0.50	10.00	0.1604	92.6	75	125	8.901	5.67	20	
Silver	9.360	0.50	10.00	0	93.6	75	125	9.424	0.688	20	
Thallium	10.803	0.50	10.00	0.03349	108	75	125	10.85	0.409	20	
Vanadium	5.523	1.0	10.00	5.518	0.0546	75	125	5.727	3.62	20	S
Zinc	95.129	10	100.0	5.740	89.4	75	125	95.45	0.341	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *03-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-194
Lab Order:	N011471	**Collection Date:**	11/14/2013 8:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011471-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_131118A**	QC Batch: **44408**			PrepDate:	**11/15/2013**		Analyst: **LCC**
Mercury	ND	0.038	0.20		µg/L	1	11/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *03-Dec-13*

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **LCS-44408** SampType: **LCS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91231**
Client ID: **LCSW** Batch ID: **44408** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.644	0.20	5.000	0	92.9	85	115				

Sample ID: **MB-44408** SampType: **MBLK** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91231**
Client ID: **PBW** Batch ID: **44408** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **N011442-002A-MS** SampType: **MS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91231**
Client ID: **ZZZZZZ** Batch ID: **44408** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.926	0.20	5.000	0	119	75	125				

Sample ID: **N011442-002A-MSD** SampType: **MSD** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2013** RunNo: **91231**
Client ID: **ZZZZZZ** Batch ID: **44408** TestNo: **EPA 7470A** Analysis Date: **11/18/2013** SeqNo: **1687057**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	6.025	0.20	5.000	0	121	75	125	5.926	1.66	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/14/2013
COC Number: 13

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Metals (6010B/6020A/7470Adis) FF **	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-13-194	11/13/2013	11:17	Water	X	X			X	X	X		N011471-1	~~8~~	3
MW-38D-194	11/13/2013	12:36	Water	X	X	X		X		X		-2	~~7~~	3
MW-52D-194	11/13/2013	8:58	Water	X	X			X	X	X	X	-3	~~8~~	4
MW-52M-194	11/13/2013	10:15	Water	X	X			X	X	X	X	-4	~~8~~	4
MW-52S-194	11/13/2013	11:28	Water	X	X			X	X	X	X	-5	~~8~~	4
MW-53D-194	11/13/2013	13:44	Water	X	X			X	X	X	X	-6	~~8~~	4
MW-53M-194	11/13/2013	13:01	Water	X	X			X	X	X	X	-7	~~8~~	4
MW-62-110-194	11/13/2013	13:25	Water	X	X	X		X	X	X	X	-8	~~9~~	4
MW-62-190-194	11/13/2013	13:32	Water	X	X	X		X	X	X	X	-9	~~9~~	4
MW-96-194	11/13/2013	7:20	Water	X	X			X	X	X	X	-10	~~8~~	4
OW-03M-194	11/13/2013	9:02	Water		X			X	X	X		-11	~~4~~	3
OW-03S-194	11/13/2013	9:24	Water		X			X	X	X		-12	~~4~~	3
MW-22-194	11/14/2013	8:42	Water		X		X	X	X	X		-13	~~5~~	3
												TOTAL NUMBER OF CONTAINERS	47	

	Signatures	Date/Time
Approved by		11-14-13
Sampled by		1525
Relinquished by		
Received by		14NOV13 1525
Relinquished by		14NOV13 1734
Received by		14NOV13 1734

Shipping Details

Method of Shipment: courier
On Ice: (yes) no 3.3, 4.2, 2, 9°C
Airbill No: 122 ICE
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
** The metals list for MW-22-194 is: Sb,As,Ba,Be,Cd,Co,Cu,Pb,Hg,Mo,Ni,Se Ag,Tl,V,Zn.

Shawn P. Duffy 11/15/2013

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/14/2013
COC Number: 13

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Metals (6010B/6020A/7470Adis) FF	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-13-194	11/13/2013	11:17	Water	X	X			X	X	X		N011471-1	~~8~~	3
MW-38D-194	11/13/2013	12:36	Water	X	X	X		X		X		-2	~~7~~	3
MW-52D-194	11/13/2013	8:58	Water	X	X			X	X	X	X	-3	~~8~~	4
MW-52M-194	11/13/2013	10:15	Water	X	X			X	X	X	X	-4	~~8~~	4
MW-52S-194	11/13/2013	11:28	Water	X	X			X	X	X	X	-5	~~8~~	4
MW-53D-194	11/13/2013	13:44	Water	X	X			X	X	X	X	-6	~~8~~	4
MW-53M-194	11/13/2013	13:01	Water	X	X			X	X	X	X	-7	~~8~~	4
MW-62-110-194	11/13/2013	13:25	Water	X	X	X		X	X	X	X	-8	~~8~~	4
MW-62-190-194	11/13/2013	13:32	Water	X	X	X		X	X	X	X	-9	~~8~~	4
MW-96-194	11/13/2013	7:20	Water	X	X			X	X	X	X	-10	~~8~~	4
OW-03M-194	11/13/2013	9:02	Water		X			X	X	X		-11	~~4~~	3
OW-03S-194	11/13/2013	9:24	Water		X			X	X	X		-12	~~4~~	3
MW-22-194	11/14/2013	8:42	Water		X		X	X	X	X		-13	~~5~~	3
												TOTAL NUMBER OF CONTAINERS	47	

	Signatures	Date/Time
Approved by		11-14-13
Sampled by		1525
Relinquished by		
Received by		14NOV13 1525
Relinquished by		14NOV13 1734
Received by		14NOV13 1734

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 3.3, 4.2, 2.9°C
Airbill No: 122 ICE
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

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:	11/14/2013	Workorder:	N011471
Rep sample Temp (Deg C):	3.3, 4.2, 2.9	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 11/15/2013

Reviewed By:

Sample Control

From: Hanah Glodoviza [hanah.glodoviza@atl-labs.com]
Sent: Friday, November 15, 2013 4:31 PM
To: 'Sample Control'
Subject: FW: MW-22-194
Attachments: N011471_COC_11-15-2013_spd.pdf

From: Shawn.Duffy@CH2M.com [mailto:Shawn.Duffy@CH2M.com]
Sent: Friday, November 15, 2013 4:21 PM
To: marlon@atl-labs.com
Cc: hanah.glodoviza@atl-labs.com; Erlene.Contreras@CH2M.com; Priya.Kumar@CH2M.com
Subject: RE: MW-22-194

Hi Marlon,

Attached is a COC with the list included. (Sb, As, Ba, Be, Cd, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, V, Zn) plus the cation listed on the other column (Ca, Mg, Na, Fe, Mn).

Shawn

From: Marlon B. Cartin [mailto:marlon@atl-labs.com]
Sent: Friday, November 15, 2013 3:38 PM
To: Duffy, Shawn/RDD
Cc: 'Hanah Glodoviza'
Subject: MW-22-194

Hi Shawn!

Please provide list of analytes for metals for the above sample. Attached is the COC for your reference.

Thanks,

Marlon B. Cartin
Advanced Technology Laboratories, Inc.
3151 W. Post Road
Las Vegas, NV 89118
Phone: 702-307-2659 ext 410
Mobile: 702-439-0421
www.atl-labs.com

Advanced Technology Laboratories, Inc. is a full-service environmental lab providing organic and inorganic analyses of soil, water, wastewater, storm water and hazardous waste samples. ATL is accredited by the State of California, NELAP and State of Nevada and holds various SBE, DBE and MBE certificates and a USDA soil permit. ATL takes pride in providing our customers with quick turnaround time, excellent customer service and defensible data while offering very competitive rates. Advanced Technology Labs, Inc. - Your Partner for Quality Environmental Testing

This message is intended for the use of the individual or entity to which it is addressed. This may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and delete the original message. Thank you.

<<...>>

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

15-Nov-13

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**SM4500-NH3C**		
N011471-003C / MW-52D-194	Water	11/13/2013 8:58:00 AM	32OZP	1		
N011471-004C / MW-52M-194	Water	11/13/2013 10:15:00 AM	32OZP	1		
N011471-005C / MW-52S-194	Water	11/13/2013 11:28:00 AM	32OZP	1		
N011471-006C / MW-53D-194	Water	11/13/2013 1:44:00 PM	32OZP	1		
N011471-007C / MW-53M-194	Water	11/13/2013 1:01:00 PM	32OZP	1		
N011471-008C / MW-62-110-194	Water	11/13/2013 1:25:00 PM	32OZP	1		
N011471-009C / MW-62-190-194	Water	11/13/2013 1:32:00 PM	32OZP	1		
N011471-010C / MW-96-194	Water	11/13/2013 7:20:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N011471 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by: Normal TAT

Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

		Date/Time			Date/Time
Relinquished by:	Hanah Glodoviza	11/18/2013 17:00	**Received by:**		
Relinquished by:			**Received by:**		

Sample ID: **N011471-001B @ pH 7.81**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.8mL)

= **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 $CaCO_3$), mg/L = (3.50) (0.02119 N) (1) * 1000

= 74.165 **mg/L**

11/19/2013

Reporting results in two significant figures,

= 74.00 **mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02119 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (3.50 mL) (0.02119) (1) * 1000

= 74.165 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 74.165 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

11/19/2013

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 74.00 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Water

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the original sample as follows:

Sulfate, mg/L = A * DF

where :

A = mg/L, IC calculated concentration
DF = dilution factor

For **N011471-001B** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 7.193 * 20

= 143.86

Reporting result in two significant figures,

Sulfate, mg/L = 140

Harvey 12/2/2013

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Iron concentration, in µg/L, in the original sample as follows:

Iron, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011471-003A**, the concentration in µg/L is calculated as follows:

Iron, µg/L = 0.4311065545 * 1 * (25/25) * 1000

= 431.1065545

Reporting results in two significant figures,

Iron, µg/L = 430

Harvey 12/2/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011471
Test Method: EPA 6010
Analysis Date: 11/20/13

Matrix: Water
Batch No.: 44419

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable for Fe. The calculated concentration was< 25X the RL. However the PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011471-001A-DT 5X	Calcium	ug/L	98617.496650	PASSED	93959.502620	4.96%	10
N011471-001A-DT 5X	Iron	ug/L	9.5105196050	NA	9.3398503390	1.83%	10
N011471-001A-DT 5X	Magnesium	ug/L	13218.814030	PASSED	12479.920070	5.92%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011471
Test Method: EPA 6010
Analysis Date: 11/25/13

Matrix: Water
Batch No.: 44419

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

~~Dilution Test is not applicable for Na. The calculated concentration was< 25X the RL. However the PS @5X passed criteria.~~

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011477-001B-DT 25X	Sodium	ug/L	53639.000350	NA	53616.436350	0.04%	10

Note: NA - Not Applicable

12/2/2013

for

JAA / ICP-02 / 11/26/2013 6:16:51 PM

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011471-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91347**
Client ID: **ZZZZZZ** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/21/2013** SeqNo: **1690705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	104169.776	1000	5000	93960	204	80	120				S
Iron	4746.972	40	5000	9.340	94.8	80	120				
Magnesium	17512.186	200	5000	12480	101	80	120				

Sample ID: **N011477-001B-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91395**
Client ID: **ZZZZZZ** Batch ID: **44419** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/25/2013** SeqNo: **1693203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	100375.926	2500	50000	53620	93.5	80	120				

DT of Ca @5x is within criteria

Nancy 12/2/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 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 **N011471-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.90113902000491 * 1 * (25/25)

= 1.90113902000491

Reporting results in two significant figures,

Arsenic, ug/L = 1.9

Nancy 12/2/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N011471
Test Method: EPA 6020
Analysis Date: 11/27/13

Matrix: Water
Batch No.: 44434

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Be, Cd, Co, Cu, Pb, Mn, Mo, Ni, Se, Ag, Tl, V and Zn. The calculated values are <25X RL. PS @2X passed criteria.
Dilution test is not applicable to Sb. The calculated value is <25X RL.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011477-001B-DT 5X	Antimony	µg/L	0	NA	0		10
N011477-001B-DT 5X	Arsenic	µg/L	3.755987732	PASS	3.726563339	0.79%	10
N011477-001B-DT 5X	Barium	µg/L	77.91843643	PASS	77.37035745	0.71%	10
N011477-001B-DT 5X	Beryllium	µg/L	0	NA	0		10
N011477-001B-DT 5X	Cadmium	µg/L	0	NA	0		10
N011477-001B-DT 5X	Cobalt	µg/L	0	NA	0.020721436	100.00%	10
N011477-001B-DT 5X	Copper	µg/L	0.523955455	NA	0.266516339	96.59%	10
N011477-001B-DT 5X	Lead	µg/L	0	NA	0		10
N011477-001B-DT 5X	Manganese	µg/L	8.543309814	NA	8.087654267	5.63%	10
N011477-001B-DT 5X	Molybdenum	µg/L	3.384138371	NA	3.471523701	2.52%	10
N011477-001B-DT 5X	Nickel	µg/L	0.700320716	NA	0.401087452	74.61%	10
N011477-001B-DT 5X	Selenium	µg/L	0	NA	0.160401658	100.00%	10
N011477-001B-DT 5X	Silver	µg/L	0	NA	0		10
N011477-001B-DT 5X	Thallium	µg/L	0	NA	0.033493087	100.00%	10
N011477-001B-DT 5X	Vanadium	µg/L	6.282032492	NA	5.517793818	13.85%	10
N011477-001B-DT 5X	Zinc	µg/L	6.114004213	NA	5.740485431	6.51%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *02-Dec-13*

CLIENT: CH2M HILL
Work Order: N011471
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011477-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91434**
Client ID: **ZZZZZZ** Batch ID: **44434** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1694422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	24.137	1.0	20.00	0	121	80	120				S
Arsenic	25.303	0.20	20.00	3.727	108	80	120				
Barium	288.817	2.0	200.0	77.37	106	80	120				
Beryllium	22.220	1.0	20.00	0	111	80	120				
Cadmium	20.642	1.0	20.00	0	103	80	120				
Cobalt	22.380	1.0	20.00	0.02072	112	80	120				
Copper	21.175	2.0	20.00	0.2665	105	80	120				
Lead	23.806	2.0	20.00	0	119	80	120				
Manganese	223.820	1.0	200.0	8.088	108	80	120				
Molybdenum	26.163	1.0	20.00	3.472	113	80	120				
Nickel	21.424	2.0	20.00	0.4011	105	80	120				
Selenium	21.383	1.0	20.00	0.1604	106	80	120				
Silver	21.493	1.0	20.00	0	107	80	120				
Thallium	23.754	1.0	20.00	0.03349	119	80	120				
Vanadium	26.386	2.0	20.00	5.518	104	80	120				
Zinc	217.951	20	200.0	5.740	106	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.

Sample Calculation

Work Order No.:	**N011471**
Test Method:	**EPA 7470**
Matrix:	**Aqueous**

FORMULA:

Calculate the Mercury concentration in ug/L in the original sample as follows:

Hg = [A] [DF]

where:

A = ug/L, instrument calculated concentration
DF = dilution factor

For: **N011471-013A**

The concentration in ug/L is calculated as follows:

Hg = [A] [DF]

Hg = [-0.03160] [1]

Hg = -0.03160 ug/L

Reporting results in two significant figures,

Hg = ND ug/L

11/20/2013

December 10, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011508

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 22, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

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,

for Nancy Lincoln

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. **Date:** *10-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011508

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 300.0:

Dilution was necessary on samples N011508-002, N011508-003, N011508-006 and N011508-007 due to high Chloride concentration.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Iron possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *10-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011508
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011508-001A	MW-34-055-194	Water	11/20/2013 10:22:00 AM	11/22/2013	12/10/2013
N011508-001B	MW-34-055-194	Water	11/20/2013 10:22:00 AM	11/22/2013	12/10/2013
N011508-001C	MW-34-055-194	Water	11/20/2013 10:22:00 AM	11/22/2013	12/10/2013
N011508-002A	MW-34-080-194	Water	11/20/2013 11:45:00 AM	11/22/2013	12/10/2013
N011508-002B	MW-34-080-194	Water	11/20/2013 11:45:00 AM	11/22/2013	12/10/2013
N011508-002C	MW-34-080-194	Water	11/20/2013 11:45:00 AM	11/22/2013	12/10/2013
N011508-003A	MW-34-100-194	Water	11/20/2013 12:45:00 PM	11/22/2013	12/10/2013
N011508-003B	MW-34-100-194	Water	11/20/2013 12:45:00 PM	11/22/2013	12/10/2013
N011508-003C	MW-34-100-194	Water	11/20/2013 12:45:00 PM	11/22/2013	12/10/2013
N011508-004A	MW-46-175-194	Water	11/20/2013 2:56:00 PM	11/22/2013	12/10/2013
N011508-004B	MW-46-175-194	Water	11/20/2013 2:56:00 PM	11/22/2013	12/10/2013
N011508-004C	MW-46-175-194	Water	11/20/2013 2:56:00 PM	11/22/2013	12/10/2013
N011508-005A	MW-46-205-194	Water	11/20/2013 3:42:00 PM	11/22/2013	12/10/2013
N011508-005B	MW-46-205-194	Water	11/20/2013 3:42:00 PM	11/22/2013	12/10/2013
N011508-005C	MW-46-205-194	Water	11/20/2013 3:42:00 PM	11/22/2013	12/10/2013
N011508-006A	MW-93-194	Water	11/20/2013 7:00:00 AM	11/22/2013	12/10/2013
N011508-006B	MW-93-194	Water	11/20/2013 7:00:00 AM	11/22/2013	12/10/2013
N011508-006C	MW-93-194	Water	11/20/2013 7:00:00 AM	11/22/2013	12/10/2013
N011508-007A	MW-94-194	Water	11/20/2013 7:30:00 AM	11/22/2013	12/10/2013
N011508-007B	MW-94-194	Water	11/20/2013 7:30:00 AM	11/22/2013	12/10/2013
N011508-007C	MW-94-194	Water	11/20/2013 7:30:00 AM	11/22/2013	12/10/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-055-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131125B**	QC Batch: **R91388**			PrepDate:			Analyst: **LCC**
Specific Conductance	780	0.10	0.10		umhos/cm	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131125B**	QC Batch: **R91388**			PrepDate:			Analyst: **LCC**
Specific Conductance	7300	0.10	0.10		umhos/cm	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 12:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131125B**	QC Batch: **R91388**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131125B**	QC Batch: **R91388**			PrepDate:			Analyst: **LCC**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	11/25/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT: CH2M HILL
Lab Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011508-005

Client Sample ID: MW-46-205-194
Collection Date: 11/20/2013 3:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131125B**	QC Batch: **R91388**			PrepDate:			Analyst: **LCC**
Specific Conductance	23000	0.10	0.10		umhos/cm	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131125B**	QC Batch: **R91388**			PrepDate:			Analyst: **LCC**
Specific Conductance	7300	0.10	0.10		umhos/cm	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131125B**	QC Batch: **R91388**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *10-Dec-13*

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011508-007B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91388**
Client ID: **ZZZZZZ** Batch ID: **R91388** TestNo: **EPA 120.1** Analysis Date: **11/25/2013** SeqNo: **1692895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18300.000	0.10						18280	0.109	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-055-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131125E**	QC Batch: **44470**			PrepDate:	**11/25/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	600	10	10		mg/L	1	11/25/2013 08:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131125E**	QC Batch: **44470**			PrepDate:	**11/25/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	4500	50	50		mg/L	1	11/25/2013 08:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 12:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131125E**	QC Batch: **44470**			PrepDate:	**11/25/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	10000	100	100		mg/L	1	11/25/2013 08:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131125E**	QC Batch: **44470**			PrepDate:	**11/25/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	4600	50	50		mg/L	1	11/25/2013 08:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131125E**	QC Batch: **44470**			PrepDate:	**11/25/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	10000	100	100		mg/L	1	11/25/2013 08:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *10-Dec-13*

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-44470** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/25/2013** RunNo: **91398**
Client ID: **PBW** Batch ID: **44470** TestNo: **SM2540C** Analysis Date: **11/25/2013** SeqNo: **1693384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **LCS-44470** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/25/2013** RunNo: **91398**
Client ID: **LCSW** Batch ID: **44470** TestNo: **SM2540C** Analysis Date: **11/25/2013** SeqNo: **1693385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	972.000	10	1000	0	97.2	80	120				

Sample ID: **N011508-001B-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/25/2013** RunNo: **91398**
Client ID: **ZZZZZZ** Batch ID: **44470** TestNo: **SM2540C** Analysis Date: **11/25/2013** SeqNo: **1693387**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	608.000	10						604.0	0.660	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-055-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131125C**	QC Batch: **R91390**			PrepDate:			Analyst: **admin**
Alkalinity, Bicarbonate (As CaCO3)	150	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131125C**	QC Batch: **R91390**			PrepDate:			Analyst: **admin**
Alkalinity, Bicarbonate (As CaCO3)	260	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Total (As CaCO3)	260	1.2	5.0		mg/L	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 12:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131125C**	QC Batch: **R91390**			PrepDate:			Analyst: **admin**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131125C**	QC Batch: **R91390**			PrepDate:			Analyst: **admin**
Alkalinity, Bicarbonate (As CaCO3)	41	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Total (As CaCO3)	41	1.2	5.0		mg/L	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT: CH2M HILL
Lab Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011508-005

Client Sample ID: MW-46-205-194
Collection Date: 11/20/2013 3:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131125C**	QC Batch: **R91390**			PrepDate:			Analyst: **admin**
Alkalinity, Bicarbonate (As CaCO3)	41	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Total (As CaCO3)	41	1.2	5.0		mg/L	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131125C**	QC Batch: **R91390**			PrepDate:			Analyst: **admin**
Alkalinity, Bicarbonate (As CaCO3)	260	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Total (As CaCO3)	260	1.2	5.0		mg/L	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131125C**	QC Batch: **R91390**			PrepDate:			Analyst: **admin**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/25/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	11/25/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91390** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91390**
Client ID: **LCSW** Batch ID: **R91390** TestNo: **SM 2320 B** Analysis Date: **11/25/2013** SeqNo: **1692904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	100.000	5.0	100.0	0	100	85	115				
Alkalinity, Total (As CaCO3)	100.000	5.0	100.0	0	100	85	115				

Sample ID: **MB-R91390** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91390**
Client ID: **PBW** Batch ID: **R91390** TestNo: **SM 2320 B** Analysis Date: **11/25/2013** SeqNo: **1692905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.174	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.174	5.0									

Sample ID: **N011508-001B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91390**
Client ID: **ZZZZZZ** Batch ID: **R91390** TestNo: **SM 2320 B** Analysis Date: **11/25/2013** SeqNo: **1692907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	145.652	5.0						145.7	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)	145.652	5.0						145.7	0	30	

Sample ID: **N011508-002B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91390**
Client ID: **ZZZZZZ** Batch ID: **R91390** TestNo: **SM 2320 B** Analysis Date: **11/25/2013** SeqNo: **1692909**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	354.348	5.0	100.0	258.7	95.7	75	125				
Alkalinity, Total (As CaCO3)	354.348	5.0	100.0	258.7	95.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011508-002B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91390**
Client ID: **ZZZZZZ** Batch ID: **R91390** TestNo: **SM 2320 B** Analysis Date: **11/25/2013** SeqNo: **1692910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	354.348	5.0	100.0	258.7	95.7	75	125	354.3	0	20	
Alkalinity, Total (As CaCO3)	354.348	5.0	100.0	258.7	95.7	75	125	354.3	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-055-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Bromide	ND	0.032	0.50		mg/L	1	11/26/2013 11:30 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Chloride	72	0.52	10		mg/L	20	11/26/2013 11:17 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Sulfate	210	0.76	10		mg/L	20	11/26/2013 11:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Bromide	ND	0.064	1.0		mg/L	2	11/26/2013 04:20 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Chloride	1900	13	250		mg/L	500	11/26/2013 11:42 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Sulfate	620	3.8	50		mg/L	100	11/26/2013 11:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 12:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Bromide	ND	0.16	2.5		mg/L	5	11/26/2013 04:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Chloride	5300	26	500		mg/L	1000	11/26/2013 12:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Sulfate	1200	7.6	100		mg/L	200	11/26/2013 12:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Chloride	5700	26	500		mg/L	1000	11/26/2013 12:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Sulfate	770	3.8	50		mg/L	100	11/26/2013 12:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT: CH2M HILL
Lab Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011508-005

Client Sample ID: MW-46-205-194
Collection Date: 11/20/2013 3:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Chloride	7200	52	1000		mg/L	2000	11/26/2013 01:23 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Sulfate	860	3.8	50		mg/L	100	11/26/2013 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Bromide	ND	0.064	1.0		mg/L	2	11/26/2013 04:45 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Chloride	1900	13	250		mg/L	500	11/26/2013 01:49 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Sulfate	620	3.8	50		mg/L	100	11/26/2013 02:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Bromide	ND	0.16	2.5		mg/L	5	11/26/2013 04:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Chloride	5300	26	500		mg/L	1000	11/26/2013 02:14 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131126A** QC Batch: **R91430** PrepDate: Analyst: **QBM**							
Sulfate	1100	7.6	100		mg/L	200	11/26/2013 02:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *10-Dec-13*

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R91430_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **PBW** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R91430_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **LCSW** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.445	0.50	2.500	0	97.8	90	110				

Sample ID: **N011508-001BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694192**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.043	0.50						0.05600	0	20	

Sample ID: **N011508-001BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.104	0.50	2.500	0.05600	81.9	80	120				

Sample ID: **N011508-001BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.131	0.50	2.500	0.05600	83.0	80	120	2.104	1.28	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91430_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **PBW** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91430_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **LCSW** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.370	0.50	2.500	0	94.8	90	110				

Sample ID: **N011508-001BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	71.440	10						72.42	1.36	20	

Sample ID: **N011508-001BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694177**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	118.640	10	50.00	72.42	92.4	80	120				

Sample ID: **N011508-001BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	119.140	10	50.00	72.42	93.4	80	120	118.6	0.421	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91430_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **PBW** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91430_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **LCSW** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.851	0.50	5.000	0	97.0	90	110				

Sample ID: **N011508-001BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	204.200	10						210.8	3.17	20	

Sample ID: **N011508-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	303.560	10	100.0	210.8	92.8	80	120				

Sample ID: **N011508-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91430**
Client ID: **ZZZZZZ** Batch ID: **R91430** TestNo: **EPA 300.0** Analysis Date: **11/26/2013** SeqNo: **1694220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	305.420	10	100.0	210.8	94.6	80	120	303.6	0.611	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT: CH2M HILL
Lab Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011508-001

Client Sample ID: MW-34-055-194
Collection Date: 11/20/2013 10:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131202C**	QC Batch: **44471**				PrepDate: **11/25/2013**		Analyst: **JAA**
Calcium	69000	58	500		ug/L	1	12/2/2013 12:44 PM
Iron	40	1.3	20		ug/L	1	12/2/2013 12:44 PM
Magnesium	19000	11	100		ug/L	1	12/2/2013 12:44 PM
Potassium	4300	16	2500		ug/L	5	11/27/2013 01:49 PM
Sodium	88000	370	2500		ug/L	5	11/27/2013 01:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT: CH2M HILL
Lab Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011508-002

Client Sample ID: MW-34-080-194
Collection Date: 11/20/2013 11:45:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131202C**	QC Batch: **44471**				PrepDate: **11/25/2013**		Analyst: **JAA**
Calcium	210000	58	500		ug/L	1	12/2/2013 01:07 PM
Iron	63	1.3	20		ug/L	1	12/2/2013 01:07 PM
Magnesium	52000	11	100		ug/L	1	12/2/2013 01:07 PM
Potassium	14000	16	2500		ug/L	5	11/27/2013 01:53 PM
Sodium	1300000	9100	62000		ug/L	125	11/27/2013 02:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 12:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131202C**	QC Batch: **44471**				PrepDate: **11/25/2013**		Analyst: **JAA**
Calcium	140000	58	500		ug/L	1	12/2/2013 01:22 PM
Iron	ND	1.3	20		ug/L	1	12/2/2013 01:22 PM
Magnesium	8000	11	100		ug/L	1	12/2/2013 01:22 PM
Potassium	35000	16	2500		ug/L	5	11/27/2013 01:58 PM
Sodium	3900000	9100	62000		ug/L	125	11/27/2013 02:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131202C**	QC Batch: **44471**				PrepDate: **11/25/2013**		Analyst: **JAA**
Calcium	97000	58	500		ug/L	1	12/2/2013 01:27 PM
Iron	ND	1.3	20		ug/L	1	12/2/2013 01:27 PM
Magnesium	2700	11	100		ug/L	1	12/2/2013 01:27 PM
Sodium	3900000	9100	62000		ug/L	125	11/27/2013 02:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT: CH2M HILL
Lab Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011508-005

Client Sample ID: MW-46-205-194
Collection Date: 11/20/2013 3:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131202C**	QC Batch: **44471**				PrepDate: **11/25/2013**		Analyst: **JAA**
Calcium	100000	58	500		ug/L	1	12/2/2013 01:31 PM
Iron	ND	1.3	20		ug/L	1	12/2/2013 01:31 PM
Magnesium	2700	11	100		ug/L	1	12/2/2013 01:31 PM
Sodium	4900000	18000	120000		ug/L	250	11/27/2013 03:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131202C**	QC Batch: **44471**				PrepDate: **11/25/2013**		Analyst: **JAA**
Calcium	210000	58	500		ug/L	1	12/2/2013 01:37 PM
Iron	66	1.3	20		ug/L	1	12/2/2013 01:37 PM
Magnesium	56000	11	100		ug/L	1	12/2/2013 01:37 PM
Potassium	14000	16	2500		ug/L	5	11/27/2013 02:13 PM
Sodium	1200000	9100	62000		ug/L	125	11/27/2013 02:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131202C**	QC Batch: **44471**				PrepDate: **11/25/2013**		Analyst: **JAA**
Calcium	150000	58	500		ug/L	1	12/2/2013 01:42 PM
Iron	ND	1.3	20		ug/L	1	12/2/2013 01:42 PM
Magnesium	8500	11	100		ug/L	1	12/2/2013 01:42 PM
Potassium	35000	16	2500		ug/L	5	11/27/2013 02:18 PM
Sodium	3900000	9100	62000		ug/L	125	11/27/2013 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *10-Dec-13*

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44471** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/25/2013** RunNo: **91446**
Client ID: **PBW** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/2/2013** SeqNo: **1695082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	66.929	500									
Iron	9.039	20									
Magnesium	ND	100									

Sample ID: **LCS-44471** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/25/2013** RunNo: **91446**
Client ID: **LCSW** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/2/2013** SeqNo: **1695083**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10498.991	500	10000	0	105	85	115				
Iron	109.250	20	100.0	0	109	85	115				
Magnesium	10767.912	100	10000	0	108	85	115				

Sample ID: **N011508-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/25/2013** RunNo: **91446**
Client ID: **ZZZZZZ** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/2/2013** SeqNo: **1695087**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	79828.872	500	10000	68840	110	75	125				
Iron	172.655	20	100.0	40.21	132	75	125				S
Magnesium	29280.809	100	10000	19380	99.0	75	125				

Sample ID: **N011508-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/25/2013** RunNo: **91446**
Client ID: **ZZZZZZ** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/2/2013** SeqNo: **1695088**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	77700.327	500	10000	68840	88.6	75	125	79830	2.70	20	
Iron	153.087	20	100.0	40.21	113	75	125	172.7	12.0	20	
Magnesium	28789.292	100	10000	19380	94.1	75	125	29280	1.69	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44471** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/25/2013** RunNo: **91426**
Client ID: **PBW** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1697513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	39.151	500									
Sodium	ND	500									

Sample ID: **LCS2-44471** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/25/2013** RunNo: **91426**
Client ID: **LCSW** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1697514**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	18138.598	500	20000	0	90.7	85	115				
Sodium	18502.800	500	20000	0	92.5	85	115				

Sample ID: **N011508-001A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/25/2013** RunNo: **91426**
Client ID: **ZZZZZZ** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1697526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	24440.584	2500	20000	4294	101	75	125				
Sodium	107315.112	2500	20000	88200	95.6	75	125				

Sample ID: **N011508-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/25/2013** RunNo: **91426**
Client ID: **ZZZZZZ** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1697527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	24679.497	2500	20000	4294	102	75	125	24440	0.973	20	
Sodium	109978.139	2500	20000	88200	109	75	125	107300	2.45	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-055-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 10:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131203A**	QC Batch: **44464**				PrepDate:	**11/25/2013**	Analyst: **CEI**
Arsenic	2.6	0.027	0.10		µg/L	1	12/3/2013 02:10 PM
Boron	130	2.7	50		µg/L	1	12/3/2013 02:10 PM
Manganese	67	0.026	0.50		µg/L	1	12/4/2013 02:52 PM
Molybdenum	4.9	0.15	0.50		µg/L	1	12/3/2013 02:10 PM
Selenium	ND	0.069	0.50		µg/L	1	12/3/2013 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131203A**	QC Batch: **44464**				PrepDate:	**11/25/2013**	Analyst: **CEI**
Arsenic	1.3	0.027	0.10		µg/L	1	12/3/2013 02:43 PM
Boron	960	2.7	50		µg/L	1	12/3/2013 02:43 PM
Manganese	ND	0.026	0.50		µg/L	1	12/4/2013 03:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 12:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131203A**	QC Batch: **44464**				PrepDate:	**11/25/2013**	Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	12/3/2013 03:05 PM
Boron	2600	14	250		µg/L	5	12/3/2013 03:28 PM
Manganese	ND	0.026	0.50		µg/L	1	12/4/2013 03:25 PM
Molybdenum	53	0.15	0.50		µg/L	1	12/3/2013 03:05 PM
Selenium	ND	0.069	0.50		µg/L	1	12/3/2013 03:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131204C**	QC Batch: **44464**				PrepDate:	**11/25/2013**	Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/4/2013 03:31 PM
Molybdenum	190	0.76	2.5		µg/L	5	12/3/2013 03:39 PM
Selenium	0.67	0.069	0.50		µg/L	1	12/3/2013 03:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-205-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 3:42:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131204C**	QC Batch: **44464**			PrepDate:	**11/25/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/4/2013 03:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131203A**	QC Batch: **44464**				PrepDate:	**11/25/2013**	Analyst: **CEI**
Arsenic	1.3	0.027	0.10		µg/L	1	12/3/2013 03:56 PM
Boron	1000	2.7	50		µg/L	1	12/3/2013 03:56 PM
Manganese	ND	0.026	0.50		µg/L	1	12/4/2013 04:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-194
Lab Order:	N011508	**Collection Date:**	11/20/2013 7:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011508-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131203A**	QC Batch: **44464**				PrepDate:	**11/25/2013**	Analyst: **CEI**
Arsenic	1.4	0.027	0.10		µg/L	1	12/3/2013 04:07 PM
Boron	2700	14	250		µg/L	5	12/3/2013 04:13 PM
Manganese	ND	0.026	0.50		µg/L	1	12/4/2013 04:07 PM
Molybdenum	52	0.15	0.50		µg/L	1	12/3/2013 04:07 PM
Selenium	ND	0.069	0.50		µg/L	1	12/3/2013 04:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *10-Dec-13*

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44464** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91459**
Client ID: **PBW** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/3/2013** SeqNo: **1695678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.031	0.10									
Boron	ND	50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-44464** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91459**
Client ID: **LCSW** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/3/2013** SeqNo: **1695679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.841	0.10	10.00	0	98.4	85	115				
Boron	945.792	50	1000	0	94.6	85	115				
Molybdenum	9.937	0.50	10.00	0	99.4	85	115				
Selenium	9.802	0.50	10.00	0	98.0	85	115				

Sample ID: **N011508-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91459**
Client ID: **ZZZZZZ** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/3/2013** SeqNo: **1695683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.265	0.10	10.00	2.608	96.6	75	125				
Boron	1124.471	50	1000	131.4	99.3	75	125				
Molybdenum	15.789	0.50	10.00	4.935	109	75	125				
Selenium	9.015	0.50	10.00	0	90.2	75	125				

Sample ID: **N011508-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91459**
Client ID: **ZZZZZZ** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/3/2013** SeqNo: **1695684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.201	0.10	10.00	2.608	95.9	75	125	12.27	0.524	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011508-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91459**
Client ID: **ZZZZZZ** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/3/2013** SeqNo: **1695684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1116.760	50	1000	131.4	98.5	75	125	1124	0.688	20	
Molybdenum	15.829	0.50	10.00	4.935	109	75	125	15.79	0.253	20	
Selenium	9.164	0.50	10.00	0	91.6	75	125	9.015	1.63	20	

Sample ID: **MB-44464** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91484**
Client ID: **PBW** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/4/2013** SeqNo: **1696906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.073	0.50									

Sample ID: **LCS-44464** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91484**
Client ID: **LCSW** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/4/2013** SeqNo: **1696907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	99.262	0.50	100.0	0	99.3	85	115				

Sample ID: **N011508-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91484**
Client ID: **ZZZZZZ** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/4/2013** SeqNo: **1696911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	161.141	0.50	100.0	66.51	94.6	75	125				

Sample ID: **N011508-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/25/2013** RunNo: **91484**
Client ID: **ZZZZZZ** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/4/2013** SeqNo: **1696912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	159.115	0.50	100.0	66.51	92.6	75	125	161.1	1.27	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/21/2013
COC Number: 17

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-34-055-194	11/20/2013	10:22	Water	X	X		X	X		X	X	X	X	N0115058-1	~~10~~	4
MW-34-080-194	11/20/2013	11:45	Water	X	X			X		X	X	X	X	-2	~~7~~	4
MW-34-100-194	11/20/2013	12:45	Water	X	X		X	X		X	X	X	X	-3	~~10~~	4
MW-46-175-194	11/20/2013	14:56	Water			X	X		X	X		X	X	-4	~~8~~	4 BGC
MW-46-205-194	11/20/2013	15:42	Water			X			X	X		X	X	-5	~~5~~	4
MW-93-194	11/20/2013	7:00	Water	X	X			X		X	X	X	X	-6	~~7~~	4
MW-94-194	11/20/2013	7:30	Water	X	X		X	X		X	X	X	X	-7	~~10~~	4
														TOTAL NUMBER OF CONTAINERS	28	

	Signatures	Date/Time
Approved by		11-22-13
Sampled by		1130
Relinquished by		
Received by		11/22/13 [illegible]
Relinquished by		11/22/13 1400
Received by		11/22/13 1400

Shipping Details
Method of Shipment: courier
On Ice: yes / no 2-6°C
Airbill No: IR#2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

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:	11/22/2013	Workorder:	N011508
Rep sample Temp (Deg C):	2.6	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

	Yes	No	Not Present / NA
1. Shipping container/cooler in good condition?	☑	☐	☐
2. Custody seals intact, signed, dated on shippping container/cooler?	☐	☐	☑
3. Custody seals intact on sample bottles?	☐	☐	☑
4. Chain of custody present?	☑	☐	
5. Sampler's name present in COC?	☑	☐	
6. Chain of custody signed when relinquished and received?	☑	☐	
7. Chain of custody agrees with sample labels?	☑	☐	
8. Samples in proper container/bottle?	☑	☐	
9. Sample containers intact?	☑	☐	
10. Sufficient sample volume for indicated test?	☑	☐	
11. All samples received within holding time?	☑	☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	☑	☐	NA ☐
13. Water - VOA vials have zero headspace?	☐	☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	☑	☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	☑	☐	NA ☐
16. Were there Non-Conformance issues at login?	☐	☐	NA ☑
Was Client notified?	☐	☐	NA ☑

Comments:

Checklist Completed By: HG 11/25/2013

Reviewed By: 2013-11-27

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

25-Nov-13

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests			
				SM4500-NH3C			
N011508-001C / MW-34-055-194	Water	11/20/2013 10:22:00 AM	32OZP	1			
N011508-002C / MW-34-080-194	Water	11/20/2013 11:45:00 AM	32OZP	1			
N011508-003C / MW-34-100-194	Water	11/20/2013 12:45:00 PM	32OZP	1			
N011508-004C / MW-46-175-194	Water	11/20/2013 2:56:00 PM	32OZP	1			
N011508-005C / MW-46-205-194	Water	11/20/2013 3:42:00 PM	32OZP	1			
N011508-006C / MW-93-194	Water	11/20/2013 7:00:00 AM	32OZP	1			
N011508-007C / MW-94-194		11/20/2013 7:30:00 AM	32OZP	1			

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N011508 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT

Pleas analyze for Ammonia by SM 4500. Please send report to CH2M Hill. Please bill ATL Inc.

GSO # 523864962

		Date/Time			Date/Time
Relinquished by:	HERSEY SAYAS	25NOV13 1007	**Received by:**		
Relinquished by:			**Received by:**		

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N011508-001B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(59.9850-59.9246)*1000000}{100}$$
$$= 604.00 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 600.00mg/L

11/26/2013

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 11/25/2013								TDS/CONDUCTIVITY
Date Finished: 11/26/2013	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-44470	100	60.6773	60.6776	3	1	3.00		
LCS-44470	100	61.6826	61.7798	972	1	972.00		
N011508-001B	100	59.9246	59.985	604	1	604.00	792.00	0.76
N011508-001B-DUP	100	59.9157	59.9765	608	1	608.00	792.00	0.77
N011508-002B	20	60.5465	60.6371	906	5	4530.00	7450.00	0.61
N011508-003B	10	61.7532	61.8578	1046	10	10460.00	18600.00	0.56
N011508-006B	20	61.1318	61.2248	930	5	4650.00	7440.00	0.63
N011508-007B	10	59.1711	59.2746	1035	10	10350.00	18470.00	0.56

11/26/2013

Sample ID: **N011508-001B @ pH 7.90**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.5mL)

= **0.02174 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 $CaCO_3$), mg/L = (6.70) (0.02174 N) (1) * 1000

= 145.658 **mg/L**

Reporting results in two significant figures,

= 150.00 **mg/L** as CaCO3

11/25/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02174 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (6.70 mL) (0.02174) (1) * 1000

= 145.658 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 145.658 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 150.00 **mg/L**

11/25/2013

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Water

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the original sample as follows:

Sulfate, mg/L = A * DF

where :

A = mg/L, IC calculated concentration
DF = dilution factor

For **N011508-001B** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 10.539 * 20

= 210.78

Reporting result in two significant figures,

Sulfate, mg/L = 210

Harvey 12/10/2013

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Sodium concentration, in µg/L, in the original sample as follows:

Sodium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011508-001A**, the concentration in µg/L is calculated as follows:

Sodium, µg/L = 17.63961587 * 5 * (25/25) * 1000

= 88198.07935

Reporting results in two significant figures,

Sodium, µg/L = 88000

Harvey 12/10/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011508
Test Method: EPA 6010
Analysis Date: 11/27/13

Matrix: Water
Batch No.: 44471

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for K. The calculated concentration was< 25X the RL. However the PS @5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011508-001A-DT 25X	Potassium	ug/L	4973.4070500	NA	4293.5796080	15.83%	10
N011508-001A-DT 25X	Sodium	ug/L	93910.133775	PASSED	88198.079350	6.48%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011508
Test Method: EPA 6010
Analysis Date: 12/02/13

Matrix: Water
Batch No.: 44471

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test for Mg failed.
Dilution Test is not applicable for Fe. The calculated concentration was < 25X the RL. However the PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011508-001A-DT 5X	Calcium	ug/L	72622.03730	PASSED	68843.12938	5.49%	10
N011508-001A-DT 5X	Iron	ug/L	32.66248866	NA	40.21263419	18.78%	10
N011508-001A-DT 5X	Magnesium	ug/L	21422.23903	FAILED	19379.98732	10.54%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *05-Dec-13*

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011508-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91446**
Client ID: **ZZZZZZ** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/2/2013** SeqNo: **1695086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	81261.661	1000	5000	68840	248	80	120				S
Iron	4774.531	40	5000	40.21	94.7	80	120				
Magnesium	25037.749	200	5000	19380	113	80	120				

Sample ID: **N011508-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91426**
Client ID: **ZZZZZZ** Batch ID: **44471** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/27/2013** SeqNo: **1697525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	52398.960	2500	50000	4294	96.2	80	120				
Sodium	133140.678	2500	50000	88200	89.9	80	120				

DT of Ca @5x is within criteria

Harvey 12/10/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N011508-002A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.310638704 * 1 * (25/25)

= 1.310638704

Reporting results in two significant figures,

Arsenic, ug/L = 1.3

Harvey 12/6/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011508
Test Method: EPA 6020
Analysis Date: 12/3/2013

Matrix: Water
Batch No.: 44464

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to B, Se and Mo. The calculated values are <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011508-001A-DT 5X	Arsenic	µg/L	2.792605317	PASS	2.608293437	7.07%	10%
N011508-001A-DT 5X	Molybdenum	µg/L	5.157102557	NA	4.934887079	4.50%	10%
N011508-001A-DT 5X	Boron	µg/L	89.62579153	NA	131.4414156	31.81%	10%
N011508-001A-DT 5X	Selenium	µg/L	0	NA	0		10%

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011508
Test Method: EPA 6020
Analysis Date: 12/4/2013

Matrix: Water
Batch No.: 44464

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011508-001A-DT 5X	~~Arsenic~~ Manganese	µg/L	69.26047354	PASS	66.5084061	4.14%	10%

Note: NA - Not applicable

2013-12-05

Advanced Technology Laboratories, Inc.

Date: *05-Dec-13*

CLIENT: CH2M HILL
Work Order: N011508
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011508-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91459**
Client ID: **ZZZZZZ** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/3/2013** SeqNo: **1695682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.285	0.20	20.00	2.608	108	80	120				
Boron	2233.136	100	2000	131.4	105	80	120				
Molybdenum	26.678	1.0	20.00	4.935	109	80	120				
Selenium	20.420	1.0	20.00	0	102	80	120				

Sample ID: **N011508-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91484**
Client ID: **ZZZZZZ** Batch ID: **44464** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/4/2013** SeqNo: **1696910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	274.749	1.0	200.0	66.51	104	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

December 18, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011552

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 03, 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. **Date:** *18-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011552

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium and Iron possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011552-002, N011552-003, N011552-009, N011552-014, N011552-015, N011552-019 due to failed Internal Standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *18-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011552
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011552-001A	MW-124-194	Water	12/2/2013 10:15:00 AM	12/3/2013	12/18/2013
N011552-001B	MW-124-194	Water	12/2/2013 10:15:00 AM	12/3/2013	12/18/2013
N011552-001C	MW-124-194	Water	12/2/2013 10:15:00 AM	12/3/2013	12/18/2013
N011552-001D	MW-124-194	Water	12/2/2013 10:15:00 AM	12/3/2013	12/18/2013
N011552-002A	MW-37D-194	Water	12/2/2013 10:44:00 AM	12/3/2013	12/18/2013
N011552-002B	MW-37D-194	Water	12/2/2013 10:44:00 AM	12/3/2013	12/18/2013
N011552-002C	MW-37D-194	Water	12/2/2013 10:44:00 AM	12/3/2013	12/18/2013
N011552-003A	MW-40D-194	Water	12/2/2013 2:54:00 PM	12/3/2013	12/18/2013
N011552-003B	MW-40D-194	Water	12/2/2013 2:54:00 PM	12/3/2013	12/18/2013
N011552-003C	MW-40D-194	Water	12/2/2013 2:54:00 PM	12/3/2013	12/18/2013
N011552-004A	MW-44-070-194	Water	12/2/2013 10:32:00 AM	12/3/2013	12/18/2013
N011552-004B	MW-44-070-194	Water	12/2/2013 10:32:00 AM	12/3/2013	12/18/2013
N011552-004C	MW-44-070-194	Water	12/2/2013 10:32:00 AM	12/3/2013	12/18/2013
N011552-004D	MW-44-070-194	Water	12/2/2013 10:32:00 AM	12/3/2013	12/18/2013
N011552-005A	MW-44-115-194	Water	12/2/2013 1:53:00 PM	12/3/2013	12/18/2013
N011552-005B	MW-44-115-194	Water	12/2/2013 1:53:00 PM	12/3/2013	12/18/2013
N011552-005C	MW-44-115-194	Water	12/2/2013 1:53:00 PM	12/3/2013	12/18/2013
N011552-005D	MW-44-115-194	Water	12/2/2013 1:53:00 PM	12/3/2013	12/18/2013
N011552-006A	MW-44-125-194	Water	12/2/2013 12:37:00 PM	12/3/2013	12/18/2013
N011552-006B	MW-44-125-194	Water	12/2/2013 12:37:00 PM	12/3/2013	12/18/2013
N011552-006C	MW-44-125-194	Water	12/2/2013 12:37:00 PM	12/3/2013	12/18/2013
N011552-006D	MW-44-125-194	Water	12/2/2013 12:37:00 PM	12/3/2013	12/18/2013
N011552-007A	MW-45-095a-194	Water	12/2/2013 3:28:00 PM	12/3/2013	12/18/2013
N011552-007B	MW-45-095a-194	Water	12/2/2013 3:28:00 PM	12/3/2013	12/18/2013
N011552-007C	MW-45-095a-194	Water	12/2/2013 3:28:00 PM	12/3/2013	12/18/2013
N011552-007D	MW-45-095a-194	Water	12/2/2013 3:28:00 PM	12/3/2013	12/18/2013
N011552-008A	MW-65-160-194	Water	12/2/2013 12:24:00 PM	12/3/2013	12/18/2013
N011552-008B	MW-65-160-194	Water	12/2/2013 12:24:00 PM	12/3/2013	12/18/2013
N011552-008C	MW-65-160-194	Water	12/2/2013 12:24:00 PM	12/3/2013	12/18/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011552
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011552-008D	MW-65-160-194	Water	12/2/2013 12:24:00 PM	12/3/2013	12/18/2013
N011552-009A	MW-65-225-194	Water	12/2/2013 1:14:00 PM	12/3/2013	12/18/2013
N011552-009B	MW-65-225-194	Water	12/2/2013 1:14:00 PM	12/3/2013	12/18/2013
N011552-009C	MW-65-225-194	Water	12/2/2013 1:14:00 PM	12/3/2013	12/18/2013
N011552-009D	MW-65-225-194	Water	12/2/2013 1:14:00 PM	12/3/2013	12/18/2013
N011552-010A	MW-24BR-194	Water	12/3/2013 8:26:00 AM	12/3/2013	12/18/2013
N011552-010B	MW-24BR-194	Water	12/3/2013 8:26:00 AM	12/3/2013	12/18/2013
N011552-010C	MW-24BR-194	Water	12/3/2013 8:26:00 AM	12/3/2013	12/18/2013
N011552-011A	MW-31-060-194	Water	12/3/2013 3:35:00 PM	12/3/2013	12/18/2013
N011552-011B	MW-31-060-194	Water	12/3/2013 3:35:00 PM	12/3/2013	12/18/2013
N011552-011C	MW-31-060-194	Water	12/3/2013 3:35:00 PM	12/3/2013	12/18/2013
N011552-011D	MW-31-060-194	Water	12/3/2013 3:35:00 PM	12/3/2013	12/18/2013
N011552-012A	MW-33-040-194	Water	12/3/2013 9:28:00 AM	12/3/2013	12/18/2013
N011552-012B	MW-33-040-194	Water	12/3/2013 9:28:00 AM	12/3/2013	12/18/2013
N011552-012C	MW-33-040-194	Water	12/3/2013 9:28:00 AM	12/3/2013	12/18/2013
N011552-012D	MW-33-040-194	Water	12/3/2013 9:28:00 AM	12/3/2013	12/18/2013
N011552-013A	MW-33-090-194	Water	12/3/2013 11:07:00 AM	12/3/2013	12/18/2013
N011552-013B	MW-33-090-194	Water	12/3/2013 11:07:00 AM	12/3/2013	12/18/2013
N011552-013C	MW-33-090-194	Water	12/3/2013 11:07:00 AM	12/3/2013	12/18/2013
N011552-013D	MW-33-090-194	Water	12/3/2013 11:07:00 AM	12/3/2013	12/18/2013
N011552-014A	MW-33-150-194	Water	12/3/2013 12:35:00 PM	12/3/2013	12/18/2013
N011552-014B	MW-33-150-194	Water	12/3/2013 12:35:00 PM	12/3/2013	12/18/2013
N011552-014C	MW-33-150-194	Water	12/3/2013 12:35:00 PM	12/3/2013	12/18/2013
N011552-014D	MW-33-150-194	Water	12/3/2013 12:35:00 PM	12/3/2013	12/18/2013
N011552-015A	MW-33-210-194	Water	12/3/2013 1:44:00 PM	12/3/2013	12/18/2013
N011552-015B	MW-33-210-194	Water	12/3/2013 1:44:00 PM	12/3/2013	12/18/2013
N011552-015C	MW-33-210-194	Water	12/3/2013 1:44:00 PM	12/3/2013	12/18/2013
N011552-015D	MW-33-210-194	Water	12/3/2013 1:44:00 PM	12/3/2013	12/18/2013
N011552-016A	MW-38S-194	Water	12/3/2013 10:40:00 AM	12/3/2013	12/18/2013
N011552-016B	MW-38S-194	Water	12/3/2013 10:40:00 AM	12/3/2013	12/18/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011552
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011552-016C	MW-38S-194	Water	12/3/2013 10:40:00 AM	12/3/2013	12/18/2013
N011552-017A	MW-66-165-194	Water	12/3/2013 9:14:00 AM	12/3/2013	12/18/2013
N011552-017B	MW-66-165-194	Water	12/3/2013 9:14:00 AM	12/3/2013	12/18/2013
N011552-017C	MW-66-165-194	Water	12/3/2013 9:14:00 AM	12/3/2013	12/18/2013
N011552-017D	MW-66-165-194	Water	12/3/2013 9:14:00 AM	12/3/2013	12/18/2013
N011552-018A	MW-69-195-194	Water	12/3/2013 1:06:00 PM	12/3/2013	12/18/2013
N011552-018B	MW-69-195-194	Water	12/3/2013 1:06:00 PM	12/3/2013	12/18/2013
N011552-018C	MW-69-195-194	Water	12/3/2013 1:06:00 PM	12/3/2013	12/18/2013
N011552-018D	MW-69-195-194	Water	12/3/2013 1:06:00 PM	12/3/2013	12/18/2013
N011552-019A	MW-92-194	Water	12/3/2013 10:27:00 AM	12/3/2013	12/18/2013
N011552-019B	MW-92-194	Water	12/3/2013 10:27:00 AM	12/3/2013	12/18/2013
N011552-019C	MW-92-194	Water	12/3/2013 10:27:00 AM	12/3/2013	12/18/2013
N011552-019D	MW-92-194	Water	12/3/2013 10:27:00 AM	12/3/2013	12/18/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 2:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-070-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:37:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 3:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	8400	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	3700	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-24BR-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 8:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-060-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 3:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	3100	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	9600	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 11:07:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	9600	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	4200	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131204A**	QC Batch: **R91470**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	12/4/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011552-010B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91470**
Client ID: **ZZZZZZ** Batch ID: **R91470** TestNo: **EPA 120.1** Analysis Date: **12/4/2013** SeqNo: **1696316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	13600.000	0.10						13590	0.0736	10	

Sample ID: **N011552-019B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91470**
Client ID: **ZZZZZZ** Batch ID: **R91470** TestNo: **EPA 120.1** Analysis Date: **12/4/2013** SeqNo: **1696325**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17850.000	0.10						17770	0.449	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-060-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 3:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131204E**	QC Batch: **44519**			PrepDate:	**12/4/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	1900	20	20		mg/L	1	12/4/2013 09:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *18-Dec-13*

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-44519** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/4/2013** RunNo: **91491**
Client ID: **PBW** Batch ID: **44519** TestNo: **SM2540C** Analysis Date: **12/4/2013** SeqNo: **1697432**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **LCS-44519** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/4/2013** RunNo: **91491**
Client ID: **LCSW** Batch ID: **44519** TestNo: **SM2540C** Analysis Date: **12/4/2013** SeqNo: **1697433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	979.000	10	1000	0	97.9	80	120				

Sample ID: **N011553-013D-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/4/2013** RunNo: **91491**
Client ID: **ZZZZZZ** Batch ID: **44519** TestNo: **SM2540C** Analysis Date: **12/4/2013** SeqNo: **1697436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1402.857	14						1400	0.204	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	33	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	33	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 2:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	46	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	46	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-070-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	280	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	280	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	76	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	76	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:37:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	93	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	93	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 3:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	160	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	93	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	93	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-24BR-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 8:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205B**	QC Batch: **R91500**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	46	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	46	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-060-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 3:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	78	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	78	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	320	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	320	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 11:07:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	74	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	74	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	52	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	52	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	57	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	57	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-38S-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	190	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	190	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	87	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	87	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	230	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	230	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131205C**	QC Batch: **R91501**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	57	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/5/2013
Alkalinity, Total (As CaCO3)	57	1.2	5.0		mg/L	1	12/5/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91500** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91500**
Client ID: **LCSW** Batch ID: **R91500** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	102.174	5.0	100.0	0	102	85	115				
Alkalinity, Total (As CaCO3)	102.174	5.0	100.0	0	102	85	115				

Sample ID: **MB-R91500** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91500**
Client ID: **PBW** Batch ID: **R91500** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.174	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.174	5.0									

Sample ID: **N011552-001C-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91500**
Client ID: **ZZZZZZ** Batch ID: **R91500** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	117.391	5.0						117.4	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)	117.391	5.0						117.4	0	30	

Sample ID: **N011552-002C-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91500**
Client ID: **ZZZZZZ** Batch ID: **R91500** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698097**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	128.261	5.0	100.0	32.61	95.7	75	125				
Alkalinity, Total (As CaCO3)	128.261	5.0	100.0	32.61	95.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011552-002C-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91500**
Client ID: **ZZZZZZ** Batch ID: **R91500** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	128.261	5.0	100.0	32.61	95.7	75	125	128.3	0	20	
Alkalinity, Total (As CaCO3)	128.261	5.0	100.0	32.61	95.7	75	125	128.3	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91501** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91501**
Client ID: **LCSW** Batch ID: **R91501** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698107**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	100.000	5.0	100.0	0	100	85	115				
Alkalinity, Total (As CaCO3)	100.000	5.0	100.0	0	100	85	115				

Sample ID: **MB-R91501** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91501**
Client ID: **PBW** Batch ID: **R91501** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698108**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.174	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.174	5.0									

Sample ID: **N011552-011C-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91501**
Client ID: **ZZZZZZ** Batch ID: **R91501** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698110**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	73.913	5.0						78.26	5.71	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)	73.913	5.0						78.26	5.71	30	

Sample ID: **N011552-012C-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91501**
Client ID: **ZZZZZZ** Batch ID: **R91501** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698112**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	413.043	5.0	100.0	321.7	91.3	75	125				
Alkalinity, Total (As CaCO3)	413.043	5.0	100.0	321.7	91.3	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011552-012C-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91501**
Client ID: **ZZZZZZ** Batch ID: **R91501** TestNo: **SM 2320 B** Analysis Date: **12/5/2013** SeqNo: **1698113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	413.043	5.0	100.0	321.7	91.3	75	125	413.0	0	20	
Alkalinity, Total (As CaCO3)	413.043	5.0	100.0	321.7	91.3	75	125	413.0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	3300	26	500		mg/L	1000	12/6/2013 10:39 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	630	3.8	50		mg/L	100	12/6/2013 10:52 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	5000	26	500		mg/L	1000	12/6/2013 11:04 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	630	3.8	50		mg/L	100	12/6/2013 11:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 2:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	5000	26	500		mg/L	1000	12/6/2013 11:55 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	710	3.8	50		mg/L	100	12/6/2013 12:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-070-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	350	2.6	50		mg/L	100	12/6/2013 12:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	240	3.8	50		mg/L	100	12/6/2013 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	3200	26	500		mg/L	1000	12/6/2013 01:36 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	770	3.8	50		mg/L	100	12/6/2013 01:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:37:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	3100	26	500		mg/L	1000	12/6/2013 05:11 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	630	3.8	50		mg/L	100	12/6/2013 03:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 3:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	2400	26	500		mg/L	1000	12/6/2013 02:39 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	680	3.8	50		mg/L	100	12/6/2013 02:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	930	5.2	100		mg/L	200	12/6/2013 03:04 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	450	3.8	50		mg/L	100	12/6/2013 03:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	3100	26	500		mg/L	1000	12/6/2013 04:20 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	760	3.8	50		mg/L	100	12/6/2013 04:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-24BR-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 8:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	4700	26	500		mg/L	1000	12/6/2013 08:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	460	3.8	50		mg/L	100	12/6/2013 09:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-060-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 3:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Bromide	ND	0.032	0.50		mg/L	1	12/9/2013 12:52 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	870	13	250		mg/L	500	12/9/2013 04:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	220	1.9	25		mg/L	50	12/9/2013 03:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	2600	26	500		mg/L	1000	12/9/2013 04:32 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Fluoride	12	0.068	1.0		mg/L	10	12/9/2013 01:05 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	930	3.8	50		mg/L	100	12/9/2013 04:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 11:07:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	3000	26	500		mg/L	1000	12/6/2013 08:46 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Fluoride	4.2	0.034	0.50		mg/L	5	12/9/2013 11:37 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	720	3.8	50		mg/L	100	12/6/2013 08:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	5500	26	500		mg/L	1000	12/6/2013 05:49 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Fluoride	4.9	0.14	2.0		mg/L	20	12/9/2013 12:40 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	890	3.8	50		mg/L	100	12/6/2013 06:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	6400	26	500		mg/L	1000	12/10/2013 12:07 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Fluoride	4.7	0.14	2.0		mg/L	20	12/10/2013 12:45 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	1200	3.8	50		mg/L	100	12/10/2013 12:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-38S-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	270	2.6	50		mg/L	100	12/6/2013 10:01 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	200	3.8	50		mg/L	100	12/6/2013 10:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	1100	26	500		mg/L	1000	12/6/2013 10:14 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	480	3.8	50		mg/L	100	12/6/2013 10:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Chloride	600	2.6	50		mg/L	100	12/6/2013 10:52 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131206A** QC Batch: **R91550** PrepDate: Analyst: **PN**							
Sulfate	630	3.8	50		mg/L	100	12/6/2013 10:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_131206A**	QC Batch: **R91550**			PrepDate:			Analyst: **PN**
Chloride	6300	26	500		mg/L	1000	12/6/2013 11:05 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_131209A**	QC Batch: **R91614**			PrepDate:			Analyst: **PN**
Fluoride	4.9	0.14	2.0		mg/L	20	12/9/2013 03:16 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_131206A**	QC Batch: **R91550**			PrepDate:			Analyst: **PN**
Sulfate	1200	3.8	50		mg/L	100	12/6/2013 11:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *18-Dec-13*

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R91614_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **PBW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R91614_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **LCSW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.556	0.50	2.500	0	102	90	110				

Sample ID: **N011552-011BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.187	0.50						0.1910	0	20	

Sample ID: **N011552-011BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.326	0.50	2.500	0.1910	85.4	80	120				

Sample ID: **N011552-011BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.321	0.50	2.500	0.1910	85.2	80	120	2.326	0.215	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91550_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **PBW** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91550_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **LCSW** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.441	0.50	2.500	0	97.6	90	110				

Sample ID: **N011552-006BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **ZZZZZZ** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5485.000	500	2500	3143	93.7	80	120				

Sample ID: **N011552-006BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **ZZZZZZ** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5471.000	500	2500	3143	93.1	80	120	5485	0.256	20	

Sample ID: **N011552-014BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **ZZZZZZ** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	8062.000	500	2500	5479	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011552-006BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **ZZZZZZ** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700315**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3126.000	500						3143	0.542	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91614_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **PBW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91614_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **LCSW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.394	0.50	2.500	0	95.8	90	110				

Sample ID: **N011552-012BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702923**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4887.000	500	2500	2589	91.9	80	120				

Sample ID: **N011552-012BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4867.000	500	2500	2589	91.1	80	120	4887	0.410	20	

Sample ID: **N011552-012BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2451.000	500						2589	5.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011552-015BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702928**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	8831.000	500	2500	6359	98.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R91614_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **PBW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID: **LCS-R91614_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **LCSW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.439	0.10	2.500	0	97.6	90	110				

Sample ID: **N011552-012BMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	36.680	1.0	25.00	11.67	100	80	120				

Sample ID: **N011552-012BMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	36.820	1.0	25.00	11.67	101	80	120	36.68	0.381	20	

Sample ID: **N011552-012BDUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	12.080	1.0						11.67	3.45	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91550_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **PBW** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91550_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **LCSW** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.951	0.50	5.000	0	99.0	90	110				

Sample ID: **N011552-006BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **ZZZZZZ** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1145.900	50	500.0	627.7	104	80	120				

Sample ID: **N011552-006BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **ZZZZZZ** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700347**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1132.200	50	500.0	627.7	101	80	120	1146	1.20	20	

Sample ID: **N011552-006BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **ZZZZZZ** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	606.200	50						627.7	3.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011552-014BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91550**
Client ID: **ZZZZZZ** Batch ID: **R91550** TestNo: **EPA 300.0** Analysis Date: **12/6/2013** SeqNo: **1700352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1392.900	50	500.0	891.0	100	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91614_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **PBW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91614_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **LCSW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.026	0.50	5.000	0	101	90	110				

Sample ID: **N011552-012BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702961**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	870.200	50						928.3	6.46	20	

Sample ID: **N011552-012BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702962**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1420.600	50	500.0	928.3	98.5	80	120				

Sample ID: **N011552-012BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1406.300	50	500.0	928.3	95.6	80	120	1421	1.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011552-015BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1716.700	50	500.0	1206	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	99000	58	500		ug/L	1	12/13/2013 06:31 PM
Iron	590	1.3	20		ug/L	1	12/13/2013 06:31 PM
Magnesium	8200	11	100		ug/L	1	12/13/2013 06:31 PM
Sodium	2300000	7300	50000		ug/L	100	12/12/2013 04:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	420000	58	500		ug/L	1	12/13/2013 06:55 PM
Iron	33	1.3	20		ug/L	1	12/13/2013 06:55 PM
Magnesium	22000	11	100		ug/L	1	12/13/2013 06:55 PM
Sodium	3100000	7300	50000		ug/L	100	12/12/2013 03:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 2:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	390000	58	500		ug/L	1	12/13/2013 07:00 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 07:00 PM
Magnesium	40000	11	100		ug/L	1	12/13/2013 07:00 PM
Sodium	3100000	7300	50000		ug/L	100	12/12/2013 03:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-070-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	41000	58	500		ug/L	1	12/13/2013 07:06 PM
Iron	140	1.3	20		ug/L	1	12/13/2013 07:06 PM
Magnesium	7000	11	100		ug/L	1	12/13/2013 07:06 PM
Sodium	430000	7300	50000		ug/L	100	12/12/2013 03:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	110000	58	500		ug/L	1	12/13/2013 07:19 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 07:19 PM
Magnesium	6300	11	100		ug/L	1	12/13/2013 07:19 PM
Sodium	2400000	7300	50000		ug/L	100	12/12/2013 03:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:37:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	110000	58	500		ug/L	1	12/13/2013 07:25 PM
Iron	700	1.3	20		ug/L	1	12/13/2013 07:25 PM
Magnesium	9100	11	100		ug/L	1	12/13/2013 07:25 PM
Sodium	2500000	7300	50000		ug/L	100	12/12/2013 03:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 3:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	160000	58	500		ug/L	1	12/13/2013 07:30 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 07:30 PM
Magnesium	22000	11	100		ug/L	1	12/13/2013 07:30 PM
Sodium	1900000	7300	50000		ug/L	100	12/12/2013 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	230000	58	500		ug/L	1	12/13/2013 07:35 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 07:35 PM
Magnesium	30000	11	100		ug/L	1	12/13/2013 07:35 PM
Sodium	590000	7300	50000		ug/L	100	12/12/2013 01:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	370000	58	500		ug/L	1	12/13/2013 07:41 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 07:41 PM
Magnesium	20000	11	100		ug/L	1	12/13/2013 07:41 PM
Sodium	2200000	7300	50000		ug/L	100	12/12/2013 01:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-24BR-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 8:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	120000	58	500		ug/L	1	12/13/2013 07:46 PM
Iron	120	1.3	20		ug/L	1	12/13/2013 07:46 PM
Magnesium	3300	11	100		ug/L	1	12/13/2013 07:46 PM
Sodium	3200000	7300	50000		ug/L	100	12/12/2013 01:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-060-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 3:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	140000	58	500		ug/L	1	12/13/2013 07:51 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 07:51 PM
Magnesium	24000	11	100		ug/L	1	12/13/2013 07:51 PM
Potassium	6400	16	2500		ug/L	5	12/12/2013 03:49 PM
Sodium	520000	7300	50000		ug/L	100	12/12/2013 01:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	38000	58	500		ug/L	1	12/13/2013 07:57 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 07:57 PM
Magnesium	47000	11	100		ug/L	1	12/13/2013 07:57 PM
Sodium	2200000	7300	50000		ug/L	100	12/12/2013 01:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 11:07:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	320000	58	500		ug/L	1	12/13/2013 08:01 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 08:01 PM
Magnesium	29000	11	100		ug/L	1	12/13/2013 08:01 PM
Sodium	1900000	7300	50000		ug/L	100	12/12/2013 01:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	550000	120	1000		ug/L	2	12/16/2013 12:32 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 08:07 PM
Magnesium	52000	11	100		ug/L	1	12/13/2013 08:07 PM
Sodium	3500000	7300	50000		ug/L	100	12/12/2013 01:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	600000	120	1000		ug/L	2	12/16/2013 12:37 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 08:20 PM
Magnesium	60000	11	100		ug/L	1	12/13/2013 08:20 PM
Sodium	3800000	15000	100000		ug/L	200	12/15/2013 08:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-38S-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	29000	58	500		ug/L	1	12/13/2013 08:25 PM
Iron	140	1.3	20		ug/L	1	12/13/2013 08:25 PM
Magnesium	5600	11	100		ug/L	1	12/13/2013 08:25 PM
Sodium	340000	7300	50000		ug/L	100	12/12/2013 02:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	290000	58	500		ug/L	1	12/13/2013 08:30 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 08:30 PM
Magnesium	53000	11	100		ug/L	1	12/13/2013 08:30 PM
Sodium	610000	7300	50000		ug/L	100	12/12/2013 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	120000	58	500		ug/L	1	12/13/2013 08:35 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 08:35 PM
Magnesium	12000	11	100		ug/L	1	12/13/2013 08:35 PM
Sodium	710000	7300	50000		ug/L	100	12/12/2013 02:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44526**				PrepDate:	**12/5/2013**	Analyst: **JAA**
Calcium	620000	120	1000		ug/L	2	12/16/2013 12:43 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 08:41 PM
Magnesium	61000	11	100		ug/L	1	12/13/2013 08:41 PM
Sodium	4100000	15000	100000		ug/L	200	12/12/2013 03:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *18-Dec-13*

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44526** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91585**
Client ID: **PBW** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1701990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	15.304	500									
Sodium	ND	500									

Sample ID: **LCS2-44526** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91585**
Client ID: **LCSW** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1701991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	18666.666	500	20000	0	93.3	85	115				
Sodium	19277.774	500	20000	0	96.4	85	115				

Sample ID: **N011552-001A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	37362.481	2500	20000	15940	107	75	125				

Sample ID: **N011552-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	35921.915	2500	20000	15940	99.9	75	125	37360	3.93	20	

Sample ID: **N011552-001A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2263174.428	50000	20000	2312000	-246	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011552-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2235861.562	50000	20000	2312000	-383	75	125	2263000	1.21	20	S

Sample ID: **MB-44526** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91618**
Client ID: **PBW** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	110.557	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS-44526** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91618**
Client ID: **LCSW** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	8734.065	500	10000	0	87.3	85	115				
Iron	97.241	20	100.0	0	97.2	85	115				
Magnesium	9049.562	100	10000	0	90.5	85	115				

Sample ID: **N011552-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91618**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	109386.036	500	10000	98970	104	75	125				
Iron	696.039	20	100.0	588.3	108	75	125				
Magnesium	17611.868	100	10000	8203	94.1	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011552-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2013** RunNo: **91618**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	104465.465	500	10000	98970	55.0	75	125	109400	4.60	20	S
Iron	661.865	20	100.0	588.3	73.5	75	125	696.0	5.03	20	S
Magnesium	17191.772	100	10000	8203	89.9	75	125	17610	2.41	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	3.3	0.027	0.10		µg/L	1	12/10/2013 04:20 PM
Manganese	420	0.13	2.5		µg/L	5	12/10/2013 03:58 PM
Molybdenum	120	0.15	0.50		µg/L	1	12/10/2013 04:20 PM
Selenium	ND	0.069	0.50		µg/L	1	12/10/2013 04:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 04:54 PM
Molybdenum	46	0.76	2.5		µg/L	5	12/10/2013 04:49 PM
Selenium	ND	0.069	0.50		µg/L	1	12/10/2013 04:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40D-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 2:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	4.3	0.027	0.10		µg/L	1	12/10/2013 05:05 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 05:05 PM
Molybdenum	51	0.76	2.5		µg/L	5	12/10/2013 05:00 PM
Selenium	1.7	0.069	0.50		µg/L	1	12/10/2013 05:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-070-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 10:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	4.1	0.027	0.10		µg/L	1	12/10/2013 03:30 PM
Manganese	91	0.026	0.50		µg/L	1	12/10/2013 03:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	5.4	0.027	0.10		µg/L	1	12/10/2013 05:16 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 05:16 PM
Molybdenum	82	0.15	0.50		µg/L	1	12/10/2013 05:16 PM
Selenium	ND	0.069	0.50		µg/L	1	12/10/2013 05:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:37:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	3.1	0.027	0.10		µg/L	1	12/10/2013 05:27 PM
Manganese	480	0.13	2.5		µg/L	5	12/10/2013 05:22 PM
Molybdenum	140	0.15	0.50		µg/L	1	12/10/2013 05:27 PM
Selenium	ND	0.069	0.50		µg/L	1	12/10/2013 05:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 3:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	3.2	0.027	0.10		µg/L	1	12/10/2013 05:38 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 05:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 12:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	0.73	0.027	0.10		µg/L	1	12/10/2013 06:00 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 06:00 PM
Molybdenum	29	0.15	0.50		µg/L	1	12/10/2013 06:00 PM
Selenium	7.3	0.069	0.50		µg/L	1	12/10/2013 06:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-194
Lab Order:	N011552	**Collection Date:**	12/2/2013 1:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	2.3	0.027	0.10		µg/L	1	12/10/2013 06:06 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 06:06 PM
Molybdenum	36	0.76	2.5		µg/L	5	12/11/2013 08:19 PM
Selenium	5.9	0.069	0.50		µg/L	1	12/10/2013 06:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-24BR-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 8:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**			PrepDate:	**12/4/2013**		Analyst: **CEI**
Manganese	160	0.026	0.50		µg/L	1	12/10/2013 06:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-060-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 3:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	1.2	0.027	0.10		µg/L	1	12/10/2013 06:17 PM
Boron	480	2.7	50		µg/L	1	12/17/2013 12:47 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 06:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	12	0.027	0.10		µg/L	1	12/10/2013 06:23 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 06:23 PM
Molybdenum	250	0.76	2.5		µg/L	5	12/11/2013 08:30 PM
Selenium	ND	0.069	0.50		µg/L	1	12/10/2013 06:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 11:07:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	1.3	0.027	0.10		µg/L	1	12/10/2013 06:29 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 06:29 PM
Molybdenum	18	0.15	0.50		µg/L	1	12/10/2013 06:29 PM
Selenium	0.53	0.069	0.50		µg/L	1	12/10/2013 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT: CH2M HILL
Lab Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011552-014

Client Sample ID: MW-33-150-194
Collection Date: 12/3/2013 12:35:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	1.7	0.13	0.50		µg/L	5	12/10/2013 07:36 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 06:35 PM
Molybdenum	37	0.76	2.5		µg/L	5	12/11/2013 08:36 PM
Selenium	ND	0.34	2.5		µg/L	5	12/10/2013 07:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:44:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	1.1	0.13	0.50		µg/L	5	12/10/2013 07:41 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 06:40 PM
Molybdenum	17	0.76	2.5		µg/L	5	12/11/2013 08:41 PM
Selenium	ND	0.34	2.5		µg/L	5	12/10/2013 07:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-38S-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	13	0.027	0.10		µg/L	1	12/10/2013 06:46 PM
Manganese	180	0.026	0.50		µg/L	1	12/10/2013 06:46 PM
Molybdenum	45	0.15	0.50		µg/L	1	12/10/2013 06:46 PM
Selenium	ND	0.069	0.50		µg/L	1	12/10/2013 06:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 9:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	1.1	0.027	0.10		µg/L	1	12/10/2013 07:47 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 07:47 PM
Molybdenum	5.9	0.15	0.50		µg/L	1	12/11/2013 08:47 PM
Selenium	32	0.069	0.50		µg/L	1	12/10/2013 07:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 1:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	2.2	0.027	0.10		µg/L	1	12/10/2013 07:52 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 07:52 PM
Molybdenum	79	0.15	0.50		µg/L	1	12/11/2013 08:52 PM
Selenium	11	0.069	0.50		µg/L	1	12/10/2013 07:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *18-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-194
Lab Order:	N011552	**Collection Date:**	12/3/2013 10:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011552-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131210E**	QC Batch: **44514**				PrepDate:	**12/4/2013**	Analyst: **CEI**
Arsenic	1.2	0.13	0.50		µg/L	5	12/10/2013 08:04 PM
Manganese	ND	0.026	0.50		µg/L	1	12/10/2013 07:58 PM
Molybdenum	17	0.76	2.5		µg/L	5	12/11/2013 09:03 PM
Selenium	ND	0.34	2.5		µg/L	5	12/10/2013 08:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44514** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/4/2013** RunNo: **91563**
Client ID: **PBW** Batch ID: **44514** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/10/2013** SeqNo: **1700946**

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-44514** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/4/2013** RunNo: **91563**
Client ID: **LCSW** Batch ID: **44514** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/10/2013** SeqNo: **1700947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.130	0.10	10.00	0	101	85	115				
Manganese	99.479	0.50	100.0	0	99.5	85	115				
Molybdenum	10.235	0.50	10.00	0	102	85	115				
Selenium	9.985	0.50	10.00	0	99.8	85	115				

Sample ID: **N011552-004A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91563**
Client ID: **ZZZZZZ** Batch ID: **44514** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/10/2013** SeqNo: **1700949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.219	0.10	10.00	4.067	102	75	125				
Manganese	171.171	0.50	100.0	90.91	80.3	75	125				
Molybdenum	25.687	0.50	10.00	15.43	103	75	125				
Selenium	9.206	0.50	10.00	0	92.1	75	125				

Sample ID: **N011552-004A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91563**
Client ID: **ZZZZZZ** Batch ID: **44514** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/10/2013** SeqNo: **1700950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.832	0.10	10.00	4.067	97.6	75	125	14.22	2.76	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011552-004A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91563**
Client ID: **ZZZZZZ** Batch ID: **44514** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/10/2013** SeqNo: **1700950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	168.815	0.50	100.0	90.91	77.9	75	125	171.2	1.39	20	
Molybdenum	25.088	0.50	10.00	15.43	96.6	75	125	25.69	2.36	20	
Selenium	9.132	0.50	10.00	0	91.3	75	125	9.206	0.806	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44627**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/16/2013**	RunNo: **91662**
Client ID: **PBW**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	8.496	50									

Sample ID: **LCS-44627**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/16/2013**	RunNo: **91662**
Client ID: **LCSW**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	107.600	50	100.0	0	108	85	115				

Sample ID: **N011552-011A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/16/2013**	RunNo: **91662**
Client ID: **ZZZZZZ**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1456.623	50	1000	478.7	97.8	75	125				

Sample ID: **N011552-011A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/16/2013**	RunNo: **91662**
Client ID: **ZZZZZZ**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1473.228	50	1000	478.7	99.5	75	125	1457	1.13	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/3/2013
COC Number: 21

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-124-194	12/2/2013	10:15	Water	X		X	X		X		X		X	X	N011552-1	~~8~~	4
MW-37D-194	12/2/2013	10:44	Water			X	X		X		X		X		-2	~~7~~	3
MW-40D-194	12/2/2013	14:54	Water	X		X	X		X		X		X		-3	~~8~~	3
MW-44-070-194	12/2/2013	10:32	Water	X		X			X		X		X	X	-4	~~8~~	4
MW-44-115-194	12/2/2013	13:53	Water	X		X	X		X		X		X	X	-5	~~8~~	4
MW-44-125-194	12/2/2013	12:37	Water	X		X	X		X		X		X	X	-6	~~8~~	4
MW-45-095a-194	12/2/2013	15:28	Water	X		X			X		X		X	X	-7	~~8~~	4
MW-65-160-194	12/2/2013	12:24	Water	X		X	X		X		X		X	X	-8	~~8~~	4
MW-65-225-194	12/2/2013	13:14	Water	X		X	X		X		X		X	X	-9	~~8~~	4
MW-24BR-194	12/3/2013	8:26	Water			X			X		X		X		-10	~~7~~	3
MW-31-060-194	12/3/2013	15:35	Water	X	X			X			X	X	X	X	-11	~~7~~	4
MW-33-040-194	12/3/2013	9:28	Water	X		X	X			X	X		X	X	-12	~~8~~	4
MW-33-090-194	12/3/2013	11:07	Water	X		X	X			X	X		X	X	-13	~~8~~	4
MW-33-150-194	12/3/2013	12:35	Water	X		X	X			X	X		X	X	-14	~~8~~	4

	Signatures	Date/Time
Approved by		12-3-13 1620
Sampled by		
Relinquished by		
Received by		12/3/13 1620
Relinquished by		12/3/13
Received by		12/3/13 1900

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 3.3°C/4.2°C/3.9°C
Airbill No: 1R#2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/3/2013
COC Number: 21

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-33-210-194	12/3/2013	13:44	Water	X		X	X			X	X		X	X	N011552 - 15	~~2~~	4
MW-38S-194	12/3/2013	10:40	Water	X		X	X		X				X		- 16	~~2~~	3
MW-66-165-194	12/3/2013	9:14	Water	X		X	X		X		X		X	X	- 17	~~2~~	4
MW-69-195-194	12/3/2013	13:06	Water	X		X	X		X		X		X	X	- 18	~~2~~	4
MW-92-194	12/3/2013	10:27	Water	X		X	X			X	X		X	X	- 19	~~2~~	4
															TOTAL NUMBER OF CONTAINERS		

	Signatures	Date/Time
Approved by		12-3-13
Sampled by		1620
Relinquished by		
Received by		12/3/13 1620
Relinquished by		12/3/13 1900
Received by		12/3/13

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 3.6°C
Airbill No: 1R #2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

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:	12/3/2013	Workorder:	N011552
Rep sample Temp (Deg C):	3.3, 4.2, 3.9, 3.6	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 12/4/2013

Reviewed By: 2013-12-06

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

04-Dec-13

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3C		
N011552-001D / MW-124-194	Water	12/2/2013 10:15:00 AM	32OZP	1		
N011552-004D / MW-44-070-194	Water	12/2/2013 10:32:00 AM	32OZP	1		
N011552-005D / MW-44-115-194	Water	12/2/2013 1:53:00 PM	32OZP	1		
N011552-006D / MW-44-125-194	Water	12/2/2013 12:37:00 PM	32OZP	1		
N011552-007D / MW-45-095a-194	Water	12/2/2013 3:28:00 PM	32OZP	1		
N011552-008D / MW-65-160-194	Water	12/2/2013 12:24:00 PM	32OZP	1		
N011552-009D / MW-65-225-194	Water	12/2/2013 1:14:00 PM	32OZP	1		
N011552-011D / MW-31-060-194	Water	12/3/2013 3:35:00 PM	32OZP	1		
N011552-012D / MW-33-040-194	Water	12/3/2013 9:28:00 AM	32OZP	1		
N011552-013D / MW-33-090-194	Water	12/3/2013 11:07:00 AM	32OZP	1		
N011552-014D / MW-33-150-194	Water	12/3/2013 12:35:00 PM	32OZP	1		
N011552-015D / MW-33-210-194	Water	12/3/2013 1:44:00 PM	32OZP	1		
N011552-017D / MW-66-165-194	Water	12/3/2013 9:14:00 AM	32OZP	1		
N011552-018D / MW-69-195-194	Water	12/3/2013 1:06:00 PM	32OZP	1		
N011552-019D / MW-92-194	Water	12/3/2013 10:27:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N011552 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by: Normal TAT

Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

		Date/Time			Date/Time
Relinquished by:	Hanah Glodoviza	12/4/2013 17:00	**Received by:**		
Relinquished by:			**Received by:**		

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N011552-011C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(64.7004-64.6060)*1000000}{50}$$
$$= 1888.00 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 1900.00mg/L

12/5/2013

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/4/2013								TDS/CONDUCTIVITY
Date Finished: 12/5/2013	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-44519	100	63.8071	63.807	-1	1	-1.00		
LCS-44519	100	63.5371	63.635	979	1	979.00		
N011552-011C	50	64.606	64.7004	944	2	1888.00	3060	0.62
N011553-013D	70	64.1417	64.2397	980	1.4285714	1400.00	2270	0.62
N011553-013D-DUP	70	64.3063	64.4045	982	1.4285714	1402.86	2270	0.62
N011553-014D	65	63.401	63.4866	856	1.5384615	1316.92	2300	0.57
N011553-015D	70	61.3828	61.4845	1017	1.4285714	1452.86	2200	0.66
N011558-001A	100	59.9948	60.0519	571	1	571.00	710	0.80
N011558-002A	100	61.3191	61.3755	564	1	564.00	701	0.80
N011558-003A	35	59.9228	60.0212	984	2.8571429	2811.43	4410	0.64
N011558-004A	30	60.5411	60.6438	1027	3.3333333	3423.33	4580	0.75

12/5/2013

C

Sample ID: **N011552-001~~B~~ @ pH 7.69**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.5mL)

= **0.02174 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 $CaCO_3$), mg/L = (5.40) (0.02174 N) (1) * 1000

= 117.39 **mg/L**

Reporting results in two significant figures,

12/6/2013

= 120.00 **mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02174 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (5.40 mL) (0.02174) (1) * 1000

= 117.39 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 117.39 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 120.00 **mg/L**

12/6/2013

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Water

FORMULA:

Calculate the Fluoride concentration, in mg/L, in the original sample as follows:

Fluoride, mg/L = A * DF

where :

A = mg/L, IC calculated concentration
DF = dilution factor

For **N011552-012B** concentration in mg/L is calculated as follows:

Fluoride, mg/L = 1.167 * 10

= 11.67

Reporting result in two significant figures,

Fluoride, mg/L = 12

Nancy 12/16/2013

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Potassium concentration, in µg/L, in the original sample as follows:

Potassium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011552-011A**, the concentration in µg/L is calculated as follows:

1.28585 * 5 * (25/25) * 1000

Potassium, µg/L = 6.42909103 * ~~1 * (25/25)~~ * 1000

= 6429.09103

Reporting results in two significant figures,

Potassium, µg/L = 6400

Nancy 12/17/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011552
Test Method: EPA 6010
Analysis Date: 12/12/13

Matrix: Water
Batch No.: 44526

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011552-001A-DT 500X	Sodium	ug/L	2453946.9435	PASSED	2312411.8880	6.12%	10

Note: NA - Not Applicable

N011552-001A DT@25X	Potassium	ug/L	16371.75	PASSED	15939.34	2.71%

12/17/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011552
Test Method: EPA 6010
Analysis Date: 12/13/13

Matrix: Water
Batch No.: 44526

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test failed for Fe and Mg. However the PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011552-001A-DT 5X	Calcium	ug/L	106559.73345	PASSED	98968.354500	7.67%	10
N011552-001A-DT 5X	Iron	ug/L	673.5852015	FAIL	588.342216	14.49%	10
N011552-001A-DT 5X	Magnesium	ug/L	9275.299080	FAIL	8203.219039	13.07%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *16-Dec-13*

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011552-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	116632.830	2500	100000	15940	101	80	120				

Sample ID: **N011552-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	4280287.241	50000	2000000	2312000	98.4	80	120				

Sample ID: **N011552-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91618**
Client ID: **ZZZZZZ** Batch ID: **44526** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	111134.652	1000	5000	98970	243	80	120				S
Iron	5394.725	40	5000	588.3	96.1	80	120				
Magnesium	13415.345	200	5000	8203	104	80	120				

~~*Potassium is not a required analyte for N011552~~

12/17/2013

DT @5x for Ca is within criteria

12/17/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N011552-003A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 4.273511305 * 1 * (25/25)

= 4.273511305

Reporting results in two significant figures,

Arsenic, ug/L = 4.3

12/17/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011552
Test Method: EPA 6020
Analysis Date: 12/10/2013

Matrix: Water
Batch No.: 44514

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 is <25X RL. PS @2X passed criteria.
Dilution test failed ~~to~~ for As. However, PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011552-004A-DT 5X	Arsenic	µg/L	4.476510704	FAIL	4.06708106	10.07%	10%
N011552-004A-DT 5X	Manganese	µg/L	90.10399939	PASS	90.91337335	0.89%	10%
N011552-004A-DT 5X	Molybdenum	µg/L	15.48710541	PASS	15.4332673	0.35%	10%
N011552-004A-DT 5X	Selenium	µg/L	0	NA	0		10%

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

N011552

Dilution Test Summary

Work Order No.: ~~N011572~~
Test Method: EPA 6020
Analysis Date: 12/17/2013

Matrix: Water
Batch No.: 44627

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

~~Dilution test is not applicable to As and Cr. The calculated values are <25X RL. PS @2X passed criteria.~~

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011552-011A-DT 5X	Boron	µg/L	509.65	NA	478.691	6.47%	10%

Note: NA - Not applicable

Mary 12/17/2013

Advanced Technology Laboratories, Inc.

Date: *12-Dec-13*

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011552-004A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91563**
Client ID: **ZZZZZZ** Batch ID: **44514** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/10/2013** SeqNo: **1700952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.801	0.20	20.00	4.067	104	80	120				
Manganese	286.413	1.0	200.0	90.91	97.7	80	120				
Molybdenum	38.956	1.0	20.00	15.43	118	80	120				
Selenium	18.350	1.0	20.00	0	91.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N011552
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011552-011A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **91662**
Client ID: **ZZZZZZ**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	702.898	100	200.0	478.7	112	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

December 19, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011572

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 05, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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.01
Lab Order: N011572

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 300.0:

Dilution on sample N011572-002 was necessary due to precipitation of sample upon the addition of eluent.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium and Calcium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011572-001, N011572-003, N011572-004, N011572-005, N011572-006, N011572-008, N011572-010, N011572-011, N011572-014 due to failed Internal Standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc. *3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691*

Advanced Technology Laboratories, Inc.

Date: *19-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011572
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011572-001A	MW-100-194	Water	12/4/2013 7:52:00 AM	12/5/2013	12/19/2013
N011572-001B	MW-100-194	Water	12/4/2013 7:52:00 AM	12/5/2013	12/19/2013
N011572-001C	MW-100-194	Water	12/4/2013 7:52:00 AM	12/5/2013	12/19/2013
N011572-002A	MW-26-194	Water	12/4/2013 11:08:00 AM	12/5/2013	12/19/2013
N011572-002B	MW-26-194	Water	12/4/2013 11:08:00 AM	12/5/2013	12/19/2013
N011572-003A	MW-39-100-194	Water	12/4/2013 8:41:00 AM	12/5/2013	12/19/2013
N011572-003B	MW-39-100-194	Water	12/4/2013 8:41:00 AM	12/5/2013	12/19/2013
N011572-003C	MW-39-100-194	Water	12/4/2013 8:41:00 AM	12/5/2013	12/19/2013
N011572-004A	MW-60-125-194	Water	12/4/2013 8:59:00 AM	12/5/2013	12/19/2013
N011572-004B	MW-60-125-194	Water	12/4/2013 8:59:00 AM	12/5/2013	12/19/2013
N011572-004C	MW-60-125-194	Water	12/4/2013 8:59:00 AM	12/5/2013	12/19/2013
N011572-005A	MW-60BR-245-194	Water	12/4/2013 9:45:00 AM	12/5/2013	12/19/2013
N011572-005B	MW-60BR-245-194	Water	12/4/2013 9:45:00 AM	12/5/2013	12/19/2013
N011572-005C	MW-60BR-245-194	Water	12/4/2013 9:45:00 AM	12/5/2013	12/19/2013
N011572-006A	MW-63-065-194	Water	12/4/2013 10:06:00 AM	12/5/2013	12/19/2013
N011572-006B	MW-63-065-194	Water	12/4/2013 10:06:00 AM	12/5/2013	12/19/2013
N011572-006C	MW-63-065-194	Water	12/4/2013 10:06:00 AM	12/5/2013	12/19/2013
N011572-007A	MW-67-185-194	Water	12/4/2013 3:00:00 PM	12/5/2013	12/19/2013
N011572-007B	MW-67-185-194	Water	12/4/2013 3:00:00 PM	12/5/2013	12/19/2013
N011572-007C	MW-67-185-194	Water	12/4/2013 3:00:00 PM	12/5/2013	12/19/2013
N011572-008A	MW-68-240-194	Water	12/4/2013 1:48:00 PM	12/5/2013	12/19/2013
N011572-008B	MW-68-240-194	Water	12/4/2013 1:48:00 PM	12/5/2013	12/19/2013
N011572-008C	MW-68-240-194	Water	12/4/2013 1:48:00 PM	12/5/2013	12/19/2013
N011572-009A	MW-70-105-194	Water	12/4/2013 3:13:00 PM	12/5/2013	12/19/2013
N011572-009B	MW-70-105-194	Water	12/4/2013 3:13:00 PM	12/5/2013	12/19/2013
N011572-009C	MW-70-105-194	Water	12/4/2013 3:13:00 PM	12/5/2013	12/19/2013
N011572-010A	MW-72-080-194	Water	12/4/2013 1:54:00 PM	12/5/2013	12/19/2013
N011572-010B	MW-72-080-194	Water	12/4/2013 1:54:00 PM	12/5/2013	12/19/2013
N011572-010C	MW-72-080-194	Water	12/4/2013 1:54:00 PM	12/5/2013	12/19/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011572
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011572-011A	MW-125-194	Water	12/5/2013 11:22:00 AM	12/5/2013	12/19/2013
N011572-011B	MW-125-194	Water	12/5/2013 11:22:00 AM	12/5/2013	12/19/2013
N011572-011C	MW-125-194	Water	12/5/2013 11:22:00 AM	12/5/2013	12/19/2013
N011572-012A	MW-19-194	Water	12/5/2013 11:45:00 AM	12/5/2013	12/19/2013
N011572-012B	MW-19-194	Water	12/5/2013 11:45:00 AM	12/5/2013	12/19/2013
N011572-013A	MW-61-110-194	Water	12/5/2013 2:50:00 PM	12/5/2013	12/19/2013
N011572-013B	MW-61-110-194	Water	12/5/2013 2:50:00 PM	12/5/2013	12/19/2013
N011572-013C	MW-61-110-194	Water	12/5/2013 2:50:00 PM	12/5/2013	12/19/2013
N011572-014A	MW-73-080-194	Water	12/5/2013 9:00:00 AM	12/5/2013	12/19/2013
N011572-014B	MW-73-080-194	Water	12/5/2013 9:00:00 AM	12/5/2013	12/19/2013
N011572-014C	MW-73-080-194	Water	12/5/2013 9:00:00 AM	12/5/2013	12/19/2013
N011572-015A	MW-74-240-194	Water	12/5/2013 8:20:00 AM	12/5/2013	12/19/2013
N011572-015B	MW-74-240-194	Water	12/5/2013 8:20:00 AM	12/5/2013	12/19/2013
N011572-015C	MW-74-240-194	Water	12/5/2013 8:20:00 AM	12/5/2013	12/19/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 7:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-26-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	3800	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:59:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	8100	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 9:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 10:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	6800	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	5100	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:48:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	3400	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-19-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	2100	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 9:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 8:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131206A**	QC Batch: **R91499**			PrepDate:			Analyst: **LCC**
Specific Conductance	710	0.10	0.10		umhos/cm	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *19-Dec-13*

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011572-010B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91499**
Client ID: **ZZZZZZ** Batch ID: **R91499** TestNo: **EPA 120.1** Analysis Date: **12/6/2013** SeqNo: **1698085**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	14730.000	0.10						14700	0.204	10	

Sample ID: **N011572-015B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91499**
Client ID: **ZZZZZZ** Batch ID: **R91499** TestNo: **EPA 120.1** Analysis Date: **12/6/2013** SeqNo: **1698091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	712.000	0.10						707.0	0.705	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-26-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131209A**	QC Batch: **44544**			PrepDate:	**12/9/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	2600	25	25		mg/L	1	12/9/2013 07:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *19-Dec-13*

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-44544** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/9/2013** RunNo: **91532**
Client ID: **PBW** Batch ID: **44544** TestNo: **SM2540C** Analysis Date: **12/9/2013** SeqNo: **1699780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **LCS-44544** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/9/2013** RunNo: **91532**
Client ID: **LCSW** Batch ID: **44544** TestNo: **SM2540C** Analysis Date: **12/9/2013** SeqNo: **1699781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	976.000	10	1000	0	97.6	80	120				

Sample ID: **N011572-002B-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/9/2013** RunNo: **91532**
Client ID: **ZZZZZZ** Batch ID: **44544** TestNo: **SM2540C** Analysis Date: **12/9/2013** SeqNo: **1699783**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	2622.500	25						2570	2.02	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 7:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	300	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	300	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-26-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	300	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	300	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:59:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	47	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	47	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 9:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	28	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	28	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 10:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	190	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	190	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:48:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	62	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	62	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	90	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	90	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	45	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	45	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	47	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	47	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-19-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	92	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	92	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	45	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	45	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 9:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	85	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	85	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 8:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131206C**	QC Batch: **R91503**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Carbonate (As CaCO3)	10	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2013
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	12/6/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91503** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91503**
Client ID: **LCSW** Batch ID: **R91503** TestNo: **SM 2320 B** Analysis Date: **12/6/2013** SeqNo: **1698130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	89.744	5.0	100.0	0	89.7	85	115				
Alkalinity, Total (As CaCO3)	98.291	5.0	100.0	0	98.3	85	115				

Sample ID: **MB-R91503** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91503**
Client ID: **PBW** Batch ID: **R91503** TestNo: **SM 2320 B** Analysis Date: **12/6/2013** SeqNo: **1698131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.137	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.137	5.0									

Sample ID: **N011572-014B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91503**
Client ID: **ZZZZZZ** Batch ID: **R91503** TestNo: **SM 2320 B** Analysis Date: **12/6/2013** SeqNo: **1698146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	85.470	5.0						85.47	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)	85.470	5.0						85.47	0	30	

Sample ID: **N011572-015B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91503**
Client ID: **ZZZZZZ** Batch ID: **R91503** TestNo: **SM 2320 B** Analysis Date: **12/6/2013** SeqNo: **1698148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	222.222	5.0	100.0	141.0	81.2	75	125				
Alkalinity, Total (As CaCO3)	243.590	5.0	100.0	153.8	89.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011572-015B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91503**
Client ID: **ZZZZZZ** Batch ID: **R91503** TestNo: **SM 2320 B** Analysis Date: **12/6/2013** SeqNo: **1698149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	222.222	5.0	100.0	141.0	81.2	75	125	222.2	0	20	
Alkalinity, Total (As CaCO3)	243.590	5.0	100.0	153.8	89.7	75	125	243.6	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 7:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	4800	26	500		mg/L	1000	12/10/2013 03:42 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	1400	3.8	50		mg/L	100	12/9/2013 05:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-26-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Bromide	1.0	0.064	1.0		mg/L	2	12/9/2013 12:15 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	890	5.2	100		mg/L	200	12/9/2013 10:25 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	520	3.8	50		mg/L	100	12/9/2013 10:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	4800	26	500		mg/L	1000	12/9/2013 10:38 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	1500	3.8	50		mg/L	100	12/9/2013 10:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:59:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	2700	26	500		mg/L	1000	12/9/2013 11:03 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	470	3.8	50		mg/L	100	12/9/2013 11:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 9:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	5800	26	500		mg/L	1000	12/9/2013 11:29 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	770	3.8	50		mg/L	100	12/9/2013 11:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 10:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	1800	13	250		mg/L	500	12/9/2013 08:19 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	590	3.8	50		mg/L	100	12/9/2013 08:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	1400	5.2	100		mg/L	200	12/9/2013 08:57 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	590	3.8	50		mg/L	100	12/9/2013 08:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:48:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	5600	26	500		mg/L	1000	12/9/2013 09:10 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	890	3.8	50		mg/L	100	12/9/2013 09:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131210A** QC Batch: **R91669** PrepDate: Analyst: **PN**							
Chloride	900	5.2	100		mg/L	200	12/10/2013 10:26 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	240	1.9	25		mg/L	50	12/9/2013 11:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	5100	26	500		mg/L	1000	12/10/2013 01:10 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	710	3.8	50		mg/L	100	12/10/2013 01:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	5100	26	500		mg/L	1000	12/10/2013 01:35 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	720	3.8	50		mg/L	100	12/10/2013 01:48 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-19-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	510	2.6	50		mg/L	100	12/10/2013 02:01 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	170	0.76	10		mg/L	20	12/10/2013 02:13 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	5300	26	500		mg/L	1000	12/10/2013 02:26 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	700	3.8	50		mg/L	100	12/10/2013 02:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 9:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Chloride	3500	26	500		mg/L	1000	12/10/2013 03:29 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209A** QC Batch: **R91614** PrepDate: Analyst: **PN**							
Sulfate	430	3.8	50		mg/L	100	12/10/2013 03:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 8:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209B** QC Batch: **R91688** PrepDate: Analyst: **PN**							
Chloride	130	1.3	25		mg/L	50	12/10/2013 04:20 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131209B** QC Batch: **R91688** PrepDate: Analyst: **PN**							
Sulfate	77	0.38	5.0		mg/L	10	12/10/2013 05:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *19-Dec-13*

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R91614_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **PBW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R91614_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **LCSW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.556	0.50	2.500	0	102	90	110				

Sample ID: **N011552-011BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.187	0.50						0.1910	0	20	

Sample ID: **N011552-011BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.326	0.50	2.500	0.1910	85.4	80	120				

Sample ID: **N011552-011BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.321	0.50	2.500	0.1910	85.2	80	120	2.326	0.215	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91614_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **PBW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91614_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **LCSW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.394	0.50	2.500	0	95.8	90	110				

Sample ID: **N011552-012BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702923**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4887.000	500	2500	2589	91.9	80	120				

Sample ID: **N011552-012BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4867.000	500	2500	2589	91.1	80	120	4887	0.410	20	

Sample ID: **N011552-012BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2451.000	500						2589	5.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011552-015BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702928**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	8831.000	500	2500	6359	98.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91669_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91669**
Client ID: **PBW** Batch ID: **R91669** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705126**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **N011572-009BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91669**
Client ID: **ZZZZZZ** Batch ID: **R91669** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	899.600	100						895.8	0.423	20	

Sample ID: **N011572-009BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91669**
Client ID: **ZZZZZZ** Batch ID: **R91669** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1395.800	100	500.0	895.8	100	80	120				

Sample ID: **N011572-009BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91669**
Client ID: **ZZZZZZ** Batch ID: **R91669** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1388.000	100	500.0	895.8	98.4	80	120	1396	0.560	20	

Sample ID: **LCS-R91669_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91669**
Client ID: **LCSW** Batch ID: **R91669** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.359	0.50	2.500	0	94.4	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R91688_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **LCSW** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705696**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.423	0.50	2.500	0	96.9	90	110				

Sample ID: **MB-R91688_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **PBW** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **N011572-015BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **ZZZZZZ** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	248.500	25	125.0	128.2	96.2	80	120				

Sample ID: **N011572-015BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **ZZZZZZ** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	248.950	25	125.0	128.2	96.6	80	120	248.5	0.181	20	

Sample ID: **N011572-015BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **ZZZZZZ** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	126.700	25						128.2	1.18	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91614_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **PBW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91614_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **LCSW** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.026	0.50	5.000	0	101	90	110				

Sample ID: **N011552-012BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702961**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	870.200	50						928.3	6.46	20	

Sample ID: **N011552-012BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702962**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1420.600	50	500.0	928.3	98.5	80	120				

Sample ID: **N011552-012BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1406.300	50	500.0	928.3	95.6	80	120	1421	1.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011552-015BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91614**
Client ID: **ZZZZZZ** Batch ID: **R91614** TestNo: **EPA 300.0** Analysis Date: **12/9/2013** SeqNo: **1702966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1716.700	50	500.0	1206	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R91688_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **LCSW** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.818	0.50	5.000	0	96.4	90	110				

Sample ID: **MB-R91688_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **PBW** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **N011572-015BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **ZZZZZZ** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	78.710	5.0						76.80	2.46	20	

Sample ID: **N011572-015BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **ZZZZZZ** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	133.460	5.0	50.00	76.80	113	80	120				

Sample ID: **N011572-015BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91688**
Client ID: **ZZZZZZ** Batch ID: **R91688** TestNo: **EPA 300.0** Analysis Date: **12/10/2013** SeqNo: **1705820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	128.040	5.0	50.00	76.80	102	80	120	133.5	4.15	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 7:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	510000	290	2500		ug/L	5	12/13/2013 09:00 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 08:55 PM
Magnesium	81000	11	100		ug/L	1	12/13/2013 08:55 PM
Sodium	3400000	7300	50000		ug/L	100	12/12/2013 02:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-26-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	160000	58	500		ug/L	1	12/13/2013 09:46 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 09:46 PM
Magnesium	41000	11	100		ug/L	1	12/13/2013 09:46 PM
Potassium	12000	16	2500		ug/L	5	12/12/2013 04:45 PM
Sodium	670000	7300	50000		ug/L	100	12/12/2013 02:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	580000	120	1000		ug/L	2	12/16/2013 01:09 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 09:52 PM
Magnesium	82000	11	100		ug/L	1	12/13/2013 09:52 PM
Sodium	3300000	7300	50000		ug/L	100	12/12/2013 02:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:59:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	550000	120	1000		ug/L	2	12/16/2013 01:14 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 09:57 PM
Magnesium	26000	11	100		ug/L	1	12/13/2013 09:57 PM
Sodium	1500000	7300	50000		ug/L	100	12/12/2013 02:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 9:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	420000	58	500		ug/L	1	12/13/2013 10:02 PM
Iron	130	1.3	20		ug/L	1	12/13/2013 10:02 PM
Magnesium	6300	11	100		ug/L	1	12/13/2013 10:02 PM
Sodium	3800000	7300	50000		ug/L	100	12/12/2013 02:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 10:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	200000	58	500		ug/L	1	12/13/2013 10:08 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 10:08 PM
Magnesium	21000	11	100		ug/L	1	12/13/2013 10:08 PM
Sodium	1400000	7300	50000		ug/L	100	12/12/2013 02:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**			PrepDate:	**12/10/2013**		Analyst: **JAA**
Calcium	270000	58	500		ug/L	1	12/13/2013 10:13 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 10:13 PM
Magnesium	52000	11	100		ug/L	1	12/13/2013 10:13 PM
Sodium	890000	7300	50000		ug/L	100	12/12/2013 02:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:48:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	570000	120	1000		ug/L	2	12/16/2013 01:19 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 10:19 PM
Magnesium	19000	11	100		ug/L	1	12/13/2013 10:19 PM
Sodium	3300000	7300	50000		ug/L	100	12/12/2013 02:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	90000	58	500		ug/L	1	12/13/2013 10:24 PM
Iron	26	1.3	20		ug/L	1	12/13/2013 10:24 PM
Magnesium	9100	11	100		ug/L	1	12/13/2013 10:24 PM
Sodium	650000	7300	50000		ug/L	100	12/12/2013 03:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	370000	58	500		ug/L	1	12/13/2013 10:37 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 10:37 PM
Magnesium	9400	11	100		ug/L	1	12/13/2013 10:37 PM
Sodium	3400000	7300	50000		ug/L	100	12/12/2013 03:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	730000	120	1000		ug/L	2	12/16/2013 01:34 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 10:42 PM
Magnesium	20000	11	100		ug/L	1	12/13/2013 10:42 PM
Sodium	3200000	7300	50000		ug/L	100	12/12/2013 03:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-19-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	94000	58	500		ug/L	1	12/13/2013 10:47 PM
Iron	27	1.3	20		ug/L	1	12/13/2013 10:47 PM
Magnesium	15000	11	100		ug/L	1	12/13/2013 10:47 PM
Sodium	350000	7300	50000		ug/L	100	12/12/2013 03:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	720000	120	1000		ug/L	2	12/16/2013 01:39 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 10:52 PM
Magnesium	19000	11	100		ug/L	1	12/13/2013 10:52 PM
Sodium	3100000	7300	50000		ug/L	100	12/12/2013 03:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 9:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131216A**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	530000	120	1000		ug/L	2	12/16/2013 01:45 PM
Iron	ND	1.3	20		ug/L	1	12/13/2013 10:57 PM
Magnesium	33000	11	100		ug/L	1	12/13/2013 10:57 PM
Sodium	2100000	7300	50000		ug/L	100	12/12/2013 03:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 8:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131213E**	QC Batch: **44565**				PrepDate: **12/10/2013**		Analyst: **JAA**
Calcium	9400	58	500		ug/L	1	12/13/2013 11:03 PM
Iron	440	1.3	20		ug/L	1	12/13/2013 11:03 PM
Magnesium	1200	11	100		ug/L	1	12/13/2013 11:03 PM
Sodium	200000	7300	50000		ug/L	100	12/12/2013 03:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *19-Dec-13*

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44565** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91585**
Client ID: **PBW** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	16.359	500									
Sodium	111.659	500									

Sample ID: **LCS2-44565** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91585**
Client ID: **LCSW** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	18459.134	500	20000	0	92.3	85	115				
Sodium	19085.182	500	20000	0	95.4	85	115				

Sample ID: **N011572-002A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	33368.255	2500	20000	11900	107	75	125				

Sample ID: **N011572-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	33151.568	2500	20000	11900	106	75	125	33370	0.651	20	

Sample ID: **N011572-002A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	716762.758	50000	20000	674800	210	75	125				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011572-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	706469.152	50000	20000	674800	158	75	125	716800	1.45	20	S

Sample ID: **MB-44565** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91618**
Client ID: **PBW** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	134.291	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS-44565** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91618**
Client ID: **LCSW** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	8733.998	500	10000	0	87.3	85	115				
Iron	97.742	20	100.0	0	97.7	85	115				
Magnesium	8902.525	100	10000	0	89.0	85	115				

Sample ID: **N011572-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91618**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	121.025	20	100.0	2.010	119	75	125				
Magnesium	90762.762	100	10000	80560	102	75	125				

Sample ID: **N011572-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91618**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011572-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91618**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.133	20	100.0	2.010	105	75	125	121.0	12.2	20	
Magnesium	91013.666	100	10000	80560	105	75	125	90760	0.276	20	

Sample ID: **N011572-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91644**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/16/2013** SeqNo: **1703979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	611453.435	2500	10000	512800	987	75	125				S

Sample ID: **N011572-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/10/2013** RunNo: **91644**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/16/2013** SeqNo: **1703980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	585639.224	2500	10000	512800	729	75	125	611500	4.31	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 7:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	2.0	0.13	0.50		µg/L	5	12/12/2013 11:04 AM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 11:09 AM
Molybdenum	6.4	0.76	2.5		µg/L	5	12/12/2013 11:04 AM
Selenium	ND	0.34	2.5		µg/L	5	12/12/2013 11:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-26-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	1.8	0.027	0.10		µg/L	1	12/12/2013 11:20 AM
Boron	930	2.7	50		µg/L	1	12/17/2013 12:52 PM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 11:20 AM
Molybdenum	29	0.15	0.50		µg/L	1	12/12/2013 11:20 AM
Selenium	43	0.069	0.50		µg/L	1	12/12/2013 11:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	2.2	0.13	0.50		µg/L	5	12/12/2013 11:26 AM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 11:31 AM
Molybdenum	6.4	0.76	2.5		µg/L	5	12/12/2013 11:26 AM
Selenium	ND	0.34	2.5		µg/L	5	12/12/2013 11:26 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 8:59:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	1.4	0.027	0.10		µg/L	1	12/12/2013 11:42 AM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 11:42 AM
Molybdenum	18	0.76	2.5		µg/L	5	12/12/2013 11:37 AM
Selenium	6.4	0.34	2.5		µg/L	5	12/12/2013 11:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 9:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	5.9	0.13	0.50		µg/L	5	12/12/2013 11:59 AM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 12:04 PM
Molybdenum	58	0.76	2.5		µg/L	5	12/12/2013 11:59 AM
Selenium	ND	0.34	2.5		µg/L	5	12/12/2013 11:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 10:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	12/12/2013 12:15 PM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 12:15 PM
Molybdenum	19	0.76	2.5		µg/L	5	12/12/2013 12:10 PM
Selenium	ND	0.34	2.5		µg/L	5	12/12/2013 12:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	12/12/2013 12:26 PM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 12:26 PM
Molybdenum	8.9	0.15	0.50		µg/L	1	12/12/2013 12:26 PM
Selenium	180	0.069	0.50		µg/L	1	12/12/2013 12:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:48:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	2.0	0.13	0.50		µg/L	5	12/12/2013 12:32 PM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 12:37 PM
Molybdenum	21	0.76	2.5		µg/L	5	12/12/2013 12:32 PM
Selenium	4.3	0.34	2.5		µg/L	5	12/19/2013 11:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 3:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	5.1	0.027	0.10		µg/L	1	12/12/2013 12:48 PM
Manganese	160	0.026	0.50		µg/L	1	12/12/2013 12:48 PM
Molybdenum	93	0.15	0.50		µg/L	1	12/12/2013 12:48 PM
Selenium	3.6	0.069	0.50		µg/L	1	12/12/2013 12:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-194
Lab Order:	N011572	**Collection Date:**	12/4/2013 1:54:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	10	0.13	0.50		µg/L	5	12/12/2013 01:05 PM
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 01:10 PM
Molybdenum	71	0.76	2.5		µg/L	5	12/12/2013 01:05 PM
Selenium	ND	0.34	2.5		µg/L	5	12/12/2013 01:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	3.6	0.13	0.50		µg/L	5	12/12/2013 01:22 PM
Manganese	53	0.026	0.50		µg/L	1	12/12/2013 01:16 PM
Molybdenum	23	0.76	2.5		µg/L	5	12/12/2013 01:22 PM
Selenium	ND	1.7	12		µg/L	25	12/12/2013 02:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-19-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**			PrepDate:	**12/6/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/12/2013 01:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	3.4	0.13	0.50		µg/L	5	12/12/2013 01:38 PM
Manganese	58	0.13	2.5		µg/L	5	12/12/2013 01:38 PM
Molybdenum	22	3.8	12		µg/L	25	12/12/2013 02:22 PM
Selenium	ND	1.7	12		µg/L	25	12/12/2013 02:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 9:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	1.3	0.13	0.50		µg/L	5	12/12/2013 01:49 PM
Manganese	ND	0.13	2.5		µg/L	5	12/12/2013 01:49 PM
Molybdenum	21	3.8	12		µg/L	25	12/12/2013 02:28 PM
Selenium	ND	1.7	12		µg/L	25	12/12/2013 02:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *19-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-194
Lab Order:	N011572	**Collection Date:**	12/5/2013 8:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011572-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131212B**	QC Batch: **44533**				PrepDate:	**12/6/2013**	Analyst: **CEI**
Arsenic	14	0.027	0.10		µg/L	1	12/12/2013 02:53 PM
Manganese	3.0	0.026	0.50		µg/L	1	12/12/2013 02:53 PM
Molybdenum	68	0.15	0.50		µg/L	1	12/12/2013 02:53 PM
Selenium	2.0	0.069	0.50		µg/L	1	12/12/2013 02:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *19-Dec-13*

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44533** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2013** RunNo: **91617**
Client ID: **PBW** Batch ID: **44533** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1703023**

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-44533** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2013** RunNo: **91617**
Client ID: **LCSW** Batch ID: **44533** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1703024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.304	0.10	10.00	0	103	85	115				
Manganese	100.929	0.50	100.0	0	101	85	115				
Molybdenum	10.065	0.50	10.00	0	101	85	115				
Selenium	10.249	0.50	10.00	0	102	85	115				

Sample ID: **N011572-015A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2013** RunNo: **91617**
Client ID: **ZZZZZZ** Batch ID: **44533** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1703066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.658	0.10	10.00	14.43	112	75	125				
Manganese	111.598	0.50	100.0	3.024	109	75	125				
Molybdenum	80.060	0.50	10.00	68.47	116	75	125				
Selenium	12.521	0.50	10.00	1.952	106	75	125				

Sample ID: **N011572-015A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2013** RunNo: **91617**
Client ID: **ZZZZZZ** Batch ID: **44533** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1703067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.031	0.10	10.00	14.43	106	75	125	25.66	2.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011572-015A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2013** RunNo: **91617**
Client ID: **ZZZZZZ** Batch ID: **44533** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1703067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	109.993	0.50	100.0	3.024	107	75	125	111.6	1.45	20	
Molybdenum	79.077	0.50	10.00	68.47	106	75	125	80.06	1.24	20	
Selenium	12.390	0.50	10.00	1.952	104	75	125	12.52	1.06	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44627**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/16/2013**	RunNo: **91662**
Client ID: **PBW**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	8.496	50									

Sample ID: **LCS-44627**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/16/2013**	RunNo: **91662**
Client ID: **LCSW**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	107.600	50	100.0	0	108	85	115				

Sample ID: **N011552-011A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/16/2013**	RunNo: **91662**
Client ID: **ZZZZZZ**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1456.623	50	1000	478.7	97.8	75	125				

Sample ID: **N011552-011A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/16/2013**	RunNo: **91662**
Client ID: **ZZZZZZ**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1473.228	50	1000	478.7	99.5	75	125	1457	1.13	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/5/2013
COC Number: 25

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly		Number of Containers	COMMENTS
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)			
MW-100-194	12/4/2013	7:52	Water	X		X	X		X	X		X	X	N011572-1	~~2~~ 4	
MW-26-194	12/4/2013	11:08	Water	X	X		X	X		X	X	X		-2	~~2~~ 3	
MW-39-100-194	12/4/2013	8:41	Water	X		X	X		X	X		X	X	-3	~~2~~ 4	
MW-60-125-194	12/4/2013	8:59	Water	X		X	X		X	X		X	X	-4	~~2~~ 4	
MW-60BR-245-194	12/4/2013	9:45	Water	X		X	X		X	X		X	X	-5	~~2~~ 4	
MW-63-065-194	12/4/2013	10:06	Water	X		X	X		X	X		X	X	-6	~~2~~ 4	
MW-67-185-194	12/4/2013	15:00	Water	X		X	X		X	X		X	X	-7	~~2~~ 4	
MW-68-240-194	12/4/2013	13:48	Water	X		X	X		X	X		X	X	-8	~~2~~ 4	BC
MW-70-105-194	12/4/2013	15:13	Water	X		X	X		X	X		X	X	-9	~~2~~ 4	
MW-72-080-194	12/4/2013	13:54	Water	X		X	X		X	X		X	X	-10	~~2~~ 4	
MW-125-194	12/5/2013	11:22	Water	X		X	X		X	X		X	X	-11	~~2~~ 4	
MW-19-194	12/5/2013	11:45	Water			X			X	X		X		-12	~~1~~ 3	
MW-61-110-194	12/5/2013	14:50	Water	X		X	X		X	X		X	X	-13	~~2~~ 4	
MW-73-080-194	12/5/2013	9:00	Water	X		X	X		X	X		X	X	-14	~~2~~ 4	

	Signatures	Date/Time
Approved by		12-5-13
Sampled by		1545
Relinquished by		
Received by		12/5/13 1545
Relinquished by		12/5/13 1800
Received by		12/5/13 1800

Shipping Details

Method of Shipment: courier
On Ice: yes / no 3.5°C/2.9°C/3.6°C/3.5°C
Airbill No: 1R42
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN: Sample Custody and Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/5/2013
COC Number: 25

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-74-240-194	12/5/2013	8:20	Water	X		X	X		X	X		X	X	N01572-15	9	4
														TOTAL NUMBER OF CONTAINERS	58	

	Signatures	Date/Time
Approved by		12-5-13
Sampled by		1545
Relinquished by		
Received by		12/5/13 1545
Relinquished by		12/5/13 1545
Received by		12/5/13 1545

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

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:	12/5/2013	Workorder:	N011572
Rep sample Temp (Deg C):	2.9,3.2,3.5,3.6	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 12/6/2013

Reviewed By: 2013-12-10

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

09-Dec-13

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3C		
N011572-001C / MW-100-194	Water	12/4/2013 7:52:00 AM	32OZP	1		
N011572-003C / MW-39-100-194	Water	12/4/2013 8:41:00 AM	32OZP	1		
N011572-004C / MW-60-125-194	Water	12/4/2013 8:59:00 AM	32OZP	1		
N011572-005C / MW-60BR-245-194	Water	12/4/2013 9:45:00 AM	32OZP	1		
N011572-006C / MW-63-065-194	Water	12/4/2013 10:06:00 AM	32OZP	1		
N011572-007C / MW-67-185-194	Water	12/4/2013 3:00:00 PM	32OZP	1		
N011572-008C / MW-68-240-194	Water	12/4/2013 1:48:00 PM	32OZP	1		
N011572-009C / MW-70-105-194	Water	12/4/2013 3:13:00 PM	32OZP	1		
N011572-010C / MW-72-080-194	Water	12/4/2013 1:54:00 PM	32OZP	1		
N011572-011C / MW-125-194	Water	12/5/2013 11:22:00 AM	32OZP	1		
N011572-013C / MW-61-110-194	Water	12/5/2013 2:50:00 PM	32OZP	1		
N011572-014C / MW-73-080-194	Water	12/5/2013 9:00:00 AM	32OZP	1		
N011572-015C / MW-74-240-194	Water	12/5/2013 8:20:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N011572 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT

Please analyze for Ammonia by SM 4500. Please send report to CH2M Hill. Please bill ATL Inc.

GSO# 523405876

		Date/Time			Date/Time
Relinquished by:	HERSEY SAYAS	09DEC13 1227	**Received by:**		
Relinquished by:			**Received by:**		

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N011572-002B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(61.7830-61.6802)*1000000}{40}$$
$$= 2570.00 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 2600.00mg/L

12/10/2013

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/9/2013								TDS/CONDUCTIVITY
Date Finished: 12/10/2013	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-44544	100	61.567	61.5675	5	1	5.00		
LCS-44544	100	62.4491	62.5467	976	1	976.00		
N011572-002B	40	61.6802	61.783	1028	2.5	2570.00	3850	0.67
N011572-002B-DUP	40	59.9132	60.0181	1049	2.5	2622.50	3850	0.68

12/10/2013

Sample ID: **N011572-001B @ pH 7.04**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.70mL)

= **0.02137 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 $CaCO_3$), mg/L = (14.20) (0.02137 N) (1) * 1000

= 303.45 **mg/L**

Reporting results in two significant figures,

= 300.00 **mg/L** as CaCO3

12/9/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02137 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (14.20 mL) (0.02137) (1) * 1000

= 303.45 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 303.45 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 300.00 **mg/L**

12/9/2013

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 **N011572-006B**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 3.659 * 500

= 1829.5

Reporting **N011572-006B** results in two significant figures,

Chloride, mg/L = 1800 12/18/2013

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Potassium concentration, in µg/L, in the original sample as follows:

Potassium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011572-002A**, the concentration in µg/L is calculated as follows:

2.38076 * 5 * (25/25) *1000

Potassium, µg/L = ~~11.90382305 * 1 * (25/25) * 1000~~

= 11903.82305

Reporting results in two significant figures,

Potassium, µg/L = 12000

Nancy 12/19/201

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011572
Test Method: EPA 6010
Analysis Date: 12/12/13

Matrix: Water
Batch No.: 44565

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for ~~Na and~~ K. The calculated concentrations are < 25X the RL's. DT on Na failed.
However, PS @5X and @100X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011572-002A-DT 25X	Potassium	ug/L	13182.158785	NA	11903.823050	10.74%	10
N011572-002A-DT 500X	Sodium	ug/L	749776.13450	NA	674819.10390	11.11%	10

Note: NA - Not Applicable

12/19/201

JAA / ICP-02 / 12/13/2013 2:01:15 AM

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011572
Test Method: EPA 6010
Analysis Date: 12/13/13

Matrix: Water
Batch No.: 44565

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for Fe. The calculated concentration was < 25X the RL. However the PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011572-001A-DT 5X	Iron	ug/L	0	NA	2.0096300	100.00%	10
N011572-001A-DT 5X	Magnesium	ug/L	88394.31675	PASSED	80558.32872	9.73%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011572
Test Method: EPA 6010
Analysis Date: 12/13/2013 & 12/16/2013

Matrix: Water
Batch No.: 44565

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011597-001A-DT 25X	Calcium	ug/L	544292	PASSED	512764	6.15%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *16-Dec-13*

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011572-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	111606.512	2500	100000	11900	99.7	80	120				

Sample ID: **N011572-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91585**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1702064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2720735.617	50000	2000000	674800	102	80	120				

Sample ID: **N011572-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91618**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2013** SeqNo: **1703190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4750.941	40	5000	2.010	95.0	80	120				
Magnesium	88038.621	200	5000	80560	150	80	120				S

Sample ID: **N011572-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91644**
Client ID: **ZZZZZZ** Batch ID: **44565** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/16/2013** SeqNo: **1703978**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	565270.802	2500	12500	512800	420	80	120				S

DT of Mg @5x and Ca @25x are within criteria

12/19/201

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Water

FORMULA:

Calculate the Molybdenum concentration, in ug/L, in the original sample as follows:

Molybdenum , 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 **N011572-007A**, the concentration in ug/L is calculated as follows:

Molybdenum, ug/L = 8.9417860147 * 1 * (25/25)

= 8.9417860147

Reporting results in two significant figures,

Molybdenum, ug/L = 8.9

12/19/201

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N011572
Test Method: EPA 6020
Analysis Date: 12/12/2013

Matrix: Water
Batch No.: 44533

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn and Se. The calculated values are <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N0115272-015B-DT 5X	Arsenic	µg/L	15.40722869	PASS	14.43180186	6.76%	10%
N0115272-015B-DT 5X	Manganese	µg/L	3.106057826	NA	3.023850339	2.72%	10%
N0115272-015B-DT 5X	Molybdenum	µg/L	69.63555343	PASS	68.47185424	1.70%	10%
N0115272-015B-DT 5X	Selenium	µg/L	2.004418751	NA	1.951799685	2.70%	10%

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011572
Test Method: EPA 6020
Analysis Date: 12/17/2013

Matrix: Water
Batch No.: 44627

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to B. The calculated value is <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011552-011A-DT 5X	Boron	µg/L	509.6503998	NA	478.6911911	6.47%	10%

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *19-Dec-13*

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011572-015A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91617**
Client ID: **ZZZZZZ** Batch ID: **44533** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/12/2013** SeqNo: **1703065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	35.657	0.20	20.00	14.43	106	75	125				
Manganese	197.183	1.0	200.0	3.024	97.1	75	125				
Molybdenum	92.916	1.0	20.00	68.47	122	75	125				
Selenium	21.201	1.0	20.00	1.952	96.2	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N011572
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011552-011A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **91662**
Client ID: **ZZZZZZ**	Batch ID: **44627**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **12/17/2013**	SeqNo: **1704953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	702.898	100	200.0	478.7	112	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

December 27, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011593

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 10, 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,

Nancy Liberman for

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. **Date:** *27-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011593

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011593-004, N011593-005, N011593-007 due to failed Internal Standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011593
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011593-001A	MW-09-194	Water	12/9/2013 11:12:00 AM	12/10/2013	12/27/2013
N011593-001B	MW-09-194	Water	12/9/2013 11:12:00 AM	12/10/2013	12/27/2013
N011593-002A	MW-25-194	Water	12/9/2013 3:31:00 PM	12/10/2013	12/27/2013
N011593-002B	MW-25-194	Water	12/9/2013 3:31:00 PM	12/10/2013	12/27/2013
N011593-003A	MW-67-225-194	Water	12/9/2013 8:56:00 AM	12/10/2013	12/27/2013
N011593-003B	MW-67-225-194	Water	12/9/2013 8:56:00 AM	12/10/2013	12/27/2013
N011593-003C	MW-67-225-194	Water	12/9/2013 8:56:00 AM	12/10/2013	12/27/2013
N011593-004A	MW-67-260-194	Water	12/9/2013 9:32:00 AM	12/10/2013	12/27/2013
N011593-004B	MW-67-260-194	Water	12/9/2013 9:32:00 AM	12/10/2013	12/27/2013
N011593-004C	MW-67-260-194	Water	12/9/2013 9:32:00 AM	12/10/2013	12/27/2013
N011593-005A	MW-12-194	Water	12/10/2013 10:53:00 AM	12/10/2013	12/27/2013
N011593-005B	MW-12-194	Water	12/10/2013 10:53:00 AM	12/10/2013	12/27/2013
N011593-006A	MW-59-100-194	Water	12/10/2013 12:32:00 PM	12/10/2013	12/27/2013
N011593-006B	MW-59-100-194	Water	12/10/2013 12:32:00 PM	12/10/2013	12/27/2013
N011593-006C	MW-59-100-194	Water	12/10/2013 12:32:00 PM	12/10/2013	12/27/2013
N011593-007A	MW-70BR-225-194	Water	12/10/2013 10:04:00 AM	12/10/2013	12/27/2013
N011593-007B	MW-70BR-225-194	Water	12/10/2013 10:04:00 AM	12/10/2013	12/27/2013
N011593-007C	MW-70BR-225-194	Water	12/10/2013 10:04:00 AM	12/10/2013	12/27/2013
N011593-008A	PGE-07BR-194	Water	12/10/2013 1:32:00 PM	12/10/2013	12/27/2013
N011593-008B	PGE-07BR-194	Water	12/10/2013 1:32:00 PM	12/10/2013	12/27/2013

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-09-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 11:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131211C**	QC Batch: **R91553**			PrepDate:			Analyst: **LCC**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131211C**	QC Batch: **R91553**			PrepDate:			Analyst: **LCC**
Specific Conductance	1600	0.10	0.10		umhos/cm	1	12/11/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131211C**	QC Batch: **R91553**			PrepDate:			Analyst: **LCC**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-260-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 9:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131211C**	QC Batch: **R91553**			PrepDate:			Analyst: **LCC**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:53:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131211C**	QC Batch: **R91553**			PrepDate:			Analyst: **LCC**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 12:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131211C**	QC Batch: **R91553**			PrepDate:			Analyst: **LCC**
Specific Conductance	9100	0.10	0.10		umhos/cm	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131211C**	QC Batch: **R91553**			PrepDate:			Analyst: **LCC**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-07BR-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131211C**	QC Batch: **R91553**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011593-008B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91553**
Client ID: **ZZZZZZ** Batch ID: **R91553** TestNo: **EPA 120.1** Analysis Date: **12/11/2013** SeqNo: **1700402**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16480.000	0.10						16500	0.121	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131213D**	QC Batch: **44585**			PrepDate:	**12/12/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	980	10	10		mg/L	1	12/12/2013 08:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-44585** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/12/2013** RunNo: **91605**
Client ID: **PBW** Batch ID: **44585** TestNo: **SM2540C** Analysis Date: **12/12/2013** SeqNo: **1702681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **LCS-44585** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/12/2013** RunNo: **91605**
Client ID: **LCSW** Batch ID: **44585** TestNo: **SM2540C** Analysis Date: **12/12/2013** SeqNo: **1702682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	975.000	10	1000	0	97.5	80	120				

Sample ID: **N011593-002B-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/12/2013** RunNo: **91605**
Client ID: **ZZZZZZ** Batch ID: **44585** TestNo: **SM2540C** Analysis Date: **12/12/2013** SeqNo: **1702684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	980.000	10						985.0	0.509	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-09-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 11:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131211E**	QC Batch: **R91559**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	130	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Total (As CaCO3)	130	1.2	5.0		mg/L	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131211E**	QC Batch: **R91559**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	160	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131211E**	QC Batch: **R91559**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Total (As CaCO3)	140	1.2	5.0		mg/L	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-260-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 9:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131211E**	QC Batch: **R91559**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	33	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Total (As CaCO3)	33	1.2	5.0		mg/L	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:53:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131211E**	QC Batch: **R91559**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 12:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131211E**	QC Batch: **R91559**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131211E**	QC Batch: **R91559**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	35	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Total (As CaCO3)	35	1.2	5.0		mg/L	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-07BR-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131211E**	QC Batch: **R91559**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	6.6	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2013
Alkalinity, Total (As CaCO3)	6.6	1.2	5.0		mg/L	1	12/11/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91559** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91559**
Client ID: **LCSW** Batch ID: **R91559** TestNo: **SM 2320 B** Analysis Date: **12/11/2013** SeqNo: **1700506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	94.298	5.0	100.0	0	94.3	85	115				
Alkalinity, Total (As CaCO3)	103.070	5.0	100.0	0	103	85	115				

Sample ID: **MB-R91559** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91559**
Client ID: **PBW** Batch ID: **R91559** TestNo: **SM 2320 B** Analysis Date: **12/11/2013** SeqNo: **1700507**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.193	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.193	5.0									

Sample ID: **N011593-001B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91559**
Client ID: **ZZZZZZ** Batch ID: **R91559** TestNo: **SM 2320 B** Analysis Date: **12/11/2013** SeqNo: **1700509**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	133.772	5.0						133.8	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)	133.772	5.0						133.8	0	30	

Sample ID: **N011593-002B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91559**
Client ID: **ZZZZZZ** Batch ID: **R91559** TestNo: **SM 2320 B** Analysis Date: **12/11/2013** SeqNo: **1700511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	260.965	5.0	100.0	157.9	103	75	125				
Alkalinity, Total (As CaCO3)	260.965	5.0	100.0	157.9	103	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011593-002B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91559**
Client ID: **ZZZZZZ** Batch ID: **R91559** TestNo: **SM 2320 B** Analysis Date: **12/11/2013** SeqNo: **1700512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	260.965	5.0	100.0	157.9	103	75	125	261.0	0	20	
Alkalinity, Total (As CaCO3)	260.965	5.0	100.0	157.9	103	75	125	261.0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-09-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 11:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	590	5.2	100		mg/L	200	12/13/2013 01:36 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	240	0.76	10		mg/L	20	12/13/2013 12:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Bromide	ND	0.032	0.50		mg/L	1	12/13/2013 10:14 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	310	2.6	50		mg/L	100	12/13/2013 10:26 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	140	0.76	10		mg/L	20	12/13/2013 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	1600	13	250		mg/L	500	12/13/2013 01:49 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	1000	3.8	50		mg/L	100	12/13/2013 01:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-260-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 9:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	5600	26	500		mg/L	1000	12/13/2013 04:45 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	790	3.8	50		mg/L	100	12/13/2013 02:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:53:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	1800	13	250		mg/L	500	12/13/2013 03:42 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	460	3.8	50		mg/L	100	12/13/2013 12:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 12:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	2900	26	500		mg/L	1000	12/13/2013 08:20 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	640	3.8	50		mg/L	100	12/13/2013 06:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	4200	26	500		mg/L	1000	12/13/2013 06:39 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	770	3.8	50		mg/L	100	12/13/2013 08:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-07BR-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	6900	26	500		mg/L	1000	12/13/2013 07:04 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	520	3.8	50		mg/L	100	12/13/2013 06:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R91706_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **PBW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706542**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R91706_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **LCSW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.472	0.50	2.500	0	98.9	90	110				

Sample ID: **N011593-002BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.233	0.50						0.2410	0	20	

Sample ID: **N011593-002BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.297	0.50	2.500	0.2410	82.2	80	120				

Sample ID: **N011593-002BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.288	0.50	2.500	0.2410	81.9	80	120	2.297	0.393	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91706_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **PBW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91706_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **LCSW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707447**

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: **N011622-009BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707459**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	748.800	100						745.0	0.509	20	

Sample ID: **N011622-009BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1255.000	100	500.0	745.0	102	80	120				

Sample ID: **N011622-009BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1260.800	100	500.0	745.0	103	80	120	1255	0.461	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011593-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	568.300	50	250.0	309.6	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91706_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **PBW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91706_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **LCSW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.965	0.50	5.000	0	99.3	90	110				

Sample ID: **N011622-009BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	960.600	100						950.8	1.03	20	

Sample ID: **N011622-009BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707194**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	2017.600	100	1000	950.8	107	80	120				

Sample ID: **N011622-009BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1982.800	100	1000	950.8	103	80	120	2018	1.74	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011593-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	244.080	10	100.0	137.0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-09-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 11:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131218B**	QC Batch: **44597**				PrepDate: **12/13/2013**		Analyst: **JAA**
Calcium	120000	58	500		ug/L	1	12/18/2013 04:39 PM
Iron	ND	1.3	20		ug/L	1	12/18/2013 04:39 PM
Magnesium	30000	11	100		ug/L	1	12/18/2013 04:39 PM
Sodium	440000	7300	50000		ug/L	100	12/18/2013 09:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131218B**	QC Batch: **44597**				PrepDate: **12/13/2013**		Analyst: **JAA**
Calcium	98000	58	500		ug/L	1	12/18/2013 05:06 PM
Iron	ND	1.3	20		ug/L	1	12/18/2013 05:06 PM
Magnesium	20000	11	100		ug/L	1	12/18/2013 05:06 PM
Potassium	8200	16	2500		ug/L	5	12/18/2013 11:12 AM
Sodium	220000	7300	50000		ug/L	100	12/18/2013 09:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131218B**	QC Batch: **44597**				PrepDate: **12/13/2013**		Analyst: **JAA**
Calcium	170000	58	500		ug/L	1	12/18/2013 05:10 PM
Iron	ND	1.3	20		ug/L	1	12/18/2013 05:10 PM
Magnesium	8600	11	100		ug/L	1	12/18/2013 05:10 PM
Sodium	1600000	7300	50000		ug/L	100	12/18/2013 09:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-260-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 9:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131218B**	QC Batch: **44597**				PrepDate: **12/13/2013**		Analyst: **JAA**
Calcium	320000	58	500		ug/L	1	12/18/2013 05:15 PM
Iron	ND	1.3	20		ug/L	1	12/18/2013 05:15 PM
Magnesium	3300	11	100		ug/L	1	12/18/2013 05:15 PM
Sodium	4100000	15000	100000		ug/L	200	12/18/2013 10:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:53:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131218B**	QC Batch: **44597**				PrepDate: **12/13/2013**		Analyst: **JAA**
Calcium	37000	58	500		ug/L	1	12/18/2013 05:30 PM
Iron	ND	1.3	20		ug/L	1	12/18/2013 05:30 PM
Magnesium	6800	11	100		ug/L	1	12/18/2013 05:30 PM
Sodium	1600000	7300	50000		ug/L	100	12/18/2013 09:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 12:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131218B**	QC Batch: **44597**				PrepDate: **12/13/2013**		Analyst: **JAA**
Calcium	690000	290	2500		ug/L	5	12/18/2013 07:33 PM
Iron	ND	1.3	20		ug/L	1	12/18/2013 05:36 PM
Magnesium	21000	11	100		ug/L	1	12/18/2013 05:36 PM
Sodium	1500000	7300	50000		ug/L	100	12/18/2013 09:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131218B**	QC Batch: **44597**			PrepDate:	**12/13/2013**		Analyst: **JAA**
Calcium	750000	290	2500		ug/L	5	12/18/2013 07:38 PM
Iron	ND	1.3	20		ug/L	1	12/18/2013 05:41 PM
Magnesium	30000	11	100		ug/L	1	12/18/2013 05:41 PM
Sodium	2200000	7300	50000		ug/L	100	12/18/2013 09:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-07BR-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131218B**	QC Batch: **44597**			PrepDate:	**12/13/2013**		Analyst: **JAA**
Calcium	480000	290	2500		ug/L	5	12/18/2013 07:44 PM
Iron	230000	6.7	100		ug/L	5	12/18/2013 07:44 PM
Magnesium	11000	11	100		ug/L	1	12/18/2013 05:46 PM
Sodium	4400000	15000	100000		ug/L	200	12/18/2013 11:02 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44597** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91703**
Client ID: **PBW** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9.762	500									
Sodium	ND	500									

Sample ID: **LCS2-44597** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91703**
Client ID: **LCSW** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	21439.861	500	20000	0	107	85	115				
Sodium	21591.216	500	20000	0	108	85	115				

Sample ID: **N011593-002A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706387**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	28234.657	2500	20000	8233	100	75	125				

Sample ID: **N011593-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706390**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	27615.344	2500	20000	8233	96.9	75	125	28230	2.22	20	

Sample ID: **N011593-002A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	226391.346	50000	20000	219100	36.7	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011593-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	220841.469	50000	20000	219100	8.94	75	125	226400	2.48	20	S

Sample ID: **MB-44597** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91713**
Client ID: **PBW** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	5.189	20									
Magnesium	ND	100									

Sample ID: **LCS-44597** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91713**
Client ID: **LCSW** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9139.778	500	10000	0	91.4	85	115				
Iron	111.014	20	100.0	0	111	85	115				
Magnesium	9740.386	100	10000	0	97.4	85	115				

Sample ID: **N011593-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91713**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	128461.897	500	10000	119700	88.0	75	125				
Iron	108.403	20	100.0	0	108	75	125				
Magnesium	40363.944	100	10000	30470	99.0	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011593-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2013** RunNo: **91713**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	127558.321	500	10000	119700	79.0	75	125	128500	0.706	20	
Iron	109.457	20	100.0	0	109	75	125	108.4	0.967	20	
Magnesium	40216.874	100	10000	30470	97.5	75	125	40360	0.365	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-09-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 11:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 04:09 PM
Molybdenum	2.0	0.15	0.50		µg/L	1	12/19/2013 04:09 PM
Selenium	4.5	0.069	0.50		µg/L	1	12/19/2013 04:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**			PrepDate:	**12/17/2013**		Analyst: **CEI**
Arsenic	1.2	0.027	0.10		µg/L	1	12/19/2013 11:34 AM
Boron	430	2.7	50		µg/L	1	12/19/2013 11:34 AM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 11:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	2.9	0.027	0.10		µg/L	1	12/19/2013 04:48 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 04:48 PM
Molybdenum	33	0.15	0.50		µg/L	1	12/20/2013 10:09 AM
Selenium	63	0.069	0.50		µg/L	1	12/20/2013 10:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-260-194
Lab Order:	N011593	**Collection Date:**	12/9/2013 9:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	11	0.027	0.10		µg/L	1	12/19/2013 04:59 PM
Manganese	33	0.026	0.50		µg/L	1	12/19/2013 04:59 PM
Molybdenum	74	0.76	2.5		µg/L	5	12/20/2013 10:15 AM
Selenium	1.2	0.069	0.50		µg/L	1	12/20/2013 10:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:53:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate: **12/17/2013**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	12/19/2013 03:25 PM
Arsenic	38	0.027	0.10		µg/L	1	12/19/2013 03:25 PM
Barium	57	0.030	1.0		µg/L	1	12/19/2013 03:25 PM
Beryllium	ND	0.051	2.5		µg/L	5	12/19/2013 03:20 PM
Cadmium	ND	0.013	0.50		µg/L	1	12/19/2013 03:25 PM
Cobalt	ND	0.017	0.50		µg/L	1	12/19/2013 03:25 PM
Copper	ND	0.040	1.0		µg/L	1	12/19/2013 03:25 PM
Lead	ND	0.011	1.0		µg/L	1	12/19/2013 03:25 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 03:25 PM
Molybdenum	13	0.15	0.50		µg/L	1	12/19/2013 03:25 PM
Nickel	ND	0.032	1.0		µg/L	1	12/19/2013 03:25 PM
Selenium	13	0.069	0.50		µg/L	1	12/19/2013 03:25 PM
Silver	ND	0.094	0.50		µg/L	1	12/19/2013 03:25 PM
Thallium	ND	0.0080	0.50		µg/L	1	12/19/2013 03:25 PM
Vanadium	18	0.16	1.0		µg/L	1	12/19/2013 03:25 PM
Zinc	ND	0.23	10		µg/L	1	12/19/2013 03:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 12:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	2.1	0.027	0.10		µg/L	1	12/19/2013 05:10 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 05:10 PM
Molybdenum	4.8	0.15	0.50		µg/L	1	12/20/2013 10:26 AM
Selenium	3.9	0.069	0.50		µg/L	1	12/20/2013 10:26 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate: **12/17/2013**		Analyst: **CEI**
Arsenic	1.8	0.027	0.10		µg/L	1	12/19/2013 05:21 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 05:21 PM
Molybdenum	18	0.76	2.5		µg/L	5	12/20/2013 10:31 AM
Selenium	2.5	0.069	0.50		µg/L	1	12/20/2013 10:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-07BR-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131220A**	QC Batch: **44628**			PrepDate:	**12/17/2013**		Analyst: **CEI**
Manganese	8200	1.3	25		µg/L	50	12/20/2013 10:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-44628** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **LCSW** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.282	0.50	10.00	0	92.8	85	115				
Arsenic	9.242	0.10	10.00	0	92.4	85	115				
Barium	96.948	1.0	100.0	0	96.9	85	115				
Beryllium	9.434	0.50	10.00	0	94.3	85	115				
Boron	919.923	50	1000	0	92.0	85	115				
Cadmium	9.584	0.50	10.00	0	95.8	85	115				
Cobalt	8.990	0.50	10.00	0	89.9	85	115				
Copper	10.255	1.0	10.00	0	103	85	115				
Lead	9.497	1.0	10.00	0	95.0	85	115				
Manganese	89.778	0.50	100.0	0	89.8	85	115				
Molybdenum	9.273	0.50	10.00	0	92.7	85	115				
Nickel	9.401	1.0	10.00	0	94.0	85	115				
Selenium	9.351	0.50	10.00	0	93.5	85	115				
Silver	9.193	0.50	10.00	0	91.9	85	115				
Thallium	9.231	0.50	10.00	0	92.3	85	115				
Vanadium	8.906	1.0	10.00	0	89.1	85	115				
Zinc	93.885	10	100.0	0	93.9	85	115				

Sample ID: **N011593-002A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.260	0.50	10.00	0	103	75	125				
Arsenic	10.861	0.10	10.00	1.203	96.6	75	125				
Barium	147.214	1.0	100.0	52.16	95.1	75	125				
Beryllium	10.641	0.50	10.00	0	106	75	125				
Boron	1431.909	50	1000	432.3	100	75	125				
Cadmium	8.996	0.50	10.00	0	90.0	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011593-002A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	9.530	0.50	10.00	0	95.3	75	125				
Copper	8.521	1.0	10.00	0.1550	83.7	75	125				
Lead	10.409	1.0	10.00	0	104	75	125				
Manganese	89.249	0.50	100.0	0	89.2	75	125				
Molybdenum	14.827	0.50	10.00	3.967	109	75	125				
Nickel	9.415	1.0	10.00	0.5893	88.3	75	125				
Selenium	13.243	0.50	10.00	4.801	84.4	75	125				
Silver	9.580	0.50	10.00	0	95.8	75	125				
Thallium	10.339	0.50	10.00	0.03035	103	75	125				
Vanadium	18.695	1.0	10.00	8.181	105	75	125				
Zinc	83.432	10	100.0	0	83.4	75	125				

Sample ID: **N011593-002A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.208	0.50	10.00	0	102	75	125	10.26	0.506	20	
Arsenic	10.751	0.10	10.00	1.203	95.5	75	125	10.86	1.03	20	
Barium	149.553	1.0	100.0	52.16	97.4	75	125	147.2	1.58	20	
Beryllium	10.723	0.50	10.00	0	107	75	125	10.64	0.768	20	
Boron	1429.008	50	1000	432.3	99.7	75	125	1432	0.203	20	
Cadmium	9.114	0.50	10.00	0	91.1	75	125	8.996	1.30	20	
Cobalt	9.474	0.50	10.00	0	94.7	75	125	9.530	0.597	20	
Copper	8.604	1.0	10.00	0.1550	84.5	75	125	8.521	0.972	20	
Lead	10.398	1.0	10.00	0	104	75	125	10.41	0.108	20	
Manganese	89.027	0.50	100.0	0	89.0	75	125	89.25	0.249	20	
Molybdenum	15.200	0.50	10.00	3.967	112	75	125	14.83	2.49	20	
Nickel	9.455	1.0	10.00	0.5893	88.7	75	125	9.415	0.425	20	
Selenium	13.087	0.50	10.00	4.801	82.9	75	125	13.24	1.18	20	
Silver	9.495	0.50	10.00	0	95.0	75	125	9.580	0.883	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011593-002A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	10.350	0.50	10.00	0.03035	103	75	125	10.34	0.104	20	
Vanadium	18.894	1.0	10.00	8.181	107	75	125	18.69	1.06	20	
Zinc	83.122	10	100.0	0	83.1	75	125	83.43	0.372	20	

Sample ID: **MB-44628** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **PBW** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Beryllium	ND	0.50									
Boron	27.364	50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Copper	0.199	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	0.119	0.50									
Thallium	0.106	0.50									
Vanadium	ND	1.0									
Zinc	ND	10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *27-Dec-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-194
Lab Order:	N011593	**Collection Date:**	12/10/2013 10:53:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011593-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_131219B**	QC Batch: **44653**			PrepDate:	**12/19/2013**		Analyst: **LCC**
Mercury	ND	0.038	0.20		µg/L	1	12/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **LCS-44653** SampType: **LCS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/19/2013** RunNo: **91717**
Client ID: **LCSW** Batch ID: **44653** TestNo: **EPA 7470A** Analysis Date: **12/19/2013** SeqNo: **1707018**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.641	0.20	5.000	0	113	85	115				

Sample ID: **MB-44653** SampType: **MBLK** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/19/2013** RunNo: **91717**
Client ID: **PBW** Batch ID: **44653** TestNo: **EPA 7470A** Analysis Date: **12/19/2013** SeqNo: **1707021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **N011593-005A-MS** SampType: **MS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/19/2013** RunNo: **91717**
Client ID: **ZZZZZZ** Batch ID: **44653** TestNo: **EPA 7470A** Analysis Date: **12/19/2013** SeqNo: **1707023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.623	0.20	5.000	0	112	75	125				

Sample ID: **N011593-005A-MSD** SampType: **MSD** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/19/2013** RunNo: **91717**
Client ID: **ZZZZZZ** Batch ID: **44653** TestNo: **EPA 7470A** Analysis Date: **12/19/2013** SeqNo: **1707024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.880	0.20	5.000	0	118	75	125	5.623	4.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/10/2013
COC Number: 28

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Metals (6010B/6020A/7470Adis) FF	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-09-194	12/9/2013	11:12	Water			X	X			X	X		X		N011593-1	~~1~~	3
MW-25-194	12/9/2013	15:31	Water	X	X				X		X	X	X		-2	~~2~~	3
MW-67-225-194	12/9/2013	8:56	Water	X		X	X			X	X		X	X	-3	~~2~~	4
MW-67-260-194	12/9/2013	9:32	Water	X		X	X			X	X		X	X	-4	~~2~~	4
MW-12-194	12/10/2013	10:53	Water			X		X		X	X		X		-5	~~2~~	3
MW-59-100-194	12/10/2013	12:32	Water	X		X	X			X	X		X	X	-6	~~2~~	4
MW-70BR-225-194	12/10/2013	10:04	Water	X		X	X			X	X		X	X	-7	~~2~~	4
PGE-07BR-194	12/10/2013	13:32	Water			X				X	X		X		-8	~~1~~	3
															TOTAL NUMBER OF CONTAINERS	28	

	Signatures	Date/Time
Approved by		12-10-13
Sampled by		1610
Relinquished by		
Received by		12/10/13 1610
Relinquished by		12/10/13 1610
Received by		12/10/13

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 3.5°C / 3.9°C
Airbill No: / R#2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

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:	12/10/2013	Workorder:	N011593
Rep sample Temp (Deg C):	3.3, 3.9	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 12/11/2013

Reviewed By: 2013-12-13

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

11-Dec-13

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
N011593-003C / MW-67-225-194	Water	12/9/2013 8:56:00 AM	32OZP	1		
N011593-004C / MW-67-260-194	Water	12/9/2013 9:32:00 AM	32OZP	1		
N011593-006C / MW-59-100-194	Water	12/10/2013 12:32:00 PM	32OZP	1		
N011593-007C / MW-70BR-225-194	Water	12/10/2013 10:04:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N011593 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Please analyze for Ammonia by SM 4500. Please send report to CH2M Hill. Please bill ATL Inc.

GSO#5234332463

		Date/Time			Date/Time
Relinquished by:	HERSEY SAYAS	11DEC13 1420	**Received by:**		
Relinquished by:			**Received by:**		

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N011593-002B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(61.7796-61.6811)*1000000}{100}$$
$$= 985.00 \text{ mg/L}$$

Reporting result in two significant figures,

12/17/2013

TDS = 980.00mg/L

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/12/2013								TDS/CONDUCTIVITY
Date Finished: 12/13/2013	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-44585	100	60.6764	60.6771	7	1	7.00		
LCS-44585	100	62.4492	62.5467	975	1	975.00		
N011593-002B	100	61.6811	61.7796	985	1	985.00	1672	0.59
N011593-002B-DUP	100	59.9138	60.0118	980	1	980.00	1672	0.59

12/17/2013

Sample ID: **N011593-001B @ pH 7.62**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.40mL)

= **0.02193 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 $CaCO_3$), mg/L = (6.10) (0.02193 N) (1) * 1000

= 133.77 **mg/L**

Reporting results in two significant figures,

= 130.00 **mg/L** as CaCO3

12/12/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02193 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (6.10 mL) (0.02193) (1) * 1000

= 133.77 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 133.77 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 130.00 **mg/L**

12/12/2013

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Water

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the original sample as follows:

Sulfate, mg/L = A * DF

where :

A = mg/L, IC calculated concentration
DF = dilution factor

For **N011593-001B** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 12.105 * 20

= 242.1

Reporting result in two significant figures,

Sulfate, mg/L = 240 12/20/2013

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Sodium concentration, in µg/L, in the original sample as follows:

Sodium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011593-001A**, the concentration in µg/L is calculated as follows:

Sodium, µg/L = 4.378175358 * 100 * (25/25) * 1000

= 437817.5358

Reporting results in two significant figures,

Sodium, µg/L = 440000

2013-12-24

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011593
Test Method: EPA 6010
Analysis Date: 12/18/13

Matrix: Water
Batch No.: 44597

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for Na and K. The calculated concentrations are < 25X the RL's.
However, the PS @5X and @100X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011593-002A-DT 500X	Sodium	ug/L	228905.91070	NA	219053.5003	4.50%	10
N011593-002A-DT 25X	Potassium	ug/L	9839.28899	NA	8232.942335	19.51%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011593
Test Method: EPA 6010
Analysis Date: 12/18/13

Matrix: Water
Batch No.: 44597

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for Fe. The calculated concentration was < 25X the RL. However, the PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011593-001A-DT 5X	Calcium	ug/L	120370.6901	PASSED	119659.3468	0.59%	10
N011593-001A-DT 5X	Iron	ug/L	0	NA	0		10
N011593-001A-DT 5X	Magnesium	ug/L	32959.43693	PASSED	30466.53956	8.18%	10

Note: NA - Not Applicable

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011593-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	59105.494	2500	50000	8233	102	80	120				

Sample ID: **N011593-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1213332.898	50000	1000000	219100	99.4	80	120				

Sample ID: **N011593-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91713**
Client ID: **ZZZZZZ** Batch ID: **44597** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	378699.998	1000	5000	119700	5180	80	120				S
Iron	5171.900	40	5000	0	103	80	120				
Magnesium	43900.793	200	5000	30470	269	80	120				S

MS/MSD were recovered within limit -GG

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N011593-004A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 10.5349424949802 * 1 * (25/25)

= 10.5349424949802

Reporting results in two significant figures,

Arsenic, ug/L = 11

Morey 12/20/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N011593
Test Method: EPA 6020
Analysis Date: 12/19/2013

Matrix: Water
Batch No.: 44628

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Sb,As,Be,B,~~Cd~~,Co,Cu,Pb,Mn,Mo,Ni,Se,Ag,Tl,V,and Zn. The calculated values are <25X RL. PS @2X passed criteria.
Diution test is not applicable to Cd. The calculated value is <25X RL.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011593-002A-DT 5X	Antimony	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Arsenic	µg/L	1.232795229	NA	1.202725155	2.50%	10%
N011593-002A-DT 5X	Barium	µg/L	53.97217644	PASS	52.16337193	3.47%	10%
N011593-002A-DT 5X	Beryllium	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Boron	µg/L	452.6486045	NA	432.2795831	4.71%	10%
N011593-002A-DT 5X	Cadmium	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Cobalt	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Copper	µg/L	1.757983861	NA	0.154989138	1034.26%	10%
N011593-002A-DT 5X	Lead	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Manganese	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Molybdenum	µg/L	3.905434634	NA	3.967433892	1.56%	10%
N011593-002A-DT 5X	Nickel	µg/L	0.659221362	NA	0.589308892	11.86%	10%
N011593-002A-DT 5X	Selenium	µg/L	4.938150264	NA	4.800931959	2.86%	10%
N011593-002A-DT 5X	Silver	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Thallium	µg/L	0.049528644	NA	0.03035002	63.19%	10%
N011593-002A-DT 5X	Vanadium	µg/L	7.317779839	NA	8.180698384	10.55%	10%
N011593-002A-DT 5X	Zinc	µg/L	0	NA	0		10%

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *20-Dec-13*

CLIENT: CH2M HILL
Work Order: N011593
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011593-002A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.509	1.0	20.00	0	108	80	120				
Arsenic	22.005	0.20	20.00	1.203	104	80	120				
Barium	270.649	2.0	200.0	52.16	109	80	120				
Beryllium	22.085	1.0	20.00	0	110	80	120				
Boron	2524.828	100	2000	432.3	105	80	120				
Cadmium	11.716	1.0	20.00	0	58.6	80	120				S
Cobalt	20.245	1.0	20.00	0	101	80	120				
Copper	19.547	2.0	20.00	0.1550	97.0	80	120				
Lead	20.381	2.0	20.00	0	102	80	120				
Manganese	195.542	1.0	200.0	0	97.8	80	120				
Molybdenum	27.081	1.0	20.00	3.967	116	80	120				
Nickel	20.192	2.0	20.00	0.5893	98.0	80	120				
Selenium	23.334	1.0	20.00	4.801	92.7	80	120				
Silver	20.401	1.0	20.00	0	102	80	120				
Thallium	21.528	1.0	20.00	0.03035	107	80	120				
Vanadium	30.583	2.0	20.00	8.181	112	80	120				
Zinc	187.259	20	200.0	0	93.6	80	120				

MS/MSD is within criteria

Morey 12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.

Sample Calculation

Work Order No.:	**N011593**
Test Method:	**EPA 7470**
Matrix:	**Aqueous**

FORMULA:

Calculate the Mercury concentration in ug/L in the original sample as follows:

Hg = [A] [DF]

where:

A = ug/L, instrument calculated concentration
DF = dilution factor

For: **N011593-005A**

The concentration in ug/L is calculated as follows:

Hg = [A] [DF]

Hg = [0.02816] [1]

Hg = 0.02816 ug/L

Reporting results in two significant figures,

Hg = ND ug/L

12/19/2013

January 02, 2014

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011622

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 12, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011622

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium and Sodium possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on sample N011622-008 due to failed Internal Standard when sample was analyzed at no dilution.

Advanced Technology Laboratories, Inc. *3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691*

Advanced Technology Laboratories, Inc.

Date: *02-Jan-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011622
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011622-001A	MW-20-070-194	Water	12/11/2013 8:40:00 AM	12/12/2013	1/2/2014
N011622-001B	MW-20-070-194	Water	12/11/2013 8:40:00 AM	12/12/2013	1/2/2014
N011622-002A	MW-20-100-194	Water	12/11/2013 9:52:00 AM	12/12/2013	1/2/2014
N011622-002B	MW-20-100-194	Water	12/11/2013 9:52:00 AM	12/12/2013	1/2/2014
N011622-003A	MW-51-194	Water	12/11/2013 11:55:00 AM	12/12/2013	1/2/2014
N011622-003B	MW-51-194	Water	12/11/2013 11:55:00 AM	12/12/2013	1/2/2014
N011622-003C	MW-51-194	Water	12/11/2013 11:55:00 AM	12/12/2013	1/2/2014
N011622-004A	MW-62-065-194	Water	12/11/2013 1:20:00 PM	12/12/2013	1/2/2014
N011622-004B	MW-62-065-194	Water	12/11/2013 1:20:00 PM	12/12/2013	1/2/2014
N011622-004C	MW-62-065-194	Water	12/11/2013 1:20:00 PM	12/12/2013	1/2/2014
N011622-005A	MW-71-035-194	Water	12/11/2013 3:15:00 PM	12/12/2013	1/2/2014
N011622-005B	MW-71-035-194	Water	12/11/2013 3:15:00 PM	12/12/2013	1/2/2014
N011622-005C	MW-71-035-194	Water	12/11/2013 3:15:00 PM	12/12/2013	1/2/2014
N011622-006A	MW-10-194	Water	12/12/2013 2:00:00 PM	12/12/2013	1/2/2014
N011622-006B	MW-10-194	Water	12/12/2013 2:00:00 PM	12/12/2013	1/2/2014
N011622-007A	MW-57-070-194	Water	12/12/2013 12:14:00 PM	12/12/2013	1/2/2014
N011622-007B	MW-57-070-194	Water	12/12/2013 12:14:00 PM	12/12/2013	1/2/2014
N011622-007C	MW-57-070-194	Water	12/12/2013 12:14:00 PM	12/12/2013	1/2/2014
N011622-008A	MW-66-230-194	Water	12/12/2013 10:54:00 AM	12/12/2013	1/2/2014
N011622-008B	MW-66-230-194	Water	12/12/2013 10:54:00 AM	12/12/2013	1/2/2014
N011622-008C	MW-66-230-194	Water	12/12/2013 10:54:00 AM	12/12/2013	1/2/2014
N011622-009A	MW-68-180-194	Water	12/12/2013 9:42:00 AM	12/12/2013	1/2/2014
N011622-009B	MW-68-180-194	Water	12/12/2013 9:42:00 AM	12/12/2013	1/2/2014
N011622-009C	MW-68-180-194	Water	12/12/2013 9:42:00 AM	12/12/2013	1/2/2014
N011622-010A	MW-98-194	Water	12/12/2013 7:00:00 AM	12/12/2013	1/2/2014
N011622-010B	MW-98-194	Water	12/12/2013 7:00:00 AM	12/12/2013	1/2/2014
N011622-010C	MW-98-194	Water	12/12/2013 7:00:00 AM	12/12/2013	1/2/2014

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 8:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	1900	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	2500	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-51-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	9800	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	5800	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	8000	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 2:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	2500	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 12:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 10:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 9:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	4200	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-98-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131213B**	QC Batch: **R91600**			PrepDate:			Analyst: **LCC**
Specific Conductance	4200	0.10	0.10		umhos/cm	1	12/13/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *02-Jan-14*

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011622-010B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91600**
Client ID: **ZZZZZZ** Batch ID: **R91600** TestNo: **EPA 120.1** Analysis Date: **12/13/2013** SeqNo: **1702576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4200.000	0.10						4190	0.238	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 8:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131216E**	QC Batch: **44626**			PrepDate:	**12/16/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	1200	13	13		mg/L	1	12/16/2013 02:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131216E**	QC Batch: **44626**			PrepDate:	**12/16/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	1600	17	17		mg/L	1	12/16/2013 02:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *02-Jan-14*

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-44626** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/16/2013** RunNo: **91663**
Client ID: **PBW** Batch ID: **44626** TestNo: **SM2540C** Analysis Date: **12/16/2013** SeqNo: **1704962**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **LCS-44626** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/16/2013** RunNo: **91663**
Client ID: **LCSW** Batch ID: **44626** TestNo: **SM2540C** Analysis Date: **12/16/2013** SeqNo: **1704963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	974.000	10	1000	0	97.4	80	120				

Sample ID: **N011622-001B-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/16/2013** RunNo: **91663**
Client ID: **ZZZZZZ** Batch ID: **44626** TestNo: **SM2540C** Analysis Date: **12/16/2013** SeqNo: **1704965**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1253.333	13						1244	0.747	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 8:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	91	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	91	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-51-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	96	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	96	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	100	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	100	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	72	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	72	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 2:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	140	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 12:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	89	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	89	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 10:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	36	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	36	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 9:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	79	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	79	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-98-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131213E**	QC Batch: **R91641**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	77	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/13/2013
Alkalinity, Total (As CaCO3)	77	1.2	5.0		mg/L	1	12/13/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91641** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91641**
Client ID: **LCSW** Batch ID: **R91641** TestNo: **SM 2320 B** Analysis Date: **12/13/2013** SeqNo: **1703874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	102.128	5.0	100.0	0	102	85	115				
Alkalinity, Total (As CaCO3)	102.128	5.0	100.0	0	102	85	115				

Sample ID: **MB-R91641** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91641**
Client ID: **PBW** Batch ID: **R91641** TestNo: **SM 2320 B** Analysis Date: **12/13/2013** SeqNo: **1703875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.128	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.128	5.0									

Sample ID: **N011622-001B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91641**
Client ID: **ZZZZZZ** Batch ID: **R91641** TestNo: **SM 2320 B** Analysis Date: **12/13/2013** SeqNo: **1703877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	91.489	5.0						91.49	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)	91.489	5.0						91.49	0	30	

Sample ID: **N011622-002B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91641**
Client ID: **ZZZZZZ** Batch ID: **R91641** TestNo: **SM 2320 B** Analysis Date: **12/13/2013** SeqNo: **1703879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	195.745	5.0	100.0	114.9	80.9	75	125				
Alkalinity, Total (As CaCO3)	195.745	5.0	100.0	114.9	80.9	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011622-002B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91641**
Client ID: **ZZZZZZ** Batch ID: **R91641** TestNo: **SM 2320 B** Analysis Date: **12/13/2013** SeqNo: **1703880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	195.745	5.0	100.0	114.9	80.9	75	125	195.7	0	20	
Alkalinity, Total (As CaCO3)	195.745	5.0	100.0	114.9	80.9	75	125	195.7	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 8:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Bromide	ND	0.032	0.50		mg/L	1	12/13/2013 10:52 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	390	1.3	25		mg/L	50	12/13/2013 11:42 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	260	1.9	25		mg/L	50	12/13/2013 11:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Bromide	ND	0.032	0.50		mg/L	1	12/13/2013 11:04 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	550	2.6	50		mg/L	100	12/13/2013 03:55 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	290	1.9	25		mg/L	50	12/13/2013 12:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-51-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	3100	26	500		mg/L	1000	12/13/2013 07:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	670	3.8	50		mg/L	100	12/13/2013 08:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131216A** QC Batch: **R91705** PrepDate: Analyst: **PN**							
Chloride	1700	13	250		mg/L	500	12/16/2013 04:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131216A** QC Batch: **R91705** PrepDate: Analyst: **PN**							
Sulfate	400	3.8	50		mg/L	100	12/16/2013 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	2500	26	500		mg/L	1000	12/13/2013 09:36 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	570	3.8	50		mg/L	100	12/13/2013 09:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 2:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	540	2.6	50		mg/L	100	12/13/2013 04:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Fluoride	4.8	0.034	0.50		mg/L	5	12/13/2013 02:52 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	270	1.9	25		mg/L	50	12/13/2013 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 12:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	610	2.6	50		mg/L	100	12/13/2013 10:39 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	100	0.38	5.0		mg/L	10	12/13/2013 10:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 10:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	6200	26	500		mg/L	1000	12/13/2013 09:49 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	1100	3.8	50		mg/L	100	12/13/2013 11:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 9:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Chloride	740	5.2	100		mg/L	200	12/13/2013 04:08 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131213A** QC Batch: **R91706** PrepDate: Analyst: **PN**							
Sulfate	950	7.6	100		mg/L	200	12/13/2013 04:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-98-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_131213A**	QC Batch: **R91706**			PrepDate:			Analyst: **PN**
Chloride	780	2.6	50		mg/L	100	12/13/2013 11:17 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_131213A**	QC Batch: **R91706**			PrepDate:			Analyst: **PN**
Sulfate	970	3.8	50		mg/L	100	12/13/2013 11:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *02-Jan-14*

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R91706_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **PBW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706542**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R91706_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **LCSW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.472	0.50	2.500	0	98.9	90	110				

Sample ID: **N011593-002BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.233	0.50						0.2410	0	20	

Sample ID: **N011593-002BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.297	0.50	2.500	0.2410	82.2	80	120				

Sample ID: **N011593-002BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.288	0.50	2.500	0.2410	81.9	80	120	2.297	0.393	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91705_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **PBW** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706488**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91705_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **LCSW** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706489**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.394	0.50	2.500	0	95.8	90	110				

Sample ID: **N011622-004BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **ZZZZZZ** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706491**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1758.000	250						1736	1.26	20	

Sample ID: **N011622-004BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **ZZZZZZ** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706492**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2958.500	250	1250	1736	97.8	80	120				

Sample ID: **N011622-004BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **ZZZZZZ** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3001.500	250	1250	1736	101	80	120	2958	1.44	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R91706_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **PBW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R91706_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **LCSW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707447**

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: **N011622-009BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707459**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	748.800	100						745.0	0.509	20	

Sample ID: **N011622-009BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1255.000	100	500.0	745.0	102	80	120				

Sample ID: **N011622-009BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1260.800	100	500.0	745.0	103	80	120	1255	0.461	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011593-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	568.300	50	250.0	309.6	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R91706_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **PBW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID: **LCS-R91706_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **LCSW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.441	0.10	2.500	0	97.6	90	110				

Sample ID: **N011622-006BDUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	4.805	0.50						4.820	0.312	20	

Sample ID: **N011622-006BMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	17.440	0.50	12.50	4.820	101	80	120				

Sample ID: **N011622-006BMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1706529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	17.365	0.50	12.50	4.820	100	80	120	17.44	0.431	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91705_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **PBW** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91705_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **LCSW** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.813	0.50	5.000	0	96.3	90	110				

Sample ID: **N011622-004BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **ZZZZZZ** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706507**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	390.000	50						396.0	1.53	20	

Sample ID: **N011622-004BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **ZZZZZZ** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706508**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	906.500	50	500.0	396.0	102	80	120				

Sample ID: **N011622-004BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91705**
Client ID: **ZZZZZZ** Batch ID: **R91705** TestNo: **EPA 300.0** Analysis Date: **12/16/2013** SeqNo: **1706509**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	898.600	50	500.0	396.0	101	80	120	906.5	0.875	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R91706_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **PBW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R91706_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **LCSW** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.965	0.50	5.000	0	99.3	90	110				

Sample ID: **N011622-009BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	960.600	100						950.8	1.03	20	

Sample ID: **N011622-009BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707194**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	2017.600	100	1000	950.8	107	80	120				

Sample ID: **N011622-009BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1982.800	100	1000	950.8	103	80	120	2018	1.74	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011593-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91706**
Client ID: **ZZZZZZ** Batch ID: **R91706** TestNo: **EPA 300.0** Analysis Date: **12/13/2013** SeqNo: **1707199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	244.080	10	100.0	137.0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 8:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	70000	58	500		ug/L	1	12/20/2013 05:00 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 05:00 PM
Magnesium	17000	11	100		ug/L	1	12/20/2013 05:00 PM
Potassium	15000	16	2500		ug/L	5	12/18/2013 11:55 AM
Sodium	580000	7300	50000		ug/L	100	12/18/2013 10:18 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	140000	58	500		ug/L	1	12/20/2013 04:34 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 04:34 PM
Magnesium	23000	11	100		ug/L	1	12/20/2013 04:34 PM
Potassium	8200	16	2500		ug/L	5	12/18/2013 12:04 PM
Sodium	400000	7300	50000		ug/L	100	12/18/2013 10:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-51-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	250000	58	500		ug/L	1	12/20/2013 05:06 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 05:06 PM
Magnesium	16000	11	100		ug/L	1	12/20/2013 05:06 PM
Sodium	2300000	7300	50000		ug/L	100	12/18/2013 10:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	230000	58	500		ug/L	1	12/20/2013 05:11 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 05:11 PM
Magnesium	25000	11	100		ug/L	1	12/20/2013 05:11 PM
Sodium	1100000	7300	50000		ug/L	100	12/18/2013 10:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	340000	58	500		ug/L	1	12/20/2013 05:16 PM
Iron	100	1.3	20		ug/L	1	12/20/2013 05:16 PM
Magnesium	25000	11	100		ug/L	1	12/20/2013 05:16 PM
Sodium	1600000	7300	50000		ug/L	100	12/18/2013 10:31 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 2:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	88000	58	500		ug/L	1	12/20/2013 05:48 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 05:48 PM
Magnesium	13000	11	100		ug/L	1	12/20/2013 05:48 PM
Sodium	500000	7300	50000		ug/L	100	12/18/2013 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 12:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	300000	58	500		ug/L	1	12/20/2013 05:52 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 05:52 PM
Magnesium	20000	11	100		ug/L	1	12/20/2013 05:52 PM
Sodium	96000	370	2500		ug/L	5	12/18/2013 12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 10:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	440000	58	500		ug/L	1	12/20/2013 05:58 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 05:58 PM
Magnesium	5800	11	100		ug/L	1	12/20/2013 05:58 PM
Sodium	4100000	15000	100000		ug/L	200	12/18/2013 11:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 9:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**			PrepDate:	**12/19/2013**		Analyst: **JAA**
Calcium	380000	58	500		ug/L	1	12/20/2013 06:08 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 06:08 PM
Magnesium	38000	11	100		ug/L	1	12/20/2013 06:08 PM
Sodium	570000	7300	50000		ug/L	100	12/18/2013 10:52 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-98-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44656**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	390000	58	500		ug/L	1	12/20/2013 06:14 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 06:14 PM
Magnesium	39000	11	100		ug/L	1	12/20/2013 06:14 PM
Sodium	340000	7300	50000		ug/L	100	12/18/2013 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *02-Jan-14*

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44619** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/16/2013** RunNo: **91703**
Client ID: **PBW** Batch ID: **44619** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	6.570	500									
Sodium	ND	500									

Sample ID: **LCS2-44619** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/16/2013** RunNo: **91703**
Client ID: **LCSW** Batch ID: **44619** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	19544.588	500	20000	0	97.7	85	115				
Sodium	19731.296	500	20000	0	98.7	85	115				

Sample ID: **N011622-002A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/16/2013** RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44619** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706402**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	29777.953	2500	20000	8150	108	75	125				

Sample ID: **N011622-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/16/2013** RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44619** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	29891.440	2500	20000	8150	109	75	125	29780	0.380	20	

Sample ID: **N011622-002A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/16/2013** RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44619** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	418638.929	50000	20000	401600	85.2	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011622-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/16/2013** RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44619** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	400868.900	50000	20000	401600	-3.69	75	125	418600	4.34	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44656** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **PBW** Batch ID: **44656** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS-44656** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **LCSW** Batch ID: **44656** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9033.165	500	10000	0	90.3	85	115				
Iron	101.657	20	100.0	0	102	85	115				
Magnesium	9577.096	100	10000	0	95.8	85	115				

Sample ID: **N011622-002A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **ZZZZZZ** Batch ID: **44656** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	155066.371	500	10000	138800	163	75	125				S
Iron	87.688	20	100.0	0	87.7	75	125				
Magnesium	33676.079	100	10000	22950	107	75	125				

Sample ID: **N011622-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **ZZZZZZ** Batch ID: **44656** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	153980.726	500	10000	138800	152	75	125	155100	0.703	20	S
Iron	85.173	20	100.0	0	85.2	75	125	87.69	2.91	20	
Magnesium	33437.669	100	10000	22950	105	75	125	33680	0.710	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 8:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate: **12/17/2013**		Analyst: **CEI**
Boron	510	2.7	50		µg/L	1	12/19/2013 03:31 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 03:31 PM
Molybdenum	42	0.15	0.50		µg/L	1	12/19/2013 03:31 PM
Selenium	4.7	0.069	0.50		µg/L	1	12/19/2013 03:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Boron	1000	2.7	50		µg/L	1	12/19/2013 03:36 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 03:36 PM
Molybdenum	4.1	0.15	0.50		µg/L	1	12/19/2013 03:36 PM
Selenium	4.9	0.069	0.50		µg/L	1	12/19/2013 03:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-51-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 11:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	3.8	0.027	0.10		µg/L	1	12/19/2013 05:54 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 05:54 PM
Molybdenum	42	0.15	0.50		µg/L	1	12/20/2013 10:54 AM
Selenium	15	0.069	0.50		µg/L	1	12/20/2013 10:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 1:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	1.2	0.027	0.10		µg/L	1	12/19/2013 06:06 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 06:06 PM
Molybdenum	14	0.15	0.50		µg/L	1	12/20/2013 11:05 AM
Selenium	3.2	0.069	0.50		µg/L	1	12/20/2013 11:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-194
Lab Order:	N011622	**Collection Date:**	12/11/2013 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	1.3	0.027	0.10		µg/L	1	12/19/2013 06:17 PM
Manganese	9.4	0.026	0.50		µg/L	1	12/19/2013 06:17 PM
Molybdenum	58	0.15	0.50		µg/L	1	12/20/2013 11:22 AM
Selenium	2.4	0.069	0.50		µg/L	1	12/20/2013 11:22 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 2:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	12/19/2013 11:28 AM
Arsenic	4.5	0.027	0.10		µg/L	1	12/19/2013 11:28 AM
Barium	42	0.030	1.0		µg/L	1	12/19/2013 11:28 AM
Beryllium	ND	0.010	0.50		µg/L	1	12/19/2013 11:28 AM
Cadmium	ND	0.013	0.50		µg/L	1	12/19/2013 11:28 AM
Cobalt	ND	0.017	0.50		µg/L	1	12/19/2013 11:28 AM
Copper	ND	0.040	1.0		µg/L	1	12/19/2013 11:28 AM
Lead	ND	0.011	1.0		µg/L	1	12/19/2013 11:28 AM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 11:28 AM
Molybdenum	46	0.15	0.50		µg/L	1	12/19/2013 11:28 AM
Nickel	ND	0.032	1.0		µg/L	1	12/19/2013 11:28 AM
Selenium	5.1	0.069	0.50		µg/L	1	12/19/2013 11:28 AM
Silver	ND	0.094	0.50		µg/L	1	12/19/2013 11:28 AM
Thallium	ND	0.0080	0.50		µg/L	1	12/19/2013 11:28 AM
Vanadium	24	0.16	1.0		µg/L	1	12/19/2013 11:28 AM
Zinc	ND	0.23	10		µg/L	1	12/19/2013 11:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 12:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	12/19/2013 06:28 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 06:28 PM
Molybdenum	2.4	0.15	0.50		µg/L	1	12/20/2013 11:33 AM
Selenium	2.8	0.069	0.50		µg/L	1	12/20/2013 11:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 10:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	7.7	0.13	0.50		µg/L	5	12/19/2013 06:33 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 06:39 PM
Molybdenum	76	0.76	2.5		µg/L	5	12/20/2013 11:39 AM
Selenium	10	0.34	2.5		µg/L	5	12/20/2013 11:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 9:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	2.5	0.027	0.10		µg/L	1	12/19/2013 07:01 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 07:01 PM
Molybdenum	47	0.15	0.50		µg/L	1	12/20/2013 11:44 AM
Selenium	15	0.069	0.50		µg/L	1	12/20/2013 11:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-98-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131219B**	QC Batch: **44628**				PrepDate:	**12/17/2013**	Analyst: **CEI**
Arsenic	2.4	0.027	0.10		µg/L	1	12/19/2013 07:13 PM
Manganese	ND	0.026	0.50		µg/L	1	12/19/2013 07:13 PM
Molybdenum	45	0.15	0.50		µg/L	1	12/20/2013 11:56 AM
Selenium	15	0.069	0.50		µg/L	1	12/20/2013 11:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *02-Jan-14*

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-44628** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **LCSW** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.282	0.50	10.00	0	92.8	85	115				
Arsenic	9.242	0.10	10.00	0	92.4	85	115				
Barium	96.948	1.0	100.0	0	96.9	85	115				
Beryllium	9.434	0.50	10.00	0	94.3	85	115				
Boron	919.923	50	1000	0	92.0	85	115				
Cadmium	9.584	0.50	10.00	0	95.8	85	115				
Cobalt	8.990	0.50	10.00	0	89.9	85	115				
Copper	10.255	1.0	10.00	0	103	85	115				
Lead	9.497	1.0	10.00	0	95.0	85	115				
Manganese	89.778	0.50	100.0	0	89.8	85	115				
Molybdenum	9.273	0.50	10.00	0	92.7	85	115				
Nickel	9.401	1.0	10.00	0	94.0	85	115				
Selenium	9.351	0.50	10.00	0	93.5	85	115				
Silver	9.193	0.50	10.00	0	91.9	85	115				
Thallium	9.231	0.50	10.00	0	92.3	85	115				
Vanadium	8.906	1.0	10.00	0	89.1	85	115				
Zinc	93.885	10	100.0	0	93.9	85	115				

Sample ID: **N011593-002A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.260	0.50	10.00	0	103	75	125				
Arsenic	10.861	0.10	10.00	1.203	96.6	75	125				
Barium	147.214	1.0	100.0	52.16	95.1	75	125				
Beryllium	10.641	0.50	10.00	0	106	75	125				
Boron	1431.909	50	1000	432.3	100	75	125				
Cadmium	8.996	0.50	10.00	0	90.0	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011593-002A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	9.530	0.50	10.00	0	95.3	75	125				
Copper	8.521	1.0	10.00	0.1550	83.7	75	125				
Lead	10.409	1.0	10.00	0	104	75	125				
Manganese	89.249	0.50	100.0	0	89.2	75	125				
Molybdenum	14.827	0.50	10.00	3.967	109	75	125				
Nickel	9.415	1.0	10.00	0.5893	88.3	75	125				
Selenium	13.243	0.50	10.00	4.801	84.4	75	125				
Silver	9.580	0.50	10.00	0	95.8	75	125				
Thallium	10.339	0.50	10.00	0.03035	103	75	125				
Vanadium	18.695	1.0	10.00	8.181	105	75	125				
Zinc	83.432	10	100.0	0	83.4	75	125				

Sample ID: **N011593-002A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.208	0.50	10.00	0	102	75	125	10.26	0.506	20	
Arsenic	10.751	0.10	10.00	1.203	95.5	75	125	10.86	1.03	20	
Barium	149.553	1.0	100.0	52.16	97.4	75	125	147.2	1.58	20	
Beryllium	10.723	0.50	10.00	0	107	75	125	10.64	0.768	20	
Boron	1429.008	50	1000	432.3	99.7	75	125	1432	0.203	20	
Cadmium	9.114	0.50	10.00	0	91.1	75	125	8.996	1.30	20	
Cobalt	9.474	0.50	10.00	0	94.7	75	125	9.530	0.597	20	
Copper	8.604	1.0	10.00	0.1550	84.5	75	125	8.521	0.972	20	
Lead	10.398	1.0	10.00	0	104	75	125	10.41	0.108	20	
Manganese	89.027	0.50	100.0	0	89.0	75	125	89.25	0.249	20	
Molybdenum	15.200	0.50	10.00	3.967	112	75	125	14.83	2.49	20	
Nickel	9.455	1.0	10.00	0.5893	88.7	75	125	9.415	0.425	20	
Selenium	13.087	0.50	10.00	4.801	82.9	75	125	13.24	1.18	20	
Silver	9.495	0.50	10.00	0	95.0	75	125	9.580	0.883	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011593-002A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	10.350	0.50	10.00	0.03035	103	75	125	10.34	0.104	20	
Vanadium	18.894	1.0	10.00	8.181	107	75	125	18.69	1.06	20	
Zinc	83.122	10	100.0	0	83.1	75	125	83.43	0.372	20	

Sample ID: **MB-44628** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/17/2013** RunNo: **91725**
Client ID: **PBW** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Beryllium	ND	0.50									
Boron	27.364	50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Copper	0.199	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	0.119	0.50									
Thallium	0.106	0.50									
Vanadium	ND	1.0									
Zinc	ND	10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *02-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-194
Lab Order:	N011622	**Collection Date:**	12/12/2013 2:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011622-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_131219B**	QC Batch: **44653**			PrepDate:	**12/19/2013**		Analyst: **LCC**
Mercury	ND	0.038	0.20		µg/L	1	12/19/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **LCS-44653** SampType: **LCS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/19/2013** RunNo: **91717**
Client ID: **LCSW** Batch ID: **44653** TestNo: **EPA 7470A** Analysis Date: **12/19/2013** SeqNo: **1707018**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.641	0.20	5.000	0	113	85	115				

Sample ID: **MB-44653** SampType: **MBLK** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/19/2013** RunNo: **91717**
Client ID: **PBW** Batch ID: **44653** TestNo: **EPA 7470A** Analysis Date: **12/19/2013** SeqNo: **1707021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **N011593-005A-MS** SampType: **MS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/19/2013** RunNo: **91717**
Client ID: **ZZZZZZ** Batch ID: **44653** TestNo: **EPA 7470A** Analysis Date: **12/19/2013** SeqNo: **1707023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.623	0.20	5.000	0	112	75	125				

Sample ID: **N011593-005A-MSD** SampType: **MSD** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/19/2013** RunNo: **91717**
Client ID: **ZZZZZZ** Batch ID: **44653** TestNo: **EPA 7470A** Analysis Date: **12/19/2013** SeqNo: **1707024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.880	0.20	5.000	0	118	75	125	5.623	4.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/12/2013
COC Number: 30

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Metals (6010B/6020A/7470Adis) FF Tl,Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Hg,Ni	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-20-070-194	12/11/2013	8:40	Water		X		X		X			X	X	X		N011622-1	~~8~~	3
MW-20-100-194	12/11/2013	9:52	Water		X		X		X			X	X	X		-2	~~8~~	3
MW-51-194	12/11/2013	11:55	Water	X		X	X			X		X		X	X	-3	~~8~~	4
MW-62-065-194	12/11/2013	13:20	Water	X		X	X			X		X		X	X	-4	~~8~~	4
MW-71-035-194	12/11/2013	15:15	Water	X		X	X			X		X		X	X	-5	~~8~~	3 BLL
MW-10-194	12/12/2013	14:00	Water			X		X			X	X		X		-6	~~5~~	3
MW-57-070-194	12/12/2013	12:14	Water	X		X	X			X		X		X	X	-7	~~8~~	4
MW-66-230-194	12/12/2013	10:54	Water	X		X	X			X		X		X	X	-8	~~8~~	4
MW-68-180-194	12/12/2013	9:42	Water	X		X	X			X		X		X	X	-9	~~8~~	4
MW-98-194	12/12/2013	7:00	Water	X		X	X			X		X		X	X	-10	~~8~~	3
																TOTAL NUMBER OF CONTAINERS	35	

	Signatures	Date/Time
Approved by		12-12-13
Sampled by		1540
Relinquished by		
Received by		12/12/13 1540
Relinquished by		12/12/13 1700
Received by		12/12/13 1700

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 2.3°C / 2.8°C IR#2
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody and Marion

Special Instructions:

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:	12/12/2013	Workorder:	N011622
Rep sample Temp (Deg C):	2.3, 2.8	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 12/13/2013

Reviewed By: 2013-12-17

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

16-Dec-13

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
N011622-003C / MW-51-194	Water	12/11/2013 11:55:00 AM	32OZP	1		
N011622-004C / MW-62-065-194	Water	12/11/2013 1:20:00 PM	32OZP	1		
N011622-005C / MW-71-035-194	Water	12/11/2013 3:15:00 PM	32OZP	1		
N011622-007C / MW-57-070-194	Water	12/12/2013 12:14:00 PM	32OZP	1		
N011622-008C / MW-66-230-194	Water	12/12/2013 10:54:00 AM	32OZP	1		
N011622-009C / MW-68-180-194	Water	12/12/2013 9:42:00 AM	32OZP	1		
N011622-010C / MW-98-194	Water	12/12/2013 7:00:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N011622 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT

Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

		Date/Time			Date/Time
Relinquished by:	Hanah Glodoviza	12/16/2013 17:00	**Received by:**		
Relinquished by:			**Received by:**		

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N011622-001B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(60.4478-60.3545)*1000000}{75}$$

$$= \frac{933.00}{1244} \text{ mg/L}$$

Reporting result in two significant figures,

$$\text{TDS} = \frac{930.00}{1200} \text{mg/L}$$

12/27/2013
for

12/17/2013

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/16/2013								TDS/CONDUCTIVITY
Date Finished: 12/17/2013	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-44626	100	59.1708	59.1706	-2	1	-2.00		
LCS-44626	100	61.1305	61.2279	974	1	974.00		
N011622-001B	75	60.3545	60.4478	933	1.3333333	1244.00	2030	0.61
N011622-001B-DUP	75	60.3353	60.4293	940	1.3333333	1253.33	2030	0.62
N011622-002B	60	60.9962	61.0945	983	1.6666667	1638.33	2590	0.63

12/17/2013

Sample ID: **N011622-001B @ pH 7.72**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

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 $CaCO_3$), 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 $CaCO_3$), mg/L = (4.30) (0.02128 N) (1) * 1000

= 91.50 **mg/L**

Reporting results in two significant figures,

= 92.00 **mg/L** as CaCO3

12/17/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02128 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (4.30 mL) (0.02128) (1) * 1000

= 91.50 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 91.50 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 92.00 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Water

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the original sample as follows:

Sulfate, mg/L = A * DF

where :

A = mg/L, IC calculated concentration
DF = dilution factor

For **N011622-001B** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 5.212 * 50

= 260.6

Reporting result in two significant figures,

Sulfate, mg/L = 260

12/20/2013

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Sodium concentration, in µg/L, in the original sample as follows:

Sodium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011622-001A**, the concentration in µg/L is calculated as follows:

Sodium, µg/L = 5.837798345 * 100 * (25/25) * 1000

= 583779.8345

Reporting results in two significant figures,

Sodium, µg/L = 580000

Harvey 1/2/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011622
Test Method: EPA 6010
Analysis Date: 12/18/13

Matrix: Water
Batch No.: 44619

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for ~~Na and~~ K. The calculated concentrations are < 25X the RL's.
However, the PS @5X and @100X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011622-002A-DT 500X	Sodium	ug/L	436997.52300	NA	401607.0919	8.81%	10
N011622-002A-DT 25X	Potassium	ug/L	9149.56295	NA	8150.061935	12.26%	10

Note: NA - Not Applicable

Morey 1/2/2014

for

JAA / ICP-02 / 12/19/2013 3:57:41 AM

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011622
Test Method: EPA 6010
Analysis Date: 12/20/13

Matrix: Water
Batch No.: 44656

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for Fe. The calculated concentration was < 25X the RL. Dilution Test failed for Mg.
However, PS @2X for Fe and Mg passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011622-002A-DT 5X	Calcium	ug/L	142997.1315	PASSED	138785.5209	3.03%	10
N011622-002A-DT 5X	Iron	ug/L	0	NA	0		10
N011622-002A-DT 5X	Magnesium	ug/L	25892.900505	FAIL	22949.89395	12.82%	10

Note: NA - Not Applicable

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011622-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44619** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706399**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	59625.490	2500	50000	8150	103	80	120				

Sample ID: **N011622-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91703**
Client ID: **ZZZZZZ** Batch ID: **44619** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2013** SeqNo: **1706405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1413083.457	50000	1000000	401600	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011622-002A-PS**	SampType: **PS**	TestCode: **6010_WDPGE**	Units: **ug/L**	Prep Date:	RunNo: **91758**
Client ID: **ZZZZZZ**	Batch ID: **44656**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **12/20/2013**	SeqNo: **1709144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	141753.466	1000	5000	138800	59.4	80	120				S
Iron	5144.060	40	5000	0	103	80	120				
Magnesium	28396.666	200	5000	22950	109	80	120				

DT of Ca @5x is within criteria

1/2/2014

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N011622-004A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.22076401424391 * 1 * (25/25)

= 1.22076401424391

Reporting results in two significant figures,

Arsenic, ug/L = 1.2

Morley 12/27/2013

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N011622
Test Method: EPA 6020
Analysis Date: 12/19/2013

Matrix: Water
Batch No.: 44628

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Sb,As,Be,B,~~Cd~~,Co,Cu,Pb,Mn,Mo,Ni,Se,Ag,Tl,V,and Zn. The calculated values are <25X RL. PS @2X passed criteria.
Diution test is not applicable to Cd. The calculated value is <25X RL.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011593-002A-DT 5X	Antimony	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Arsenic	µg/L	1.232795229	NA	1.202725155	2.50%	10%
N011593-002A-DT 5X	Barium	µg/L	53.97217644	PASS	52.16337193	3.47%	10%
N011593-002A-DT 5X	Beryllium	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Boron	µg/L	452.6486045	NA	432.2795831	4.71%	10%
N011593-002A-DT 5X	Cadmium	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Cobalt	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Copper	µg/L	1.757983861	NA	0.154989138	1034.26%	10%
N011593-002A-DT 5X	Lead	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Manganese	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Molybdenum	µg/L	3.905434634	NA	3.967433892	1.56%	10%
N011593-002A-DT 5X	Nickel	µg/L	0.659221362	NA	0.589308892	11.86%	10%
N011593-002A-DT 5X	Selenium	µg/L	4.938150264	NA	4.800931959	2.86%	10%
N011593-002A-DT 5X	Silver	µg/L	0	NA	0		10%
N011593-002A-DT 5X	Thallium	µg/L	0.049528644	NA	0.03035002	63.19%	10%
N011593-002A-DT 5X	Vanadium	µg/L	7.317779839	NA	8.180698384	10.55%	10%
N011593-002A-DT 5X	Zinc	µg/L	0	NA	0		10%

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *20-Dec-13*

CLIENT: CH2M HILL
Work Order: N011622
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011593-002A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91725**
Client ID: **ZZZZZZ** Batch ID: **44628** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2013** SeqNo: **1707547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.509	1.0	20.00	0	108	80	120				
Arsenic	22.005	0.20	20.00	1.203	104	80	120				
Barium	270.649	2.0	200.0	52.16	109	80	120				
Beryllium	22.085	1.0	20.00	0	110	80	120				
Boron	2524.828	100	2000	432.3	105	80	120				
Cadmium	11.716	1.0	20.00	0	58.6	80	120				S
Cobalt	20.245	1.0	20.00	0	101	80	120				
Copper	19.547	2.0	20.00	0.1550	97.0	80	120				
Lead	20.381	2.0	20.00	0	102	80	120				
Manganese	195.542	1.0	200.0	0	97.8	80	120				
Molybdenum	27.081	1.0	20.00	3.967	116	80	120				
Nickel	20.192	2.0	20.00	0.5893	98.0	80	120				
Selenium	23.334	1.0	20.00	4.801	92.7	80	120				
Silver	20.401	1.0	20.00	0	102	80	120				
Thallium	21.528	1.0	20.00	0.03035	107	80	120				
Vanadium	30.583	2.0	20.00	8.181	112	80	120				
Zinc	187.259	20	200.0	0	93.6	80	120				

MS/MSD of Cd is within criteria

Nancy 12/27/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.

Sample Calculation

Work Order No.:	**N011622**
Test Method:	**EPA 7470**
Matrix:	**Aqueous**

FORMULA:

Calculate the Mercury concentration in ug/L in the original sample as follows:

Hg = [A] [DF]

where:

A = ug/L, instrument calculated concentration
DF = dilution factor

For: **N011622-006A**

The concentration in ug/L is calculated as follows:

Hg = [A] [DF]

Hg = [-0.06040] [1]

Hg = -0.06040 ug/L

Reporting results in two significant figures,

Hg = ND ug/L

12/19/2013

January 06, 2014

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011661

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 17, 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.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 300.0:

Dilution was necessary on samples N011661-004 and N011661-005 due to precipitation of samples upon the addition of eluent.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium, Iron, Calcium and Magnesium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria for Potassium ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011661-001, N011661-002, N011661-003, N011661-004, N011661-005, N011661-006, N011661-008, N011661-009 due to failed Internal Standards when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc. *3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691*

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011661
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011661-001A	MW-32-020-194	Water	12/16/2013 1:34:00 PM	12/17/2013	1/6/2014
N011661-001B	MW-32-020-194	Water	12/16/2013 1:34:00 PM	12/17/2013	1/6/2014
N011661-001C	MW-32-020-194	Water	12/16/2013 1:34:00 PM	12/17/2013	1/6/2014
N011661-002A	MW-36-100-194	Water	12/16/2013 12:22:00 PM	12/17/2013	1/6/2014
N011661-002B	MW-36-100-194	Water	12/16/2013 12:22:00 PM	12/17/2013	1/6/2014
N011661-002C	MW-36-100-194	Water	12/16/2013 12:22:00 PM	12/17/2013	1/6/2014
N011661-003A	MW-64BR-194	Water	12/16/2013 11:30:00 AM	12/17/2013	1/6/2014
N011661-003B	MW-64BR-194	Water	12/16/2013 11:30:00 AM	12/17/2013	1/6/2014
N011661-004A	MW-123-194	Water	12/17/2013 7:00:00 AM	12/17/2013	1/6/2014
N011661-004B	MW-123-194	Water	12/17/2013 7:00:00 AM	12/17/2013	1/6/2014
N011661-005A	MW-20-130-194	Water	12/17/2013 9:38:00 AM	12/17/2013	1/6/2014
N011661-005B	MW-20-130-194	Water	12/17/2013 9:38:00 AM	12/17/2013	1/6/2014
N011661-006A	MW-50-200-194	Water	12/17/2013 8:10:00 AM	12/17/2013	1/6/2014
N011661-006B	MW-50-200-194	Water	12/17/2013 8:10:00 AM	12/17/2013	1/6/2014
N011661-006C	MW-50-200-194	Water	12/17/2013 8:10:00 AM	12/17/2013	1/6/2014
N011661-007A	MW-58BR-194	Water	12/17/2013 2:13:00 PM	12/17/2013	1/6/2014
N011661-007B	MW-58BR-194	Water	12/17/2013 2:13:00 PM	12/17/2013	1/6/2014
N011661-008A	MW-66BR-270-194	Water	12/17/2013 6:42:00 AM	12/17/2013	1/6/2014
N011661-008B	MW-66BR-270-194	Water	12/17/2013 6:42:00 AM	12/17/2013	1/6/2014
N011661-008C	MW-66BR-270-194	Water	12/17/2013 6:42:00 AM	12/17/2013	1/6/2014
N011661-009A	TW-01-194	Water	12/17/2013 11:52:00 AM	12/17/2013	1/6/2014
N011661-009B	TW-01-194	Water	12/17/2013 11:52:00 AM	12/17/2013	1/6/2014

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-020-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 1:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	40000	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-100-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 12:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	7800	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-64BR-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 11:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 8:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-58BR-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 2:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	8600	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 6:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 11:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131218A**	QC Batch: **R91679**			PrepDate:			Analyst: **LCC**
Specific Conductance	7300	0.10	0.10		umhos/cm	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011661-009B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91679**
Client ID: **ZZZZZZ** Batch ID: **R91679** TestNo: **EPA 120.1** Analysis Date: **12/18/2013** SeqNo: **1705506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7370.000	0.10						7330	0.544	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131220C**	QC Batch: **44654**			PrepDate:	**12/19/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	7300	100	100		mg/L	1	12/19/2013 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_131220C**	QC Batch: **44654**			PrepDate:	**12/19/2013**		Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	7400	100	100		mg/L	1	12/19/2013 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-44654** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/19/2013** RunNo: **91740**
Client ID: **PBW** Batch ID: **44654** TestNo: **SM2540C** Analysis Date: **12/19/2013** SeqNo: **1708432**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **LCS-44654** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/19/2013** RunNo: **91740**
Client ID: **LCSW** Batch ID: **44654** TestNo: **SM2540C** Analysis Date: **12/19/2013** SeqNo: **1708433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	971.000	10	1000	0	97.1	80	120				

Sample ID: **N011661-004B-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/19/2013** RunNo: **91740**
Client ID: **ZZZZZZ** Batch ID: **44654** TestNo: **SM2540C** Analysis Date: **12/19/2013** SeqNo: **1708435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	7540.000	100						7290	3.37	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-020-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 1:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	1500	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	1500	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-100-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 12:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	240	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	240	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-64BR-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 11:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	56	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	56	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	78	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	78	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	80	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	80	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 8:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	39	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	39	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-58BR-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 2:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	43	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	43	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 6:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	17.2	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	17.2	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 11:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131218E**	QC Batch: **R91692**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2013
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/18/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91692** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91692**
Client ID: **LCSW** Batch ID: **R91692** TestNo: **SM 2320 B** Analysis Date: **12/18/2013** SeqNo: **1714166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	94.828	5.0	100.0	0	94.8	85	115				
Alkalinity, Total (As CaCO3)	99.138	5.0	100.0	0	99.1	85	115				

Sample ID: **MB-R91692** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91692**
Client ID: **PBW** Batch ID: **R91692** TestNo: **SM 2320 B** Analysis Date: **12/18/2013** SeqNo: **1714167**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.155	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.155	5.0									

Sample ID: **N011661-009B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91692**
Client ID: **ZZZZZZ** Batch ID: **R91692** TestNo: **SM 2320 B** Analysis Date: **12/18/2013** SeqNo: **1714178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	211.207	5.0	100.0	112.1	99.1	75	125				
Alkalinity, Total (As CaCO3)	211.207	5.0	100.0	112.1	99.1	75	125				

Sample ID: **N011661-009B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91692**
Client ID: **ZZZZZZ** Batch ID: **R91692** TestNo: **SM 2320 B** Analysis Date: **12/18/2013** SeqNo: **1714179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	211.207	5.0	100.0	112.1	99.1	75	125	211.2	0	20	
Alkalinity, Total (As CaCO3)	211.207	5.0	100.0	112.1	99.1	75	125	211.2	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-020-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 1:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	13000	260	5000		mg/L	10000	12/20/2013 04:43 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	5400	38	500		mg/L	1000	12/20/2013 04:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-100-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 12:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	2200	26	500		mg/L	1000	12/20/2013 04:55 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	720	3.8	50		mg/L	100	12/20/2013 04:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-64BR-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 11:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	4400	26	500		mg/L	1000	12/20/2013 05:08 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	580	3.8	50		mg/L	100	12/20/2013 09:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Bromide	ND	0.064	1.0		mg/L	2	12/20/2013 05:46 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	3200	26	500		mg/L	1000	12/20/2013 08:55 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	1100	3.8	50		mg/L	100	12/20/2013 06:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Bromide	ND	0.064	1.0		mg/L	2	12/20/2013 05:59 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	3200	26	500		mg/L	1000	12/20/2013 10:11 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	1100	3.8	50		mg/L	100	12/20/2013 06:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 8:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	6800	26	500		mg/L	1000	12/20/2013 10:49 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	940	3.8	50		mg/L	100	12/20/2013 06:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-58BR-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 2:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	2700	26	500		mg/L	1000	12/20/2013 11:02 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	510	3.8	50		mg/L	100	12/20/2013 11:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 6:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	6200	26	500		mg/L	1000	12/20/2013 11:14 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	280	1.9	25		mg/L	50	12/20/2013 11:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 11:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	1900	13	250		mg/L	500	12/20/2013 11:27 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	760	3.8	50		mg/L	100	12/21/2013 12:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **LCS-R91813_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **LCSW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.412	0.50	2.500	0	96.5	90	110				

Sample ID: **MB-R91813_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **PBW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **N011661-004BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	5.252	1.0	5.000	0.6480	92.1	80	120				

Sample ID: **N011661-004BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	5.224	1.0	5.000	0.6480	91.5	80	120	5.252	0.535	20	

Sample ID: **N011661-004BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.734	1.0						0.6480	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R91813_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **LCSW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711075**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.337	0.50	2.500	0	93.5	90	110				

Sample ID: **MB-R91813_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **PBW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711076**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **N011661-004BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5676.000	500	2500	3168	100	80	120				

Sample ID: **N011661-004BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711087**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5680.000	500	2500	3168	100	80	120	5676	0.0704	20	

Sample ID: **N011661-004BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711088**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3185.000	500						3168	0.535	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011683-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/21/2013** SeqNo: **1711096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10896.000	1000	5000	6024	97.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R91813_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **LCSW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.770	0.50	5.000	0	95.4	90	110				

Sample ID: **MB-R91813_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **PBW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711114**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **N011661-004BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1667.800	50	500.0	1128	108	80	120				

Sample ID: **N011661-004BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1649.800	50	500.0	1128	104	80	120	1668	1.09	20	

Sample ID: **N011661-004BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1121.200	50						1128	0.640	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011683-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/21/2013** SeqNo: **1711401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	2883.400	100	1000	1845	104	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-020-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 1:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	970000	290	2500		ug/L	5	12/20/2013 06:55 PM
Iron	13000	2.7	40		ug/L	2	12/20/2013 06:19 PM
Magnesium	530000	22	200		ug/L	2	12/20/2013 06:19 PM
Sodium	11000000	37000	250000		ug/L	500	12/20/2013 09:26 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-100-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 12:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	210000	58	500		ug/L	1	12/20/2013 02:37 PM
Iron	24	1.3	20		ug/L	1	12/20/2013 02:37 PM
Magnesium	32000	11	100		ug/L	1	12/20/2013 02:37 PM
Sodium	1800000	7300	50000		ug/L	100	12/20/2013 08:53 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-64BR-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 11:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	420000	58	500		ug/L	1	12/20/2013 02:48 PM
Iron	160	1.3	20		ug/L	1	12/20/2013 02:48 PM
Magnesium	17000	11	100		ug/L	1	12/20/2013 02:48 PM
Sodium	2800000	7300	50000		ug/L	100	12/20/2013 08:57 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	330000	58	500		ug/L	1	12/20/2013 02:53 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 02:53 PM
Magnesium	21000	11	100		ug/L	1	12/20/2013 02:53 PM
Potassium	27000	16	2500		ug/L	5	12/26/2013 04:36 PM
Sodium	2400000	7300	50000		ug/L	100	12/20/2013 09:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	330000	58	500		ug/L	1	12/20/2013 02:59 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 02:59 PM
Magnesium	22000	11	100		ug/L	1	12/20/2013 02:59 PM
Potassium	26000	16	2500		ug/L	5	12/20/2013 10:19 AM
Sodium	2300000	7300	50000		ug/L	100	12/20/2013 09:03 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 8:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	570000	120	1000		ug/L	2	12/20/2013 07:21 PM
Iron	ND	1.3	20		ug/L	1	12/20/2013 03:04 PM
Magnesium	30000	11	100		ug/L	1	12/20/2013 03:04 PM
Sodium	4300000	15000	100000		ug/L	200	12/20/2013 10:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-58BR-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 2:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	550000	120	1000		ug/L	2	12/20/2013 07:26 PM
Iron	26	1.3	20		ug/L	1	12/20/2013 03:09 PM
Magnesium	28000	11	100		ug/L	1	12/20/2013 03:09 PM
Sodium	1400000	7300	50000		ug/L	100	12/20/2013 09:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 6:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**			PrepDate:	**12/19/2013**		Analyst: **JAA**
Calcium	310000	58	500		ug/L	1	12/20/2013 03:15 PM
Iron	50	1.3	20		ug/L	1	12/20/2013 03:15 PM
Magnesium	18000	11	100		ug/L	1	12/20/2013 03:15 PM
Sodium	3900000	15000	100000		ug/L	200	12/20/2013 10:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 11:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131220D**	QC Batch: **44651**				PrepDate: **12/19/2013**		Analyst: **JAA**
Calcium	310000	58	500		ug/L	1	12/20/2013 03:30 PM
Iron	27	1.3	20		ug/L	1	12/20/2013 03:30 PM
Magnesium	21000	11	100		ug/L	1	12/20/2013 03:30 PM
Sodium	1300000	7300	50000		ug/L	100	12/20/2013 09:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44651** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91753**
Client ID: **PBW** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1708821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	42.188	500									
Sodium	ND	500									

Sample ID: **LCS2-44651** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91753**
Client ID: **LCSW** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1708822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	19350.877	500	20000	0	96.8	85	115				
Sodium	19562.214	500	20000	0	97.8	85	115				

Sample ID: **N011661-002A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91753**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1708838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	31075.293	2500	20000	15610	77.3	75	125				

Sample ID: **N011661-002A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91753**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1708842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1794289.001	50000	20000	1803000	-44.6	75	125				S

Sample ID: **N011661-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91753**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1708846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1796821.112	50000	20000	1803000	-32.0	75	125	1794000	0.141	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44651** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **PBW** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	4.162	20									
Magnesium	ND	100									

Sample ID: **LCS-44651** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **LCSW** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709118**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9019.236	500	10000	0	90.2	85	115				
Iron	108.689	20	100.0	0	109	85	115				
Magnesium	9557.148	100	10000	0	95.6	85	115				

Sample ID: **N011661-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	12756.342	40	100.0	13290	-530	75	125				S
Magnesium	513476.098	200	10000	525700	-122	75	125				S

Sample ID: **N011661-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709168**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	14002.770	40	100.0	13290	717	75	125	12760	9.32	20	S
Magnesium	533767.339	200	10000	525700	81.1	75	125	513500	3.88	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011661-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709172**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	915189.512	2500	10000	971000	-558	75	125				S

Sample ID: **N011661-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91758**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709173**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	976247.957	2500	10000	971000	52.3	75	125	915200	6.46	20	S

Sample ID: **N011661-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/19/2013** RunNo: **91809**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2013** SeqNo: **1710919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	39579.896	2500	20000	15610	120	75	125	31080	24.1	20	R

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-020-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 1:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Arsenic	3.6	0.13	0.50		µg/L	5	12/27/2013 11:05 AM
Manganese	310	0.13	2.5		µg/L	5	12/27/2013 11:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-100-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 12:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**				PrepDate:	**12/20/2013**	Analyst: **CEI**
Arsenic	7.1	0.027	0.10		µg/L	1	12/27/2013 11:18 AM
Manganese	2.9	0.026	0.50		µg/L	1	12/27/2013 03:42 PM
Molybdenum	27	0.15	0.50		µg/L	1	12/27/2013 11:18 AM
Selenium	ND	0.34	2.5		µg/L	5	12/27/2013 11:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-64BR-194
Lab Order:	N011661	**Collection Date:**	12/16/2013 11:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Arsenic	2.9	0.13	0.50		µg/L	5	12/27/2013 11:41 AM
Manganese	740	0.13	2.5		µg/L	5	12/27/2013 11:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**				PrepDate:	**12/20/2013**	Analyst: **CEI**
Arsenic	4.9	0.13	0.50		µg/L	5	12/27/2013 12:03 PM
Boron	2700	140	2500		µg/L	50	12/27/2013 08:19 PM
Manganese	ND	0.026	0.50		µg/L	1	12/27/2013 11:57 AM
Molybdenum	41	0.76	2.5		µg/L	5	12/27/2013 12:03 PM
Selenium	24	0.34	2.5		µg/L	5	12/27/2013 12:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**				PrepDate:	**12/20/2013**	Analyst: **CEI**
Arsenic	4.9	0.13	0.50		µg/L	5	12/27/2013 12:14 PM
Boron	2300	68	1200		µg/L	25	1/2/2014 03:08 PM
Manganese	ND	0.026	0.50		µg/L	1	12/27/2013 12:08 PM
Molybdenum	41	0.76	2.5		µg/L	5	12/27/2013 12:14 PM
Selenium	25	0.34	2.5		µg/L	5	12/27/2013 12:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 8:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Manganese	ND	0.13	2.5		µg/L	5	12/27/2013 12:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-58BR-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 2:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Arsenic	0.97	0.027	0.10		µg/L	1	12/27/2013 12:31 PM
Manganese	660	0.13	2.5		µg/L	5	12/27/2013 12:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 6:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**				PrepDate: **12/20/2013**		Analyst: **CEI**
Arsenic	ND	0.13	0.50		µg/L	5	12/27/2013 12:47 PM
Manganese	ND	0.13	2.5		µg/L	5	12/27/2013 12:47 PM
Molybdenum	16	3.8	12		µg/L	25	12/27/2013 03:03 PM
Selenium	ND	1.7	12		µg/L	25	12/27/2013 03:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-194
Lab Order:	N011661	**Collection Date:**	12/17/2013 11:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011661-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**				PrepDate:	**12/20/2013**	Analyst: **CEI**
Manganese	ND	0.13	2.5		µg/L	5	12/27/2013 01:10 PM
Molybdenum	14	0.76	2.5		µg/L	5	12/27/2013 01:10 PM
Selenium	18	0.34	2.5		µg/L	5	12/27/2013 01:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44662** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **PBW** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711760**

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-44662** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **LCSW** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.665	0.10	10.00	0	96.7	85	115				
Manganese	96.036	0.50	100.0	0	96.0	85	115				
Molybdenum	9.637	0.50	10.00	0	96.4	85	115				
Selenium	8.987	0.50	10.00	0	89.9	85	115				

Sample ID: **N011661-009A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.490	0.50	10.00	1.560	99.3	75	125				
Manganese	53.087	2.5	100.0	0	53.1	75	125				S
Molybdenum	24.161	2.5	10.00	13.69	105	75	125				
Selenium	28.749	2.5	10.00	17.93	108	75	125				

Sample ID: **N011661-009A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.999	0.50	10.00	1.560	94.4	75	125	11.49	4.36	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011661-009A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	53.375	2.5	100.0	0	53.4	75	125	53.09	0.541	20	S
Molybdenum	24.069	2.5	10.00	13.69	104	75	125	24.16	0.380	20	
Selenium	26.094	2.5	10.00	17.93	81.7	75	125	28.75	9.68	20	

Sample ID: **MB-44662** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91840**
Client ID: **PBW** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1712440**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	3.079	50									

Sample ID: **LCS-44662** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91840**
Client ID: **LCSW** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1712441**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	907.933	50	1000	0	90.8	85	115				

Sample ID: **N011661-009A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91840**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1712447**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	2472.479	1200	1000	1451	102	75	125				

Sample ID: **N011661-009A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91840**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1712448**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	2312.001	1200	1000	1451	86.1	75	125	2472	6.71	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/17/2013
COC Number: 34

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	TDS (SM2540C)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
MW-32-020-194	12/16/2013	13:34	Water	X		X			X	X		X	X	N011661-1	~~8~~	4
MW-36-100-194	12/16/2013	12:22	Water	X		X	X		X	X		X	X	-2	~~9~~	4
MW-64BR-194	12/16/2013	11:30	Water	X		X			X	X		X		-3	~~5~~	2
MW-123-194	12/17/2013	7:00	Water	X	X		X	X		X	X	X		-4	~~8~~	3
MW-20-130-194	12/17/2013	9:38	Water	X	X		X	X		X	X	X		-5	~~8~~	3
MW-50-200-194	12/17/2013	8:10	Water			X			X	X		X	X	-6	~~5~~	4
MW-58BR-194	12/17/2013	14:13	Water	X		X			X	X		X		-7	~~5~~	3
MW-66BR-270-194	12/17/2013	6:42	Water	X		X	X		X	X		X	X	-8	~~8~~	4
TW-01-194	12/17/2013	11:52	Water			X	X		X	X		X		-9	~~7~~	3
														TOTAL NUMBER OF CONTAINERS	30	

	Signatures	Date/Time
Approved by		12-17-13 1610
Sampled by		
Relinquished by		
Received by		17DEC13 1610
Relinquished by		17DEC17 1804
Received by		12/17/13 1804

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 3.5/5.9°C
Airbill No: IR2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody and Marion

Special Instructions:

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:	12/17/2013	Workorder:	N011661
Rep sample Temp (Deg C):	3.5/ 5.9	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 12/18/2013

Reviewed By: gsg 2013-12-20

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

18-Dec-13

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3C		
N011661-001C / MW-32-020-194	Water	12/16/2013 1:34:00 PM	32OZP	1		
N011661-002C / MW-36-100-194	Water	12/16/2013 12:22:00 PM	32OZP	1		
N011661-006C / MW-50-200-194	Water	12/17/2013 8:10:00 AM	32OZP	1		
N011661-008C / MW-66BR-270-194	Water	12/17/2013 6:42:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N01661 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Please analze for Ammonia by Sm4500. Please send report to CH2M Hill. Please bill ATL Inc.

QSO# 523994454

		Date/Time			Date/Time
Relinquished by:	HERSEY STAYNS	18DEC13 1118		**Received by:**	
Relinquished by:				**Received by:**	

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N011661-004B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(59.9926-59.9197)*1000000}{10}$$
$$= 7290.00 \text{ mg/L}$$

Reporting result in two significant figures,

12/20/2013

TDS = 7300.00mg/L

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/19/2013								TDS/CONDUCTIVITY
Date Finished: 12/20/2013	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-44654	100	60.6424	60.6423	-1	1	-1.00		
LCS-44654	100	61.1434	61.2405	971	1	971.00		
N011661-004B	10	59.9197	59.9926	729	10	7290.00	11800	0.62
N011661-004B-DUP	10	59.9954	60.0708	754	10	7540.00	11800	0.64
N011661-005B	10	64.2624	64.3369	745	10	7450.00	11950	0.62
N011666-007D	60	60.7843	60.8634	791	1.6666667	1318.33	2400	0.55
N011666-008D	60	61.7522	61.8302	780	1.6666667	1300.00	2420	0.54
N011666-009D	65	60.6304	60.7224	920	1.5384615	1415.38	2320	0.61

12/20/2013

Sample ID: **N011661-001B @ pH 7.15**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.60mL)

= **0.02155 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 $CaCO_3$), mg/L = (69.80) (0.02155 N) (1) * 1000

= 1504.19 **mg/L**

12/18/2013

Reporting results in two significant figures,

= 1500.00 **mg/L** as CaCO3

12/18/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02155 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (69.80 mL) (0.02155) (1) * 1000

= 1504.19 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	OH Alkalinity as $CaCO_3$	CO_3 Alkalinity as $CaCO_3$	HCO_3 Alkalinity as $CaCO_3$
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 1504.19 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

12/18/2013

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 1500.00 **mg/L**

12/18/2013

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Water

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the original sample as follows:

Sulfate, mg/L = A * DF

where :

A = mg/L, IC calculated concentration
DF = dilution factor

For **N011661-008B** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 5.528 * 50

= 276.4

Reporting result in two significant figures,

Sulfate, mg/L = 280

Nancy 1/3/2014

ANALYSIS RUN LOG

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Sodium concentration, in µg/L, in the original sample as follows:

Sodium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011661-001A**, the concentration in µg/L is calculated as follows:

Sodium, µg/L = 22.41379949 * 500 * (25/25) * 1000

= 11206899.745

Reporting results in two significant figures,

Sodium, µg/L = 11000000

Nancy 1/3/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011661
Test Method: EPA 6010
Analysis Date: 12/20/13

Matrix: Water
Batch No.: 44651

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test ~~is not applicable~~ failed for K. ~~The calculated concentration was < 25X the RL~~. However, the PS @5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011661-002A-DT 500X	Sodium	ug/L	1652054.666	PASSED	1803213.612	8.38%	10
N011661-002A-DT 25X	Potassium	ug/L	17528.69237	NA	15609.876165	12.29%	10

Note: NA - Not Applicable

Harvey 1/3/2014
for

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011661
Test Method: EPA 6010
Analysis Date: 12/20/13

Matrix: Water
Batch No.: 44651

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011661-001A-DT 25X	Calcium	ug/L	879910.340	PASSED	971022.761	9.38%	10
N011661-001A-DT 10X	Iron	ug/L	14579.82181	PASSED	13286.093626	9.74%	10
N011661-001A-DT 10X	Magnesium	ug/L	577074.283	PASSED	525653.968	9.78%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *26-Dec-13*

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011661-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91753**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1708837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	66791.050	2500	50000	15610	102	80	120				

Sample ID: **N011661-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91753**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1708841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2763481.043	50000	1000000	1803000	96.0	80	120				

Sample ID: **N011661-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91758**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	17797.795	40	5000	13290	90.2	80	120				
Magnesium	513949.855	200	5000	525700	-234	80	120				S

Sample ID: **N011661-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91758**
Client ID: **ZZZZZZ** Batch ID: **44651** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/20/2013** SeqNo: **1709171**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	925386.069	2500	12500	971000	-365	80	120				S

DT of Mg @10x and Ca @25x are within criteria

Mary 1/3/2014

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 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 **N011661-002A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 7.09416433071808 * 1 * (25/25)

= 7.09416433071808

Reporting results in two significant figures,

Arsenic, ug/L = 7.1

Nancy 1/3/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011661
Test Method: EPA 6020
Analysis Date: 12/27/13

Matrix: Water
Batch No.: 44662

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As and Mn. The calculated values are <25X RL. PS @5X passed criteria.
~~Dilution test is not applicable to B. The calculated value is <25X RL. PS @25X passed criteria.~~

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011661-009A-DT 25X	Arsenic	µg/L	0.827208369	NA	1.560347445	46.99%	10
N011661-009A-DT 25X	Manganese	µg/L	0	NA	0		10
N011661-009A-DT 25X	Molybdenum	µg/L	14.11005847	PASS	13.68700989	3.09%	10
N011661-009A-DT 25X	Selenium	µg/L	16.7662431	PASS	17.92515543	6.47%	10
N011661-009A-DT 125X	Boron	µg/L	1433.954563	NA	1450.740778	1.16%	10

Note: NA - Not applicable

Nancy 1/3/2014

FOR

CLIENT: CH2M HILL
Work Order: N011661
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011661-009A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91835**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.849	0.50	50.00	1.560	96.6	80	120				
Manganese	411.130	2.5	500.0	0	82.2	80	120				
Molybdenum	67.460	2.5	50.00	13.69	108	80	120				
Selenium	68.751	2.5	50.00	17.93	102	80	120				

Sample ID: **N011661-009A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91840**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1712446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	25421.305	1200	25000	1451	95.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

January 06, 2014

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N011683

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 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.01
Lab Order: N011683

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium and Calcium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011683-001, N011683-002 due to failed Internal Standards when samples were analyzed at no dilution.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Advanced Technology Laboratories, Inc. *3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691*

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N011683
Contract No: 2013-GMP-194-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011683-001A	MW-68BR-280-194	Water	12/18/2013 9:30:00 AM	12/19/2013	1/6/2014
N011683-001B	MW-68BR-280-194	Water	12/18/2013 9:30:00 AM	12/19/2013	1/6/2014
N011683-001C	MW-68BR-280-194	Water	12/18/2013 9:30:00 AM	12/19/2013	1/6/2014
N011683-002A	PGE-08-194	Water	12/18/2013 4:06:00 PM	12/19/2013	1/6/2014
N011683-002B	PGE-08-194	Water	12/18/2013 4:06:00 PM	12/19/2013	1/6/2014
N011683-003A	MW-14-194	Water	12/19/2013 10:40:00 AM	12/19/2013	1/6/2014
N011683-003B	MW-14-194	Water	12/19/2013 10:40:00 AM	12/19/2013	1/6/2014
N011683-004A	PM-03-194	Water	12/19/2013 12:34:00 PM	12/19/2013	1/6/2014
N011683-004B	PM-03-194	Water	12/19/2013 12:34:00 PM	12/19/2013	1/6/2014
N011683-004C	PM-03-194	Water	12/19/2013 12:34:00 PM	12/19/2013	1/6/2014
N011683-005A	PM-04-194	Water	12/19/2013 12:19:00 PM	12/19/2013	1/6/2014
N011683-005B	PM-04-194	Water	12/19/2013 12:19:00 PM	12/19/2013	1/6/2014
N011683-005C	PM-04-194	Water	12/19/2013 12:19:00 PM	12/19/2013	1/6/2014
N011683-006A	TW-02D-194	Water	12/19/2013 1:56:00 PM	12/19/2013	1/6/2014
N011683-006B	TW-02D-194	Water	12/19/2013 1:56:00 PM	12/19/2013	1/6/2014
N011683-007A	TW-02S-194	Water	12/19/2013 1:47:00 PM	12/19/2013	1/6/2014
N011683-007B	TW-02S-194	Water	12/19/2013 1:47:00 PM	12/19/2013	1/6/2014

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68BR-280-194
Lab Order:	N011683	**Collection Date:**	12/18/2013 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131220B**	QC Batch: **R91736**			PrepDate:			Analyst: **LCC**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-08-194
Lab Order:	N011683	**Collection Date:**	12/18/2013 4:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131220B**	QC Batch: **R91736**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131220B**	QC Batch: **R91736**			PrepDate:			Analyst: **LCC**
Specific Conductance	1700	0.10	0.10		umhos/cm	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-03-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131220B**	QC Batch: **R91736**			PrepDate:			Analyst: **LCC**
Specific Conductance	1200	0.10	0.10		umhos/cm	1	12/20/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-04-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:19:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131220B**	QC Batch: **R91736**			PrepDate:			Analyst: **LCC**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02D-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131220B**	QC Batch: **R91736**			PrepDate:			Analyst: **LCC**
Specific Conductance	8000	0.10	0.10		umhos/cm	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02S-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_131220B**	QC Batch: **R91736**			PrepDate:			Analyst: **LCC**
Specific Conductance	5400	0.10	0.10		umhos/cm	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011683-007B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **91736**
Client ID: **ZZZZZZ** Batch ID: **R91736** TestNo: **EPA 120.1** Analysis Date: **12/20/2013** SeqNo: **1708324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5380.000	0.10						5420	0.741	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68BR-280-194
Lab Order:	N011683	**Collection Date:**	12/18/2013 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131220D**	QC Batch: **R91743**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	25	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Total (As CaCO3)	25	1.2	5.0		mg/L	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-08-194
Lab Order:	N011683	**Collection Date:**	12/18/2013 4:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131220D**	QC Batch: **R91743**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	52	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Total (As CaCO3)	52	1.2	5.0		mg/L	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131220D**	QC Batch: **R91743**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	86	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Total (As CaCO3)	86	1.2	5.0		mg/L	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-03-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131220D**	QC Batch: **R91743**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	95	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Total (As CaCO3)	95	1.2	5.0		mg/L	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-04-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:19:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131220D**	QC Batch: **R91743**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	65	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Total (As CaCO3)	65	1.2	5.0		mg/L	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02D-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131220D**	QC Batch: **R91743**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	180	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Total (As CaCO3)	180	1.2	5.0		mg/L	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02S-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_131220D**	QC Batch: **R91743**			PrepDate:			Analyst: **LCC**
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2013
Alkalinity, Total (As CaCO3)	140	1.2	5.0		mg/L	1	12/20/2013

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R91743** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91743**
Client ID: **LCSW** Batch ID: **R91743** TestNo: **SM 2320 B** Analysis Date: **12/20/2013** SeqNo: **1708456**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	105.856	5.0	100.0	0	106	85	115				
Alkalinity, Total (As CaCO3)	105.856	5.0	100.0	0	106	85	115				

Sample ID: **MB-R91743** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91743**
Client ID: **PBW** Batch ID: **R91743** TestNo: **SM 2320 B** Analysis Date: **12/20/2013** SeqNo: **1708457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.252	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.252	5.0									

Sample ID: **N011683-001B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91743**
Client ID: **ZZZZZZ** Batch ID: **R91743** TestNo: **SM 2320 B** Analysis Date: **12/20/2013** SeqNo: **1708459**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	24.775	5.0						24.77	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)	24.775	5.0						24.77	0	30	

Sample ID: **N011683-002B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91743**
Client ID: **ZZZZZZ** Batch ID: **R91743** TestNo: **SM 2320 B** Analysis Date: **12/20/2013** SeqNo: **1708461**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	150.901	5.0	100.0	51.80	99.1	75	125				
Alkalinity, Total (As CaCO3)	150.901	5.0	100.0	51.80	99.1	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N011683-002B-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **91743**
Client ID: **ZZZZZZ** Batch ID: **R91743** TestNo: **SM 2320 B** Analysis Date: **12/20/2013** SeqNo: **1708462**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	150.901	5.0	100.0	51.80	99.1	75	125	150.9	0	20	
Alkalinity, Total (As CaCO3)	150.901	5.0	100.0	51.80	99.1	75	125	150.9	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68BR-280-194
Lab Order:	N011683	**Collection Date:**	12/18/2013 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	6900	52	1000		mg/L	2000	12/21/2013 12:43 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	720	3.8	50		mg/L	100	12/21/2013 01:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT: CH2M HILL
Lab Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011683-002

Client Sample ID: PGE-08-194
Collection Date: 12/18/2013 4:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	6000	52	1000		mg/L	2000	12/20/2013 08:18 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	1800	7.6	100		mg/L	200	12/21/2013 05:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	410	2.6	50		mg/L	100	12/21/2013 01:46 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	100	0.38	5.0		mg/L	10	12/21/2013 01:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-03-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	290	2.6	50		mg/L	100	12/21/2013 02:11 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	61	0.38	5.0		mg/L	10	12/21/2013 01:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-04-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:19:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	530	2.6	50		mg/L	100	12/21/2013 02:37 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	110	0.38	5.0		mg/L	10	12/21/2013 02:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02D-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	2400	26	500		mg/L	1000	12/21/2013 03:14 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	490	3.8	50		mg/L	100	12/21/2013 02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02S-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Chloride	850	2.6	50		mg/L	100	12/21/2013 03:02 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_131220B** QC Batch: **R91813** PrepDate: Analyst: **PN**							
Sulfate	230	0.76	10		mg/L	20	12/21/2013 03:52 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R91813_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **LCSW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711075**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.337	0.50	2.500	0	93.5	90	110				

Sample ID: **MB-R91813_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **PBW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711076**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **N011661-004BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5676.000	500	2500	3168	100	80	120				

Sample ID: **N011661-004BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711087**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5680.000	500	2500	3168	100	80	120	5676	0.0704	20	

Sample ID: **N011661-004BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711088**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3185.000	500						3168	0.535	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N011683-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/21/2013** SeqNo: **1711096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10896.000	1000	5000	6024	97.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R91813_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **LCSW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.770	0.50	5.000	0	95.4	90	110				

Sample ID: **MB-R91813_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **PBW** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711114**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **N011661-004BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1667.800	50	500.0	1128	108	80	120				

Sample ID: **N011661-004BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1649.800	50	500.0	1128	104	80	120	1668	1.09	20	

Sample ID: **N011661-004BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/20/2013** SeqNo: **1711394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1121.200	50						1128	0.640	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N011683-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **91813**
Client ID: **ZZZZZZ** Batch ID: **R91813** TestNo: **EPA 300.0** Analysis Date: **12/21/2013** SeqNo: **1711401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	2883.400	100	1000	1845	104	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68BR-280-194
Lab Order:	N011683	**Collection Date:**	12/18/2013 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131223C**	QC Batch: **44670**			PrepDate:	**12/20/2013**		Analyst: **JAA**
Calcium	390000	58	500		ug/L	1	12/23/2013 07:35 PM
Iron	ND	1.3	20		ug/L	1	12/23/2013 07:35 PM
Magnesium	4900	11	100		ug/L	1	12/23/2013 07:35 PM
Sodium	4400000	15000	100000		ug/L	200	12/26/2013 04:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT: CH2M HILL
Lab Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011683-002

Client Sample ID: PGE-08-194
Collection Date: 12/18/2013 4:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131226A**	QC Batch: **44670**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Calcium	760000	290	2500		ug/L	5	12/26/2013 11:22 AM
Iron	64	1.3	20		ug/L	1	12/23/2013 08:10 PM
Magnesium	18000	11	100		ug/L	1	12/23/2013 08:10 PM
Sodium	3800000	15000	100000		ug/L	200	12/26/2013 04:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131223C**	QC Batch: **44670**				PrepDate: **12/20/2013**		Analyst: **JAA**
Calcium	77000	58	500		ug/L	1	12/23/2013 08:15 PM
Iron	ND	1.3	20		ug/L	1	12/23/2013 08:15 PM
Magnesium	11000	11	100		ug/L	1	12/23/2013 08:15 PM
Sodium	270000	7300	50000		ug/L	100	12/26/2013 03:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT: CH2M HILL
Lab Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N011683-004

Client Sample ID: PM-03-194
Collection Date: 12/19/2013 12:34:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131223C**	QC Batch: **44670**				PrepDate: **12/20/2013**		Analyst: **JAA**
Calcium	72000	58	500		ug/L	1	12/23/2013 08:20 PM
Iron	65	1.3	20		ug/L	1	12/23/2013 08:20 PM
Magnesium	14000	11	100		ug/L	1	12/23/2013 08:20 PM
Sodium	150000	7300	50000		ug/L	100	12/26/2013 03:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-04-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:19:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131223C**	QC Batch: **44670**				PrepDate: **12/20/2013**		Analyst: **JAA**
Calcium	97000	58	500		ug/L	1	12/23/2013 08:24 PM
Iron	120	1.3	20		ug/L	1	12/23/2013 08:24 PM
Magnesium	18000	11	100		ug/L	1	12/23/2013 08:24 PM
Sodium	280000	7300	50000		ug/L	100	12/26/2013 03:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02D-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131223C**	QC Batch: **44670**			PrepDate:	**12/20/2013**		Analyst: **JAA**
Calcium	250000	58	500		ug/L	1	12/23/2013 08:28 PM
Iron	ND	1.3	20		ug/L	1	12/23/2013 08:28 PM
Magnesium	37000	11	100		ug/L	1	12/23/2013 08:28 PM
Sodium	1700000	7300	50000		ug/L	100	12/26/2013 04:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02S-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_131223C**	QC Batch: **44670**				PrepDate: **12/20/2013**		Analyst: **JAA**
Calcium	74000	58	500		ug/L	1	12/23/2013 08:34 PM
Iron	ND	1.3	20		ug/L	1	12/23/2013 08:34 PM
Magnesium	17000	11	100		ug/L	1	12/23/2013 08:34 PM
Sodium	370000	7300	50000		ug/L	100	12/26/2013 04:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *06-Jan-14*

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-44670** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/20/2013** RunNo: **91796**
Client ID: **LCSW** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/23/2013** SeqNo: **1710346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	8822.544	500	10000	0	88.2	85	115				
Iron	108.196	20	100.0	0	108	85	115				
Magnesium	9319.875	100	10000	0	93.2	85	115				

Sample ID: **N011683-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/20/2013** RunNo: **91796**
Client ID: **ZZZZZZ** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/23/2013** SeqNo: **1710350**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	413869.579	500	10000	386800	271	75	125				S
Iron	113.776	20	100.0	12.38	101	75	125				
Magnesium	13810.381	100	10000	4881	89.3	75	125				

Sample ID: **N011683-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/20/2013** RunNo: **91796**
Client ID: **ZZZZZZ** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/23/2013** SeqNo: **1710351**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	394686.747	500	10000	386800	78.7	75	125	413900	4.74	20	
Iron	110.153	20	100.0	12.38	97.8	75	125	113.8	3.24	20	
Magnesium	13668.890	100	10000	4881	87.9	75	125	13810	1.03	20	

Sample ID: **MB-44670** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/20/2013** RunNo: **91796**
Client ID: **PBW** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/23/2013** SeqNo: **1710360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	13.570	20									
Magnesium	ND	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-44670** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/20/2013** RunNo: **91809**
Client ID: **PBW** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2013** SeqNo: **1710901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS2-44670** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/20/2013** RunNo: **91809**
Client ID: **LCSW** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2013** SeqNo: **1710902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20010.242	500	20000	0	100	85	115				

Sample ID: **N011683-002A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/20/2013** RunNo: **91809**
Client ID: **ZZZZZZ** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2013** SeqNo: **1710916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	4323870.692	100000	20000	3758000	2830	75	125				S

Sample ID: **N011683-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/20/2013** RunNo: **91809**
Client ID: **ZZZZZZ** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2013** SeqNo: **1710917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	4190981.976	100000	20000	3758000	2170	75	125	4324000	3.12	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68BR-280-194
Lab Order:	N011683	**Collection Date:**	12/18/2013 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**				PrepDate: **12/20/2013**		Analyst: **CEI**
Arsenic	1.4	0.13	0.50		µg/L	5	12/27/2013 03:08 PM
Manganese	74	0.13	2.5		µg/L	5	12/27/2013 03:08 PM
Molybdenum	73	0.76	2.5		µg/L	5	12/27/2013 03:08 PM
Selenium	ND	1.7	12		µg/L	25	12/27/2013 03:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-08-194
Lab Order:	N011683	**Collection Date:**	12/18/2013 4:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Manganese	480	0.13	2.5		µg/L	5	12/27/2013 03:19 PM
Molybdenum	100	0.76	2.5		µg/L	5	12/27/2013 03:19 PM
Selenium	ND	1.7	12		µg/L	25	12/27/2013 03:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/27/2013 01:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-03-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/27/2013 02:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-04-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 12:19:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/27/2013 02:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02D-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/27/2013 02:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *06-Jan-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02S-194
Lab Order:	N011683	**Collection Date:**	12/19/2013 1:47:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N011683-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_131227A**	QC Batch: **44662**			PrepDate:	**12/20/2013**		Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	12/27/2013 02:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-44662** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **PBW** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711760**

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-44662** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **LCSW** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.665	0.10	10.00	0	96.7	85	115				
Manganese	96.036	0.50	100.0	0	96.0	85	115				
Molybdenum	9.637	0.50	10.00	0	96.4	85	115				
Selenium	8.987	0.50	10.00	0	89.9	85	115				

Sample ID: **N011661-009A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.490	0.50	10.00	1.560	99.3	75	125				
Manganese	53.087	2.5	100.0	0	53.1	75	125				S
Molybdenum	24.161	2.5	10.00	13.69	105	75	125				
Selenium	28.749	2.5	10.00	17.93	108	75	125				

Sample ID: **N011661-009A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.999	0.50	10.00	1.560	94.4	75	125	11.49	4.36	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DQ	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011661-009A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/20/2013** RunNo: **91835**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	53.375	2.5	100.0	0	53.4	75	125	53.09	0.541	20	S
Molybdenum	24.069	2.5	10.00	13.69	104	75	125	24.16	0.380	20	
Selenium	26.094	2.5	10.00	17.93	81.7	75	125	28.75	9.68	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date:
COC Number: ATL-GMP194

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly		Number of Containers	COMMENTS
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	NA	NA	NA	NA			
			Holding Time:	180	180	180	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) FF	Metals (SW6010B/SW6020Adis) FF Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) FF Mo,Se	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)			
MW-68BR-280-194	12/18/2013	9:30	Water	X	X	X	X	X	X	X	N0116683-1	~~8~~	4
PGE-08-194	12/18/2013	16:06	Water		X	X	X	X	X		-2	~~7~~	3
MW-14-194	12/19/2013	10:40	Water		X		X	X	X		-3	~~4~~	3
PM-03-194	12/19/2013	12:34	Water		X		X	X	X	X	-4	~~5~~	4 pH
PM-04-194	12/19/2013	12:19	Water		X		X	X	X	X	-5	~~5~~	4
TW-02D-194	12/19/2013	13:56	Water		X		X	X	X		-6	~~4~~	3
TW-02S-194	12/19/2013	13:47	Water		X		X	X	X		-7	~~4~~	3
											TOTAL NUMBER OF CONTAINERS	24	

	Signatures	Date/Time
Approved by		12-19-13 1500
Sampled by		
Relinquished by		
Received by		12/19/13 1500
Relinquished by		12/19/13 AM
Received by		12/19/13

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) / no 3.5°C / 3.5°C
Airbill No: 1 A+2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

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:	12/19/2013	Workorder:	N011683
Rep sample Temp (Deg C):	3.5 , 3.8	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 12/20/2013

Reviewed By: 2013-12-24

Advanced Technology Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

20-Dec-13

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
N011683-001C / MW-68BR-280-194	Water	12/18/2013 9:30:00 AM	32OZP	1		
N011683-004C / PM-03-194	Water	12/19/2013 12:34:00 PM	32OZP	1		
N011683-005C / PM-04-194	Water	12/19/2013 12:19:00 PM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#:N011683 For questions, call Marlon at (702)-307-2659. Please e-mail results to marlon@atl-labs.com by:Normal TAT
Please analyze for Ammonia by SM4500. Please send report to CH2M HILL. Bill ATL Inc.

	Date/Time		Date/Time
Relinquished by: Hanah Glodoviza	12/23/2013 17:00	**Received by:** GSO # 523531703	
Relinquished by:		**Received by:**	

Sample ID: **N011683-001B @ pH 8.23**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.10mL)

= **0.02252 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 $CaCO_3$), mg/L = (1.10) (0.02252 N) (1) * 1000

= 24.77 **mg/L**

Reporting results in two significant figures,

= 25.00 **mg/L** as CaCO3

12/20/2013

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02252 N) (1) * 1000

= 0

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (1.10 mL) (0.02252) (1) * 1000

= 24.77 **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_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	OH Alkalinity as $CaCO_3$	CO_3 Alkalinity as $CaCO_3$	HCO_3 Alkalinity as $CaCO_3$
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 24.77 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 25.00 **mg/L**

12/20/2013

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Water

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the original sample as follows:

Sulfate, mg/L = A * DF

where :

A = mg/L, IC calculated concentration
DF = dilution factor

For **N011683-001B** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 7.167 * 100

= 716.7

Reporting result in two significant figures,

Sulfate, mg/L = 720

Morey 1/6/2014

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Magnesium concentration, in µg/L, in the original sample as follows:

Magnesium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample mL
CF = Conversion Factor

For Sample **N011683-001A**, the concentration in µg/L is calculated as follows:

Magnesium, µg/L = 4.8807129 * 1 * (25/25) * 1000

= 4880.7129

Reporting results in two significant figures,

Magnesium, µg/L = 4900

Nancy 1/6/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011683
Test Method: EPA 6010
Analysis Date: 12/23/13

Matrix: Water
Batch No.: 44670

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Jasper A. Aquino

Dilution Test is not applicable for Fe. The calculated concentration was < 25X the RL. Dilution Test failed for Mg.
However the PS @2X for Fe and Mg passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011683-001A-DT 5X	Calcium	ug/L	394897.65545	PASS	386813.09010	2.09%	10
N011683-001A-DT 5X	Iron	ug/L	13.58221773	NA	12.38461178	9.67%	10
N011683-001A-DT 5X	Magnesium	ug/L	6341.67507	FAILED	4880.71290	29.93%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011683
Test Method: EPA 6010
Analysis Date: 12/26/13

Matrix: Water
Batch No.: 44670

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test for Na failed. However the PS @200X passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N011683-002A-DT 1000X	Sodium	ug/L	4157209.387	FAIL	3757832.348	10.63%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *27-Dec-13*

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N011683-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91796**
Client ID: **ZZZZZZ** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/23/2013** SeqNo: **1710349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	383671.379	1000	5000	386800	-62.8	80	120				S
Iron	5637.548	40	5000	12.38	113	80	120				
Magnesium	10668.146	200	5000	4881	116	80	120				

Sample ID: **N011683-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **91809**
Client ID: **ZZZZZZ** Batch ID: **44670** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2013** SeqNo: **1710915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	5594881.786	100000	2000000	3758000	91.9	80	120				

DT of Ca @5x is within criteria

Nancy 1/6/2014

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 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 **N011683-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 0.278091983027482 * 5 * (25/25)

= 1.39045991513741

Reporting results in two significant figures,

Arsenic, ug/L = 1.4

1/6/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011683
Test Method: EPA 6020
Analysis Date: 12/27/13

Matrix: Water
Batch No.: 44662

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As and Mn. The calculated values are <25X RL. PS @5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011661-009A-DT 25X	Arsenic	µg/L	0.827208369	NA	1.560347445	46.99%	10
N011661-009A-DT 25X	Manganese	µg/L	0	NA	0		10
N011661-009A-DT 25X	Molybdenum	µg/L	14.11005847	PASS	13.68700989	3.09%	10
N011661-009A-DT 25X	Selenium	µg/L	16.7662431	PASS	17.92515543	6.47%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *29-Dec-13*

CLIENT: CH2M HILL
Work Order: N011683
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011661-009A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **91835**
Client ID: **ZZZZZZ** Batch ID: **44662** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/27/2013** SeqNo: **1711813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.849	0.50	50.00	1.560	96.6	80	120				
Manganese	411.130	2.5	500.0	0	82.2	80	120				
Molybdenum	67.460	2.5	50.00	13.69	108	80	120				
Selenium	68.751	2.5	50.00	17.93	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CH2MHILL

CHAIN OF CUSTODY RECORD

810979

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/5/2013
COC Number: 4

			Container:	250 ml Poly			
			Preservatives:	4°C			
			Filtered:	NA			
			Holding Time:	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)	Zymax ID	Number of Containers	COMMENTS
MW-30-050-194	11/4/2013	16:08	Water	X	43356-1	1	
					TOTAL NUMBER OF CONTAINERS		

	Signatures	Date/Time
Approved by		11-5-13
Sampled by		1455
Relinquished by		11-5-13
Received by		14-55
Relinquished by		11-5-13 1940
Received by		11/5/13 1940
	11-5-13 1940	11-24/13 1:20

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: November 21st, 2013
Date Reported: January 9th, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43356-1	MW-30-050-194	-12.63	-100.98
	Analytical Precision (1σ)	0.08	0.40

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.65	-36.48
QC-02	-4.77	-37.04
Mean	-4.71	-36.76
Analytical Precision (1σ)	0.08	0.40

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen
3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N
Gas Sample
Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas
Water and Dissolved Inorganics
^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate
Soil and Minerals
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics
Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL

CHAIN OF CUSTODY RECORD

810 987

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/19/2013
COC Number: 15

				Container:	250 ml Poly			
				Preservatives:	4°C			
				Filtered:	NA			
				Holding Time:	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)	Zymax ID		Number of Containers	COMMENTS
MW-35-060-194	11/12/2013	14:04	Water	x	43357-1		1	
MW-35-135-194	11/12/2013	14:52	Water	x	-2		1	
MW-39-070-194	11/12/2013	9:35	Water	x	-3		1	
MW-39-080-194	11/12/2013	13:20	Water	x	-4		1	
MW-47-055-194	11/12/2013	10:56	Water	x	-5		1	
MW-47-115-194	11/12/2013	12:10	Water	x	-6		1	
						TOTAL NUMBER OF CONTAINERS	6	

	Signatures	Date/Time
Approved by		11-19-13
Sampled by		1510
Relinquished by		11-19-13
Received by		1510
Relinquished by		11-19-13 1940
Received by		11/19/13 1940
		11/20/13 1445

Shipping Details

Method of Shipment: courier
On Ice: (yes) no
Airbill No: N/A
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:

Sample Custody
and
Michael Ng

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: November 21st, 2013
Date Reported: January 9th, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43357-1	MW-35-060-194	-9.20	-71.80
43357-2	MW-35-135-194	-10.14	-78.65
43357-3	MW-39-070-194	-12.14	-96.26
43357-4	MW-39-080-194	-11.63	-92.93
43357-5	MW-47-055-194	-10.11	-78.05
43357-6	MW-47-115-194	-9.06	-70.06
	Analytical Precision (1σ)	0.08	0.40

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.65	-36.48
QC-02	-4.77	-37.04
Mean	-4.71	-36.76
Analytical Precision (1σ)	0.08	0.40

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen
3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N
Gas Sample
Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas
Water and Dissolved Inorganics
^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate
Soil and Minerals
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics
Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL

CHAIN OF CUSTODY RECORD 810988

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 11/12/2013
COC Number: 6

				Container:	250 ml Poly			
				Preservatives:	4°C			
				Filtered:	NA			
				Holding Time:	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)	Zymax ID		Number of Containers	COMMENTS
MW-42-030-194	11/5/2013	13:16	Water	x	43358-1		1	
MW-42-055-194	11/5/2013	13:52	Water	x	-2		1	
MW-42-065-194	11/5/2013	14:34	Water	x	-3		1	
MW-32-035-194	11/6/2013	16:51	Water	x	-4		1	
MW-49-135-194	11/6/2013	11:06	Water	x	-5		1	
MW-49-275-194	11/6/2013	14:07	Water	x	-6		1	
MW-31-135-194	11/7/2013	15:45	Water	x	-7		1	
MW-49-365-194	11/7/2013	10:04	Water	x	-8		1	
MW-36-090-194	11/11/2013	13:05	Water	x	-9		1	
						TOTAL NUMBER OF CONTAINERS	9	

	Signatures	Date/Time
Approved by		11-12-13
Sampled by		1600
Relinquished by		11-12-13
Received by		1600
Relinquished by		11-12-13 2000
Received by		11/12/13 2005
		11/21/13 1210

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: November 21st, 2013
Date Reported: January 9th, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43358-1	MW-42-030-194	-11.35	-94.45
43358-2	MW-42-055-194	-11.68	-95.07
43358-3	MW-42-065-194	-12.24	-95.66
43358-4	MW-32-035-194	-10.97	-87.16
43358-5	MW-49-135-194	-10.10	-78.50
43358-6	MW-49-275-194	-10.55	-80.37
43358-7	MW-31-135-194	-9.45	-74.52
43358-8	MW-49-365-194	-10.37	-79.36
43358-9	MW-36-090-194	-12.10	-98.27
	Analytical Precision (1σ)	0.08	0.40

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.65	-36.48
QC-02	-4.77	-37.04
Mean	-4.71	-36.76
Analytical Precision (1σ)	0.08	0.40

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen
3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N
Gas Sample
Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas
Water and Dissolved Inorganics
^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate
Soil and Minerals
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics
Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL

CHAIN OF CUSTODY RECORD

211165

11/21/2013 2:03:32 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2013-RMP-193
Turnaround Time ~~21 Days~~ 2 month
Shipping Date: 10/22/2013
COC Number: Zym-RMP193

			Container:	250 ml Poly			
			Preservatives:	4°C			
			Filtered:	NA			
			Holding Time:	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)	Zymax ID	Number of Containers	COMMENTS
R-28-193	11/21/2013	8:23	Water	x	43374-1	1	
					TOTAL NUMBER OF CONTAINERS	1	

	Signatures	Date/Time
Approved by		11-21-13
Sampled by		1535
Relinquished by		11-21-13
Received by	Eduardo Vargo	1535
Relinquished by	Eduardo Vargo	11-21-13 1810 2015
Received by	Marchand Brad	11-22-13 2015
		12/5/13 10:20

Shipping Details

Method of Shipment: ~~FedEx~~ Courier
On Ice: (yes) no
Airbill No: N/A
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:

Sample Custody
and
Michael Ng

Special Instructions:

Nov 4-6, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 5th, 2013
Date Reported: January 31st, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43374-1	R-28-193	-12.79	-103.05
	Analytical Precision (1σ)	0.11	0.45

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.75	-36.32
QC-02	-4.60	-36.95
Mean	-4.68	-36.64
Analytical Precision (1σ)	0.11	0.45

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen

3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N

Gas Sample

Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Water and Dissolved Inorganics

^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S

^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals

^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics

Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL

CHAIN OF CUSTODY RECORD

811166

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time ~~10 Days~~ 2 month
Shipping Date: 11/21/2013
COC Number: 19

			Container:	250 ml Poly			
			Preservatives:	4°C			
			Filtered:	NA			
			Holding Time:	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)	Zymax ID	Number of Containers	COMMENTS
MW-34-055-194	11/20/2013	10:22	Water	x	423375-1	1	
MW-34-080-194	11/20/2013	11:45	Water	x	-2	1	
MW-34-100-194	11/20/2013	12:45	Water	x	-3	1	
MW-46-175-194	11/20/2013	14:56	Water	x	-4	1	
MW-93-194	11/20/2013	7:00	Water	x	-5	1	
MW-94-194	11/20/2013	7:30	Water	x	-6	1	
					TOTAL NUMBER OF CONTAINERS	6	

	Signatures	Date/Time
Approved by		11-21-13
Sampled by		1535
Relinquished by		11-21-13
Received by	Edward Ngo	1535
Relinquished by	Edward Ngo	11-21-13 2015
Received by	Marshall Brady	11/21/13 2015
		12/5/13 10:20

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no
Airbill No: N/A
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 5th, 2013
Date Reported: January 31st, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43375-1	MW-34-055-194	-13.09	-103.32
43375-2	MW-34-080-194	-11.43	-87.99
43375-3	MW-34-100-194	-10.18	-78.90
43375-4	MW-46-175-194	-10.18	-79.51
43375-5	MW-93-194	-11.18	-88.36
43375-6	MW-94-194	-9.81	-79.33
	Analytical Precision (1σ)	0.11	0.45

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.75	-36.32
QC-02	-4.60	-36.95
Mean	-4.68	-36.64
Analytical Precision (1σ)	0.11	0.45

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen

3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N

Gas Sample

Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Water and Dissolved Inorganics

^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S

^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals

^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics

Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL

CHAIN OF CUSTODY RECORD

811167

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time ~~10 Days~~ → 2 mo ah
Shipping Date: 12/3/2013
COC Number: 23

Container:	250 ml Poly
Preservatives:	4°C
Filtered:	NA
Holding Time:	NA

	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)	Zymax ID	Number of Containers	COMMENTS
MW-124-194	12/2/2013	10:15	Water	X	43376 - 1	1	
MW-44-070-194	12/2/2013	10:32	Water	X	- 2	1	
MW-44-115-194	12/2/2013	13:53	Water	X	- 3	1	
MW-44-125-194	12/2/2013	12:37	Water	X	- 4	1	
					TOTAL NUMBER OF CONTAINERS	4	

	Signatures	Date/Time
Approved by		12-3-13
Sampled by		1700
Relinquished by		
Received by	Shawn Ryo	12-3-13 1830
Relinquished by	Shawn Ryo	12-3-13 2300
Received by		12/3/13
		12/5/13 16:20

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 5th, 2013
Date Reported: January 31st, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43376-1	MW-124-194	-10.46	-82.86
43376-2	MW-44-070-194	-12.06	-97.56
43376-3	MW-44-115-194	-10.29	-81.86
43376-4	MW-44-125-194	-10.65	-83.10
	Analytical Precision (1σ)	0.11	0.45

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.75	-36.32
QC-02	-4.60	-36.95
Mean	-4.68	-36.64
Analytical Precision (1σ)	0.11	0.45

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen

3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N

Gas Sample

Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Water and Dissolved Inorganics

^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S

^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals

^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics

Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL

CHAIN OF CUSTODY RECORD

811511

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/10/2013
COC Number: 27

				Container:	250 ml Poly			
				Preservatives:	4°C			
				Filtered:	NA			
				Holding Time:	NA			
	DATE	TIME	Matrix		Oxy_Deut (CF-IRMS)	Zymax ID 43408	Number of Containers	COMMENTS
MW-31-060-194	12/3/2013	15:35	Water		x	1	1	
MW-33-090-194	12/3/2013	11:07	Water		x	2	1	
MW-33-150-194	12/3/2013	12:35	Water		x	3	1	
MW-33-210-194	12/3/2013	13:44	Water		x	4	1	
MW-92-194	12/3/2013	10:27	Water		x	5	1	
MW-100-194	12/4/2013	7:52	Water		x	6	1	
MW-26-194	12/4/2013	11:08	Water		x	7	1	
MW-39-100-194	12/4/2013	8:41	Water		x	8	1	
MW-25-194	12/9/2013	15:31	Water		x	9	1	
						TOTAL NUMBER OF CONTAINERS	9	

	Signatures	Date/Time
Approved by		12-10-13
Sampled by		1525
Relinquished by		12-10-13
Received by		1525
Relinquished by		12-10-13 1930
Received by		12/10/13 1930
		12/22/13 10:50

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No: N/A
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 27th, 2013
Date Reported: January 29th, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43408-1	MW-31-060-194	-8.56	-66.39
43408-2	MW-33-090-194	-9.74	-76.95
43408-3	MW-33-150-194	-10.30	-79.68
43408-4	MW-33-210-194	-10.46	-81.24
43408-5	MW-92-194	-11.01	-82.58
43408-6	MW-100-194	-10.38	-80.92
43408-7	MW-26-194	-8.41	-64.08
43408-8	MW-39-100-194	-10.41	-80.70
43408-9	MW-25-194	-9.02	-68.72
	Analytical Precision (1σ)	0.11	0.45

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.75	-36.32
QC-02	-4.60	-36.95
Mean	-4.68	-36.64
Analytical Precision (1σ)	0.11	0.45

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen
3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N
Gas Sample
Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas
Water and Dissolved Inorganics
^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate
Soil and Minerals
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics
Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL

CHAIN OF CUSTODY RECORD

811512

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date: 12/17/2013
COC Number: 33

			Container:	250 ml Poly			
			Preservatives:	4°C			
			Filtered:	NA			
			Holding Time:	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)	Zymax ID 43409	Number of Containers	COMMENTS
MW-20-070-194	12/11/2013	8:40	Water	X	1	1	
MW-20-100-194	12/11/2013	9:52	Water	X	2	1	
MW-36-100-194	12/16/2013	12:22	Water	X	3	1	
					TOTAL NUMBER OF CONTAINERS	3	

	Signatures	Date/Time
Approved by		12-17-13
Sampled by		1525
Relinquished by		12-17-13
Received by	Michael Ngo	1525
Relinquished by	Michael Ngo	12-17-13 1940
Received by	Sam Cook	12/17/13 1940
		12/17/13 10:50

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 27th, 2013
Date Reported: January 27th, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43409-1	MW-20-070-194	-8.12	-63.88
43409-2	MW-20-100-194	-7.46	-55.86
43409-3	MW-36-100-194	-11.19	-88.64
	Analytical Precision (1σ)	0.11	0.45

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.75	-36.32
QC-02	-4.60	-36.95
Mean	-4.68	-36.64
Analytical Precision (1σ)	0.11	0.45

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen
3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N
Gas Sample
Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas
Water and Dissolved Inorganics
^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate
Soil and Minerals
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics
Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL

CHAIN OF CUSTODY RECORD

811573

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2013-GMP-194-Q4
Turnaround Time 10 Days
Shipping Date:
COC Number: ZYM-GMP194

			Container:	250 ml Poly		
			Preservatives:	4°C		
			Filtered:	NA		
			Holding Time:	NA		
DATE	TIME	Matrix	Oxy_Dail (CF-IRMS)	Zymax ID 434-10	Number of Containers	COMMENTS
MW-123-194	12/17/2013	7:00	Water	x	1	1	
MW-20-130-194	12/17/2013	9:38	Water	x	2	1	
				TOTAL NUMBER OF CONTAINERS		

	Signatures	Date/Time
Approved by		12-19-13
Sampled by		1500
Relinquished by		12-23-13
Received by		1555
Relinquished by		
Received by		12-23-13
		12/27/13 10:50

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:

Sample Custody
and
Michael Ng

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2013-GMP-194-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com; shawn.duffy@ch2m.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist, PACE
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 27th, 2013
Date Reported: January 27th, 2014

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
43410-1	MW-123-194	-6.52	-59.15
43410-2	MW-20-130-194	-6.40	-57.69
	Analytical Precision (1σ)	0.11	0.45

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.75	-36.32
QC-02	-4.60	-36.95
Mean	-4.68	-36.64
Analytical Precision (1σ)	0.11	0.45

ZymaX Forensics Isotope Services

Product or Dissolved Organics: Chlorinated Solvents, Oil, Extract, Fraction and Kerogen
3D-CSIA of ^{13}C, ^{37}Cl, and ^{2}H for PCE, TCE, DCE, MTBE, BTEX, PAHs, Pesticides, Alkanes, Gasoline and Oil; Bulk ^{13}C, ^{2}H, ^{18}O, ^{34}S, and ^{15}N
Gas Sample
Gas Composition and 2D-CSIA of ^{13}C and ^{2}H of C1 to C5; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas
Water and Dissolved Inorganics
^{2}H, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate
Soil and Minerals
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics
Post-Analysis Forensic Isotope Data Interpretation

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M3293
Project ID: 423575.MP.05.AZ
Attn: Jay Piper
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 11, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Accredited in accordance with NELAP:
Oregon (100022)
Arizona (0771)
Louisiana (05031)

ASL Report #: M3293

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M329301	MW-56D-194	11/14/13 11:18	11/16/13
M329302	MW-56M-194	11/14/13 12:13	11/16/13
M329303	MW-56S-194	11/14/13 12:56	11/16/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6010B, SW6020: FLDFLT

Matrix Spike/Matrix Spike Duplicate(s):
SW6010B, SW6020: Matrix spike/matrix spike duplicates recovered outside acceptance criteria. See Form 5A.

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-56D-194

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329301

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	385000			P
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.56		N	MS
7439-89-6	Iron	12/02/13	1	10.0	20.0	3000			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	98300			P
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	764		N	MS
7440-23-5	Sodium	12/03/13	100	25000	50000	2780000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194MS

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329301MS

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	36.7			MS
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	789			MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-56D-194MSD

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329301MSD

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	36.2			MS
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	771			MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-56M-194

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329302

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	379000			P
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS
7439-89-6	Iron	12/02/13	1	10.0	20.0	804			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	73100			P
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	669			MS
7440-23-5	Sodium	12/03/13	100	25000	50000	4080000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M329303

Percent Moisture: 100

Date Received: 11/16/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	238000			P
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	2.61			MS
7439-89-6	Iron	12/02/13	1	10.0	20.0	8880			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	81100			P
7439-96-5	Manganese	12/05/13	2	0.0500	0.500	1240			MS
7440-23-5	Sodium	12/03/13	10	2500	5000	534000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-1121

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1121

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	100	U		P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	500	U		P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-1125

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1125

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-23-5	Sodium	12/03/13	1	250	500	500	U		P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB2-1205

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-1205

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS
7439-96-5	Manganese	12/05/13	1	0.0250	0.250	0.250	U		MS

Comments:

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE RECOVERY

SDG No.: M3293 Lab Name: CH2M HILL ASL

Matrix: Water Concentration Units: ug/L

Native Sample ID: MW-56D-194

MS Sample ID: MW-56D-194MS

MSD Sample ID: MW-56D-194MSD

Analyte	Method	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q	M
Chromium	SW6020	1.56	50.0	36.7	70	50.0	36.2	69	1.4	80-120	20	*	MS
Manganese	SW6020	764	50.0	789	50	50.0	771	13	2.4	80-120	20	*	MS

Comments:
Dissolved Metals
Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

LABORATORY CONTROL SAMPLE

SDG No.: M3293 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1121 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Calcium	SW6010B	10000	10000	100				85-115	
Iron	SW6010B	500	548	110				85-115	
Magnesium	SW6010B	10000	10500	105				80-120	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3293 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1125 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Sodium	SW6010B	10000	10200	102				85-115	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3293 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS2W1205 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Chromium	SW6020	50.0	52.0	104				85-115	
Manganese	SW6020	50.0	49.8	100				80-120	

Comments:

SERIAL DILUTIONS

Field Sample ID:

MW-56D-194DL

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: Water

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)		% Difference	Q	M
Chromium	1.56		5.00	U			MS
Manganese	764		789		3.2		MS

Comments:

10% Criteria does not apply if undiluted sample result is <50 times the MDL for ICP.

10% Criteria does not apply if undiluted sample result is <100 times the MDL for ICPMS.

SERIAL DILUTIONS

Field Sample ID:

MW-56S-194DL

SDG No.: M3293

Lab Name: CH2M HILL ASL

Matrix: Water

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)		% Difference	Q	M
Calcium	238000		225000		5.8		P
Iron	8880		8760		1.4		P
Magnesium	81100		81100		0.0		P

Comments:

10% Criteria does not apply if undiluted sample result is <50 times the MDL for ICP.

10% Criteria does not apply if undiluted sample result is <100 times the MDL for ICPMS.

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E300.0A

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	16.4	500	5760		mg/L	1000	50 UL	E300.0A	11/22/2013
14808-79-8	Sulfate	17.3	250	1290		mg/L	500	50 UL	E300.0A	11/22/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	19.7	600	8290		mg/L	1200	50 UL	E300.0A	11/22/2013
14808-79-8	Sulfate	20.7	300	1460		mg/L	600	50 UL	E300.0A	11/22/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	4.10	125	1820		mg/L	250	50 UL	E300.0A	11/22/2013
14808-79-8	Sulfate	8.64	125	1290		mg/L	250	50 UL	E300.0A	11/22/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1122

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1122

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
14808-79-8	Sulfate	0.0346	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/22/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1121

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-1121

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	0.0164	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/22/2013
14808-79-8	Sulfate	0.0346	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/22/2013

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS2W1121

Initial Calibration ID: 300A-082313

Date Analyzed: 11/22/2013

Matrix: (Soil/Water) WATER

Time Analyzed: 0325

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	3.07	102	90-110	
Sulfate	15.0	14.9	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS1W1122

Initial Calibration ID: 300A-082313

Date Analyzed: 11/22/2013

Matrix: (Soil/Water) WATER

Time Analyzed: 1527

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	3.24	108	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E350.1

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.419		MG/L	1	8 ML	E350.1	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	8 ML	E350.1	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.939		MG/L	1	8 ML	E350.1	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1120

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1120

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	8 ML	E350.1	11/20/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E350.1

LCS ID: BS1W1120

Initial Calibration ID: 073013NH3LAcal

Date Analyzed: 11/20/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1155

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.78	1.77	100	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0225		MG/L	1	3 ML	E353.2	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0117		MG/L	1	3 ML	E353.2	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0524		MG/L	1	3 ML	E353.2	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-112013

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB3-112013

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	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-112013

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB4-112013

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	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-112013

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-112013

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	11/20/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS2W1120

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/20/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1614

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.451	94	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2320B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	495		mg/L	1	50 ML	SM2320B	11/20/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	495		mg/L	1	50 ML	SM2320B	11/20/13

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	130		mg/L	1	50 ML	SM2320B	11/20/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	130		mg/L	1	50 ML	SM2320B	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	697		mg/L	1	50 ML	SM2320B	11/20/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	697		mg/L	1	50 ML	SM2320B	11/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1120

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1120

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/20/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: SM2320B

LCS ID: BS1W1120

Initial Calibration ID: NONE

Date Analyzed: 11/20/13

Matrix: (Soil/Water) WATER

Time Analyzed: 0921

Instrument: TIM845

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Alkalinity, Total as CaCO3	48.0	47.3	99	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2510B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	13700		umhos/	1	30 ML	SM2510B	11/19/13

FORM I GEN CHEM

BS131205-11:13-M3293-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	18700		umhos/	1	30 ML	SM2510B	11/19/13

FORM I GEN CHEM

BS131205-11:13-M3293-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	6160		umhos/	1	30 ML	SM2510B	11/19/13

FORM I GEN CHEM

BS131205-11:13-M3293-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1119

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1119

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	10.0	U	umhos/	1	30 ML	SM2510B	11/19/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: SM2510B

LCS ID: BS1W1119

Initial Calibration ID: NONE

Date Analyzed: 11/19/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1659

Instrument: NONE

Concentration Units: umhos/cm

Analyte	Expected	Found	%R	QC Limits %R	Q
Conductivity	554	542	98	80-120	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3293

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E218.6

Laboratory Control Sample(s):
E218.6: ICV-1126 also was used for BS1W1126.

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-194MS

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329301MS

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.64		ug/L	5	1000 UL	E218.6	11/27/2013

FORM I GEN CHEM

YL131211-14:01-M3293-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-194MS

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329302MS

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.88		ug/L	5	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-194MS

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M329303MS

Date Received: 11/16/2013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.921		ug/L	1	1000 UL	E218.6	11/27/2013

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1126

SDG No.: M3293

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1126

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	11/26/2013

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3293

Lab Name: CH2M HILL ASL

Analysis Method: E218.6

LCS ID: BS1W1126

Initial Calibration ID: HexCr-112613

Date Analyzed: 11/26/2013

Matrix: (Soil/Water) WATER

Time Analyzed: 2254

Instrument: ICK

Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	1.38	1.29	93	90-110	

* Values outside of QC limits

Comments:

5.4°C ice

CH2MHILL

CHAIN OF CUSTODY RECORD

11/14/2013 2:36:20 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.05.AZ
Task Order
Project 2013-GMP-194-AZ
Turnaround Time 12 Days
Shipping Date: 11/15/2013
COC Number: 1

			Container:	250 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	NA	NA	NA	NA	NA			
			Holding Time:	28	180	180	7	7	7	28	28			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-56D-194	11/14/2013	11:18	Water	X	X	X	X	X	X	X	X		4	1
MW-56M-194	11/14/2013	12:13	Water	X	X	X	X	X	X	X	X		4	2
MW-56S-194	11/14/2013	12:56	Water	X	X	X	X	X	X	X	X		4	3
												TOTAL NUMBER OF CONTAINERS	12	

M3293

1

	Signatures	Date/Time
Approved by		
Sampled by		11-15-13 0910
Relinquished by		
Received by		
Relinquished by		
Received by		

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Analytical Services Lab
Lab Phone

ATTN:
Sample Custody
and

Special Instructions:
November - December 2013

Report Copy to
Shawn Duffy

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3293 Date Received: 11/16/13

Client/Project: PGE Topock Checked By: CT

Packing Material: Ice Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		X	
Radiological Screening for DoD	X		
Temp OK? (<6C) Therm ID TH173 Exp. 11/13 5.4°C			
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did sample labels agree with COC? No, document in SRER		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?		X	
Was enough sample volume provided for analysis? No, document in SRER		X	
Containers supplied by ASL?		X	
Any sample with < 1/2 holding time remaining? If so contact LPM		X	
Samples have multi-phase? If yes, document on SRER			X
All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		X	
Dissolved/Soluble metals filtered in the field?		X	
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER			X

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: **M3293** **Client/Project** **PGE Topock**

The following exceptions were noted:

		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	11) Client specified on COC to use Conductivity E120.1 method and Ammonia by SNM4500. ASL will use SM2510B to meet holding time and EPA 350.1 for ammonia.
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
x	11. Other.	

ACTION TAKEN:

Originator: Clara Thomann Date: 11/16/2013

Client was notified on: (Date/Time) Client Contact:

Client Services:

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M3360
Project ID: 423575.MP.05.AZ
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 12, 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 #: M3360

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M336001	MW-250-194	11/21/13 14:36	11/23/13
M336002	MW-54-085-194	11/21/13 08:46	11/23/13
M336003	MW-54-085-194-EB	11/21/13 08:02	11/23/13
M336004	MW-54-140-194	11/21/13 09:37	11/23/13
M336005	MW-54-140-194-EB	11/21/13 08:54	11/23/13
M336006	MW-54-195-194	11/21/13 10:26	11/23/13
M336007	MW-54-195-194-EB	11/21/13 09:50	11/23/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6010B: FLDFLT

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336002

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	163000			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	487			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	86500			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	831			P
7440-23-5	Sodium	12/03/13	100	25000	50000	1790000			P

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-54-140-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336004

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	142000			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	11100			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	142			P
7440-23-5	Sodium	12/03/13	100	25000	50000	2510000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336006

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	124000			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	97.6			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	4150			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	539			P
7440-23-5	Sodium	12/03/13	100	25000	50000	4140000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-1121

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1121

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	100	U		P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	500	U		P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	10.0	U		P

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
WB1-1125

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1125

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-23-5	Sodium	12/03/13	1	250	500	500	U		P

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3360 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1121 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Calcium	SW6010B	10000	10000	100				85-115	
Iron	SW6010B	500	548	110				85-115	
Magnesium	SW6010B	10000	10500	105				80-120	
Manganese	SW6010B	500	494	99				85-115	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3360 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1125 Solid LCS ID:

Analyte	Method	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	Solid (mg/Kg) %R	Limits	C
Sodium	SW6010B	10000	10200	102				85-115	

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6020: FLDFLT

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336002

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-38-2	Arsenic	12/05/13	2	0.0600	0.200	3.37			MS
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194-EB

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336003

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments: _____

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336004

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-38-2	Arsenic	12/05/13	2	0.0600	0.200	2.08			MS
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-54-140-194-EB

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336005

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336006

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-38-2	Arsenic	12/05/13	2	0.0600	0.200	0.200	U		MS
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194-EB

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336007

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments: _____

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
WB2-1205

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-1205

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-38-2	Arsenic	12/05/13	1	0.0300	0.100	0.100	U		MS
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3360 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS2W1205 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Arsenic	SW6020	50.0	50.4	101				85-115	
Chromium	SW6020	50.0	52.0	104				85-115	

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E300.0A

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	8.19	250	3270		mg/L	500	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	515		mg/L	100	50 UL	E300.0A	11/28/13

YL131210-22:18-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	8.19	250	4710		mg/L	500	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	497		mg/L	100	50 UL	E300.0A	11/28/13

FORM I GEN CHEM

YL131210-22:18-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	16.4	500	7750		mg/L	1000	50 UL	E300.0A	12/09/13
14808-79-8	Sulfate	3.46	50.0	945		mg/L	100	50 UL	E300.0A	11/28/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1209

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1209

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	0.0164	0.500	0.500	U	mg/L	1	50 UL	E300.0A	12/09/13

YL131210-22:18-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1127

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	0.0164	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/27/13
14808-79-8	Sulfate	0.0346	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/27/13

YL131210-22:18-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS2W1127

Initial Calibration ID: 300A-082313

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 2307

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	3.14	105	90-110	
Sulfate	15.0	15.8	106	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS1W1209

Initial Calibration ID: 300A-082313

Date Analyzed: 12/09/13

Matrix: (Soil/Water) WATER

Time Analyzed: 0933

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	2.93	98	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E350.1

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	8 ML	E350.1	11/27/13

EB131127-16:06-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	8 ML	E350.1	11/27/13

EB131127-16:06-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	8 ML	E350.1	11/27/13

EB131127-16:06-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1127

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	8 ML	E350.1	11/27/13

EB131127-16:06-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E350.1

LCS ID: BS1W1127

Initial Calibration ID: 073013NH3LAcal

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1024

Instrument: LACH8500

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.78	1.75	98	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.225		MG/L	1	3 ML	E353.2	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.874		MG/L	1	3 ML	E353.2	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

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	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-112613

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB5-112613

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	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB6-112613

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB6-112613

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	11/26/13

EB131127-16:04-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS3W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1602

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.478	100	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2320B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	150		mg/L	1	50 ML	SM2320B	11/26/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	150		mg/L	1	50 ML	SM2320B	11/26/13

BS131127-09:44-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	101		mg/L	1	50 ML	SM2320B	11/26/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	101		mg/L	1	50 ML	SM2320B	11/26/13

FORM I GEN CHEM

BS131127-09:44-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	58.7		mg/L	1	50 ML	SM2320B	11/26/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	58.7		mg/L	1	50 ML	SM2320B	11/26/13

BS131127-09:44-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1126

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1126

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/26/13

FORM I GEN CHEM

BS131127-09:44-M3360-W

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: SM2320B

LCS ID: BS1W1126

Initial Calibration ID: NONE

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1143

Instrument: TIM845

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Alkalinity, Total as CaCO3	48.0	48.7	101	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2510B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	9750		umhos/	1	30 ML	SM2510B	11/25/13

FORM I GEN CHEM

BS131127-09:39-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	12100		umhos/	1	30 ML	SM2510B	11/25/13

FORM I GEN CHEM

BS131127-09:39-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	18000		umhos/	1	30 ML	SM2510B	11/25/13

FORM I GEN CHEM

BS131127-09:39-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1125

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1125

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	10.0	U	umhos/	1	30 ML	SM2510B	11/25/13

BS131127-09:39-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: SM2510B

LCS ID: BS1W1125

Initial Calibration ID: NONE

Date Analyzed: 11/25/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1116

Instrument: NONE

Concentration Units: umhos/cm

Analyte	Expected	Found	%R	QC Limits %R	Q
Conductivity	474	467	99	80-120	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3360

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E218.6

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-250-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336001

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-250-194MS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336001MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.930		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194MS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336002MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.73		ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194-EB

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336003

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-194-EBMS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336003MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.973		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194MS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336004MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.76		ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194-EB

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336005

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-140-194-EBMS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336005MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.980		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	1.00	U	ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194MS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336006MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	4.85		ug/L	5	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194-EB

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336007

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-194-EBMS

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336007MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.982		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:24-M3360-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1203

SDG No.: M3360

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1203

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:24-M3360-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3360

Lab Name: CH2M HILL ASL

Analysis Method: E218.6

LCS ID: BS1W1203

Initial Calibration ID: HexCr-112613

Date Analyzed: 12/03/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1503

Instrument: ICK

Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	1.38	1.30	94	90-110	

* Values outside of QC limits

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

11/22/2013 9:46:08 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.05.AZ
Task Order
Project 2013-GMP-194-AZ
Turnaround Time 12 Days
Shipping Date:
COC Number: CHMC-GMP194Az

				Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMME
Container:				250 ml Poly	2x250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	2x500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4 pH<2, 4°C	H2SO4 pH<2, 4°C			
Filtered:				Field	Field	Field	Field	Field	Field	NA	NA	NA	NA	NA			
Holding Time:				28	28	180	180	180	180	7	7	7	28	28			
	DATE	TIME	Matrix												M3360		
MW-250-194	11/21/2013	14:36	Water	X												1	1
MW-54-085-194	11/21/2013	8:46	Water		X	X	X		X	X	X	X	X	X		7	2
MW-54-085-194-EB	11/21/2013	8:02	Water	X				X								2	3
MW-54-140-194	11/21/2013	9:37	Water		X	X	X		X	X	X	X	X	X		7	4
MW-54-140-194-EB	11/21/2013	8:54	Water	X				X								2	5
MW-54-195-194	11/21/2013	10:26	Water		X	X	X		X	X	X	X	X	X		7	6
MW-54-195-194-EB	11/21/2013	9:50	Water	X				X								2	7
															TOTAL NUMBER OF CONTAINERS	28	

	Signatures	Date/Time
Approved by		11-22-13
Sampled by		1000
Relinquished by		
Received by		
Relinquished by		
Received by	Clara Hermann	11/23/13 1210

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
November - December 2013

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3360 Date Received: 11/23/13

Client/Project: PG&E Topock Checked By: G

Packing Material: Ice Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		X	
Radiological Screening for DoD	X		
Temp OK? (<6C) Therm ID__TH173__ Exp. 2/14 2.4 °C			
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did sample labels agree with COC? No, document in SRER		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?		X	
Was enough sample volume provided for analysis? No, document in SRER		X	
Containers supplied by ASL?		X	
Any sample with < 1/2 holding time remaining? If so contact LPM			X
Samples have multi-phase? If yes, document on SRER			X
All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		X	
Dissolved/Soluble metals filtered in the field?		X	
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER			X

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: **M3360** **Client/Project** **Topock**

The following exceptions were noted:

		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	Conductivity method was changed from EPA120.1 to SM2510B to extend the holding time.
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
	11. Other.	

ACTION TAKEN:

Originator: Carmen Cole Date: 11/25/2013

Client was notified on: (Date/Time) Client Contact:

Client Services:

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M3367
Project ID: 423575.MP.05.AZ
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 13, 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 #: M3367

Sample Receipt Comments

We certify that the test results meet all NELAP requirements .

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M336701	MW-55-045-194	11/21/13 12:56	11/23/13
M336702	MW-55-045-194-EB	11/21/13 12:32	11/23/13
M336703	MW-55-120-194	11/21/13 13:40	11/23/13
M336704	MW-55-120-194-EB	11/21/13 13:09	11/23/13
M336705	MW-90-120-194	11/21/13 07:00	11/23/13

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6010B: FLDFLT

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-55-045-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336701

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	39600			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	63.0			P
7439-95-4	Magnesium	12/02/13	1	5.00	500	9680			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	1090			P
7440-23-5	Sodium	12/03/13	10	2500	5000	101000			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336703

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	96200			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	2040			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	10.7			P
7440-23-5	Sodium	12/03/13	100	25000	50000	1670000			P

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-90-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336705

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	95700			P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	2040			P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	10.6			P
7440-23-5	Sodium	12/03/13	100	25000	50000	1680000			P

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
WB1-1121

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1121

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-70-2	Calcium	12/02/13	1	50.0	100	100	U		P
7439-89-6	Iron	12/02/13	1	10.0	20.0	20.0	U		P
7439-95-4	Magnesium	12/02/13	1	5.00	500	500	U		P
7439-96-5	Manganese	12/02/13	1	0.500	10.0	10.0	U		P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-1125

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-1125

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-23-5	Sodium	12/03/13	1	250	500	500	U		P

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3367 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1121 Solid LCS ID:

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Calcium	SW6010B	10000	10000	100				85-115	
Iron	SW6010B	500	548	110				85-115	
Magnesium	SW6010B	10000	10500	105				80-120	
Manganese	SW6010B	500	494	99				85-115	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3367 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W1125 Solid LCS ID:

Analyte	Method	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	Solid (mg/Kg) %R	Limits	C
Sodium	SW6010B	10000	10200	102				85-115	

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW6020: FLDFLT

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-55-045-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336701

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	1.00	U		MS

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194-EB

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336702

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments: _____

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336703

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	7.59			MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-55-120-194-EB

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336704

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-90-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336705

Percent Moisture: 100

Date Received: 11/23/13

Preparation: Dissolved

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	2	0.0877	1.00	7.61			MS

Comments:

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:
WB2-1205

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-1205

Percent Moisture: 100

Date Received: / /

Preparation: Total

Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	C	Q	M
7440-47-3	Chromium	12/05/13	1	0.0439	0.500	0.500	U		MS

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: M3367 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS2W1205 Solid LCS ID:

Analyte	Method	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	Solid (mg/Kg) %R	Limits	C
Chromium	SW6020	50.0	51.7	103				85-115	

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E300.0A

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	1.64	50.0	347		mg/L	100	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	112		mg/L	100	50 UL	E300.0A	11/28/13

YL131210-22:23-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	8.19	250	2910		mg/L	500	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	307		mg/L	100	50 UL	E300.0A	11/28/13

FORM I GEN CHEM

YL131210-22:23-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	8.19	250	3040		mg/L	500	50 UL	E300.0A	11/28/13
14808-79-8	Sulfate	3.46	50.0	301		mg/L	100	50 UL	E300.0A	11/28/13

FORM I GEN CHEM

YL131210-22:23-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1127

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB2-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
16887-00-6	Chloride	0.0164	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/27/13
14808-79-8	Sulfate	0.0346	0.500	0.500	U	mg/L	1	50 UL	E300.0A	11/27/13

YL131210-22:23-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: E300.0A

LCS ID: BS2W1127

Initial Calibration ID: 300A-082313

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 2307

Instrument: ICQ

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chloride	3.00	3.14	105	90-110	
Sulfate	15.0	15.8	106	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E353.2

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0637		MG/L	1	3 ML	E353.2	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.41		MG/L	5	3 ML	E353.2	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.41		MG/L	5	3 ML	E353.2	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB10-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB10-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB11-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB11-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB12-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB12-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB7-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB7-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB8-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB8-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB9-112613

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB9-112613

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	11/26/13

EB131127-15:59-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS4W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1632

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.500	104	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: E353.2

LCS ID: BS6W1126

Initial Calibration ID: 092313NO32SM1

Date Analyzed: 11/26/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1720

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.505	105	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2320B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	181		mg/L	1	50 ML	SM2320B	11/27/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	181		mg/L	1	50 ML	SM2320B	11/27/13

FORM I GEN CHEM

BS131204-11:43-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	60.5		mg/L	1	50 ML	SM2320B	11/27/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	60.5		mg/L	1	50 ML	SM2320B	11/27/13

BS131204-11:43-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	60.7		mg/L	1	50 ML	SM2320B	11/27/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	60.7		mg/L	1	50 ML	SM2320B	11/27/13

FORM I GEN CHEM

BS131204-11:43-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1127

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
HCO3	Alkalinity, Bicarbonate as C	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
CO3	Alkalinity, Carbonate as CaC	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13
ALK	Alkalinity, Total as CaCO3	N/A	5.0	5.0	U	mg/L	1	50 ML	SM2320B	11/27/13

BS131204-11:43-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: SM2320B

LCS ID: BS1W1127

Initial Calibration ID: NONE

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 0852

Instrument: TIM845

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Alkalinity, Total as CaCO3	48.0	47.1	98	90-110	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SM2510B

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	1450		umhos/	1	30 ML	SM2510B	11/27/13

FORM I GEN CHEM

BS131204-11:48-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	8220		umhos/	1	30 ML	SM2510B	11/27/13

FORM I GEN CHEM

BS131204-11:48-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	8280		umhos/	1	30 ML	SM2510B	11/27/13

FORM I GEN CHEM

BS131204-11:48-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1127

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	10.0	U	umhos/	1	30 ML	SM2510B	11/27/13

BS131204-11:48-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: SM2510B

LCS ID: BS1W1127

Initial Calibration ID: NONE

Date Analyzed: 11/27/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1201

Instrument: NONE

Concentration Units: umhos/cm

Analyte	Expected	Found	%R	QC Limits %R	Q
Conductivity	474	468	99	80-120	

* Values outside of QC limits

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M3367

Project: PGE Topock **Project #:** 423575.MP.05.AZ

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
E218.6

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194MS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336701MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	1.03		ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194-EB

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336702

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-045-194-EBMS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336702MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.995		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:22-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	7.17		ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194MS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336703MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	17.0		ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194-EB

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336704

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-55-120-194-EBMS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336704MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.985		ug/L	1	1000 UL	E218.6	12/03/13

FORM I GEN CHEM

YL131205-12:22-M3367-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	7.33		ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-120-194MS

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: M336705MS

Date Received: 11/23/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0835	1.00	16.7		ug/L	5	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1203

SDG No.: M3367

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-1203

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.0167	0.200	0.200	U	ug/L	1	1000 UL	E218.6	12/03/13

YL131205-12:22-M3367-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M3367

Lab Name: CH2M HILL ASL

Analysis Method: E218.6

LCS ID: BS1W1203

Initial Calibration ID: HexCr-112613

Date Analyzed: 12/03/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1503

Instrument: ICK

Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	1.38	1.30	94	90-110	

* Values outside of QC limits

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

11/22/2013 9:47:13 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.05.AZ
Task Order
Project 2013-GMP-194-AZ
Turnaround Time 12 Days
Shipping Date: 11/22/2013
COC Number: 5

			Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	500 ml Poly	2x500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly				
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C				
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA				
			Holding Time:	28	28	180	180	180	7	7	7	28				
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Anions (E300.0) Chloride,Sulfate	Specific Conductance (E120.1)	Alkalinity (SM2320B)	Nitrate/Nitrite (E353.3)	M3367	Number of Containers	COMME	
MW-55-045-194	11/21/2013	12:56	Water		X	X		X	X	X	X	X		7	1	
MW-55-045-194-EB	11/21/2013	12:32	Water	X			X							2	2	
MW-55-120-194	11/21/2013	13:40	Water		X	X		X	X	X	X	X		7	3	
MW-55-120-194-EB	11/21/2013	13:09	Water	X			X							2	4	
MW-90-120-194	11/21/2013	7:00	Water		X	X		X	X	X	X	X		7	5	
													TOTAL NUMBER OF CONTAINERS	25		

	Signatures	Date/Time
Approved by		11-22-13
Sampled by		1000
Relinquished by		
Received by		
Relinquished by		
Received by	Clair Homann	11/23/13 1210

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
November - December 2013

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M3367 Date Received: 11/23/13

Client/Project: PG&E Topock Checked By: CT

Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		X	
Radiological Screening for DoD	X		
Temp OK? (<6C) Therm ID TH173 Exp. 2/14 2.1 °C			
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did sample labels agree with COC? No, document in SRER		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?		X	
Was enough sample volume provided for analysis? No, document in SRER		X	
Containers supplied by ASL?		X	

Any sample with < 1/2 holding time remaining? If so contact LPM			X
Samples have multi-phase? If yes, document on SRER			X
All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		X	
Dissolved/Soluble metals filtered in the field?		X	
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER			X

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: **M3367** **Client/Project** **Topock**

The following exceptions were noted:

		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	Conductivity method was changed from EPA120.1 to SM2510B to extend the holding time.
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
	11. Other.	

ACTION TAKEN:

Originator: Carmen Cole Date: 11/25/2013

Client was notified on: (Date/Time) Client Contact:

Client Services:

Appendix C
Chromium Trend Graphs

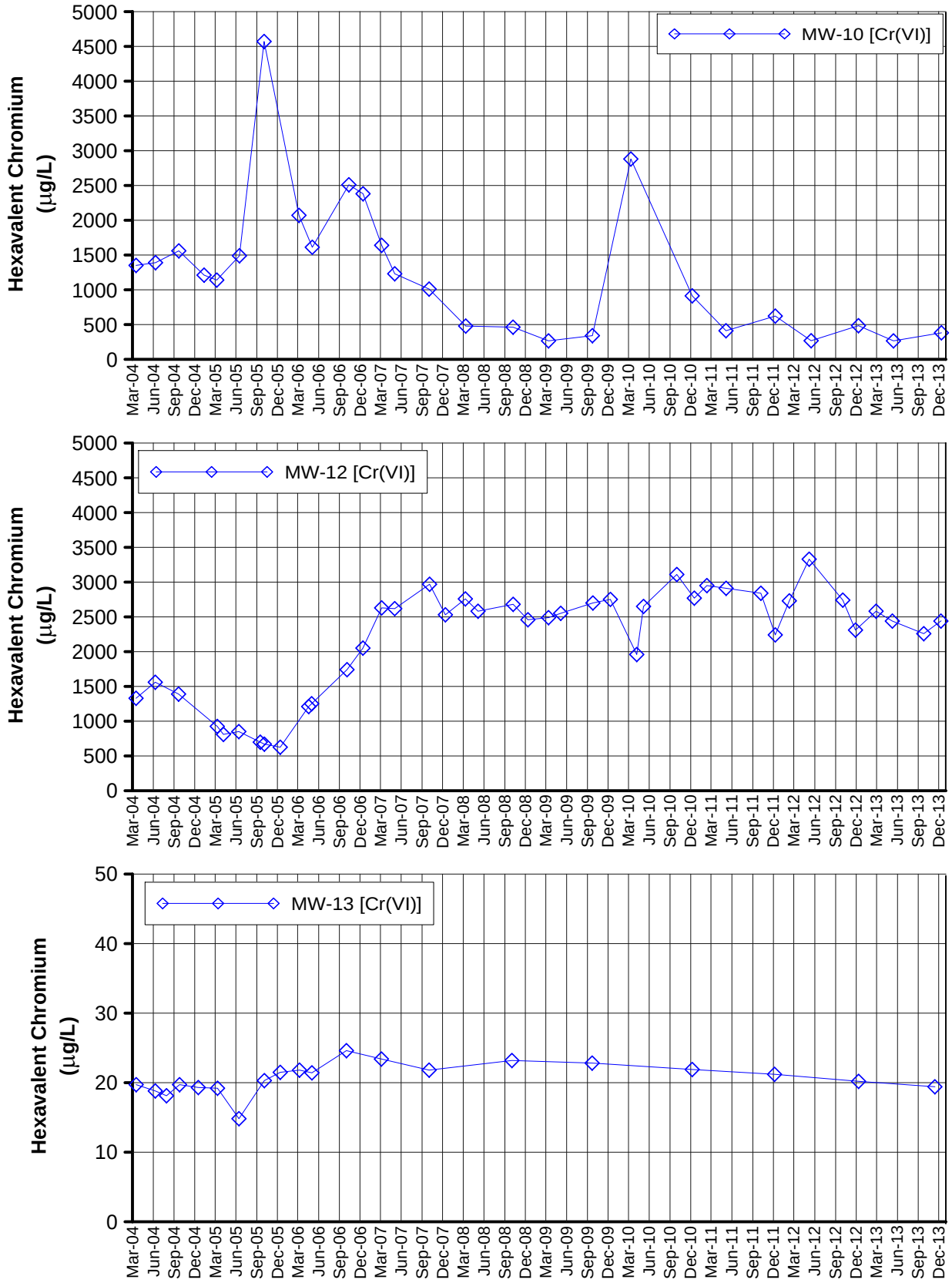


FIGURE C-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12, AND MW-13
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

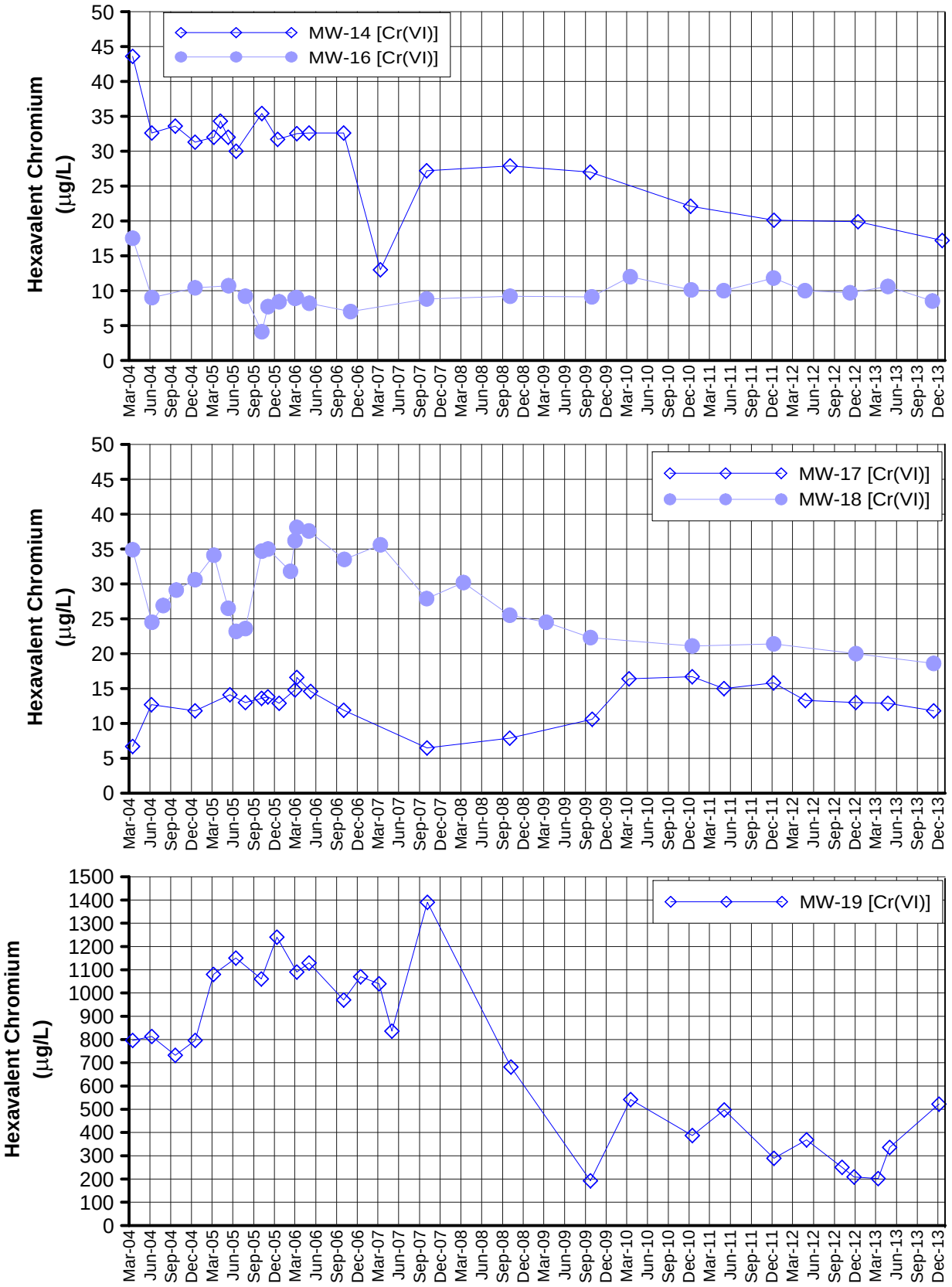
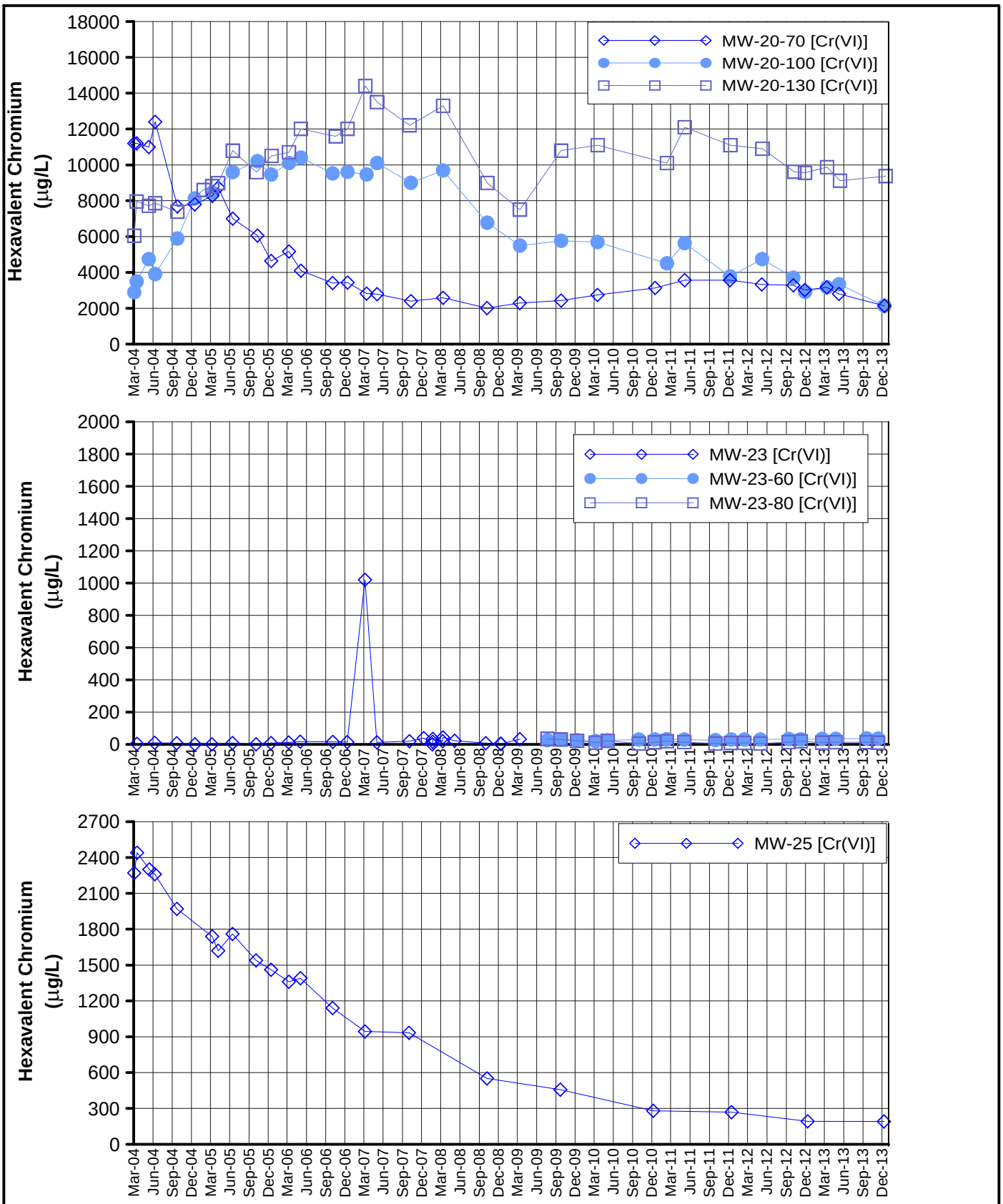


FIGURE C-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

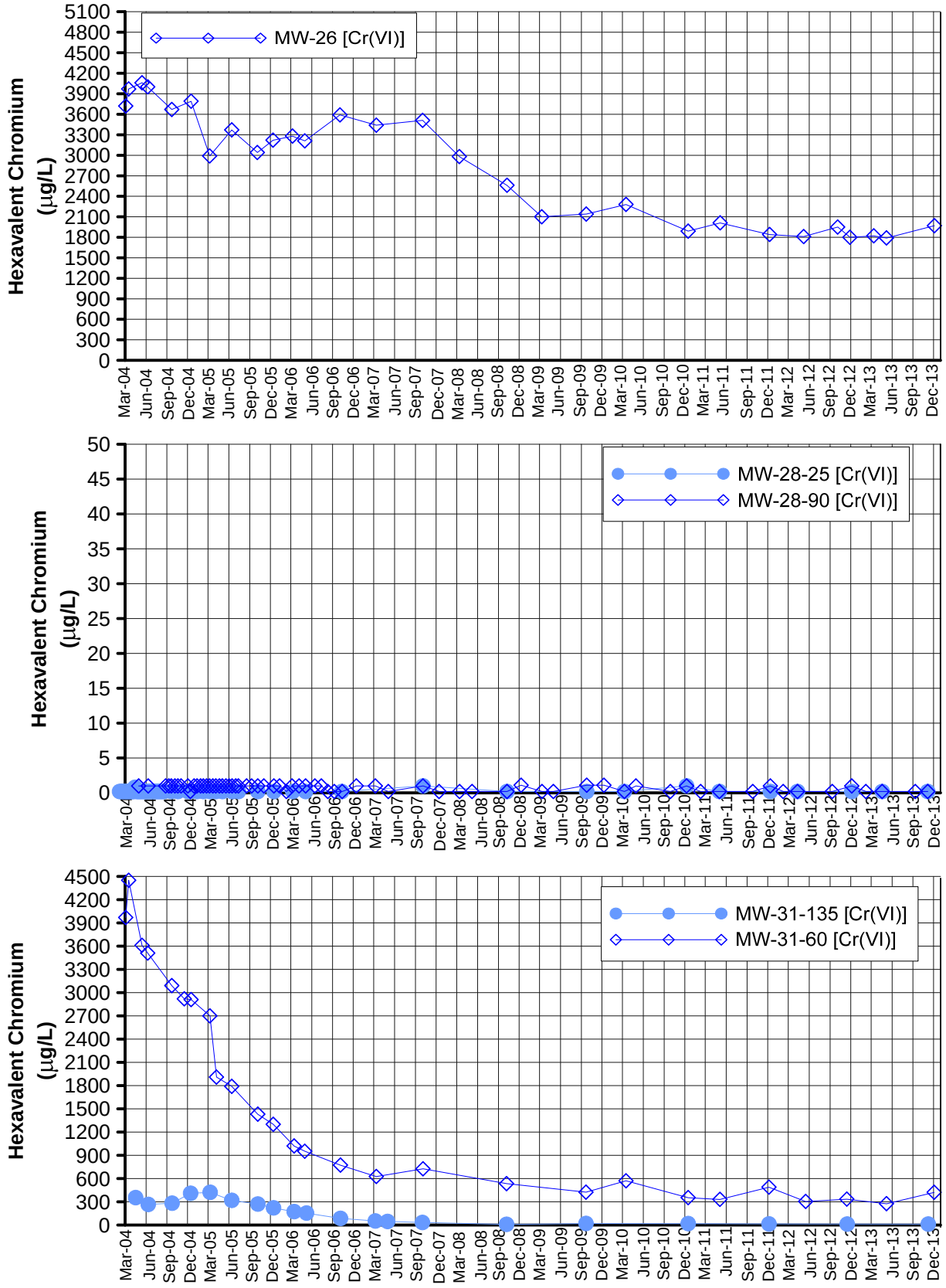
CH2MHILL



Notes:
1) Fourth Quarter 2010 data for MW-20-100 and MW-20-130 collected in February 2011 due to logistical issues.

FIGURE C-3
HEXAVALENT CHROMIUM
IN MW-20, MW-23, AND MW-25 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

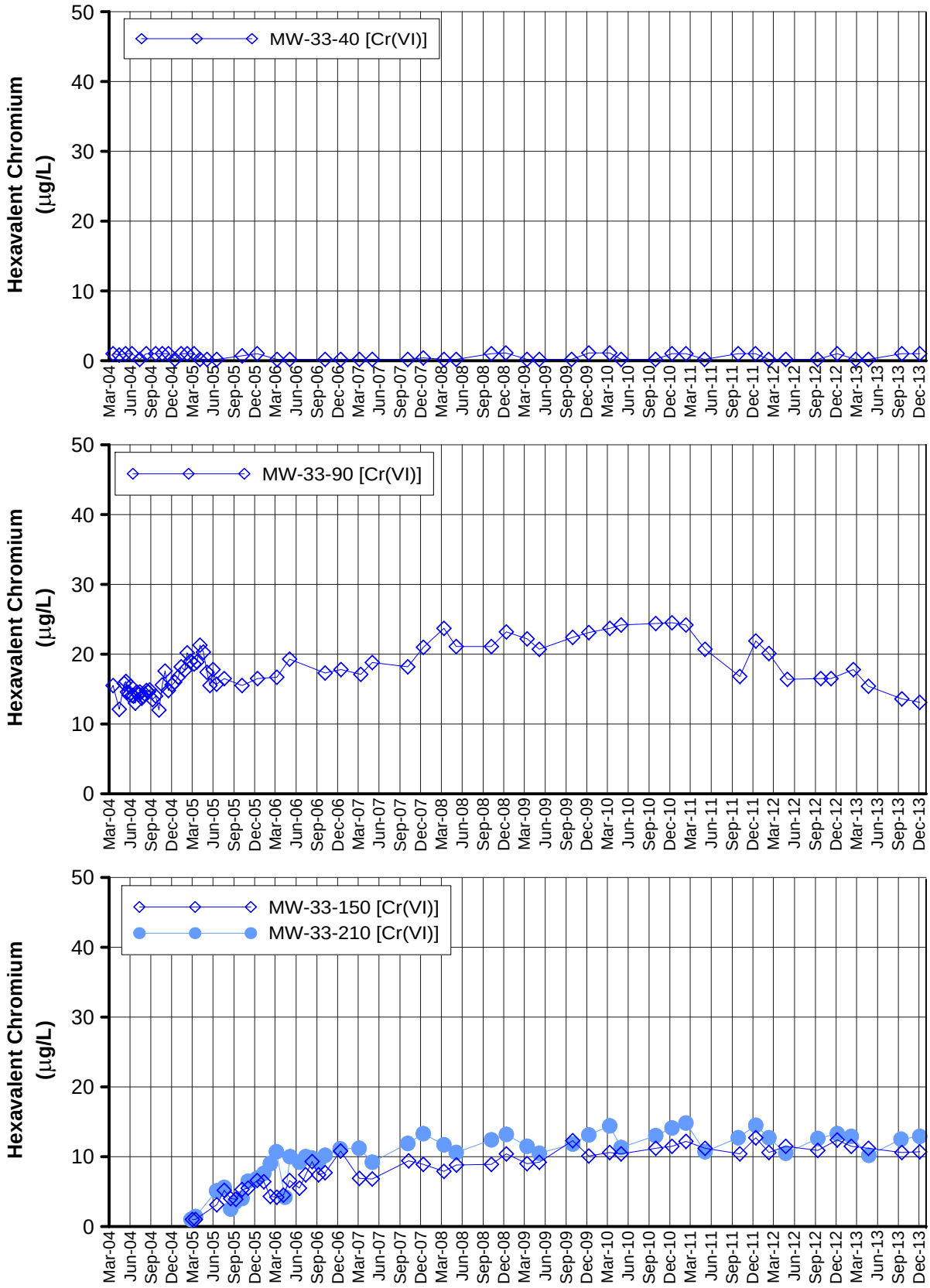
CH2MHILL



Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-28-90 is 20 µg/L.

FIGURE C-4
HEXAVALENT CHROMIUM
IN MW-26, MW-28, AND MW-31 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



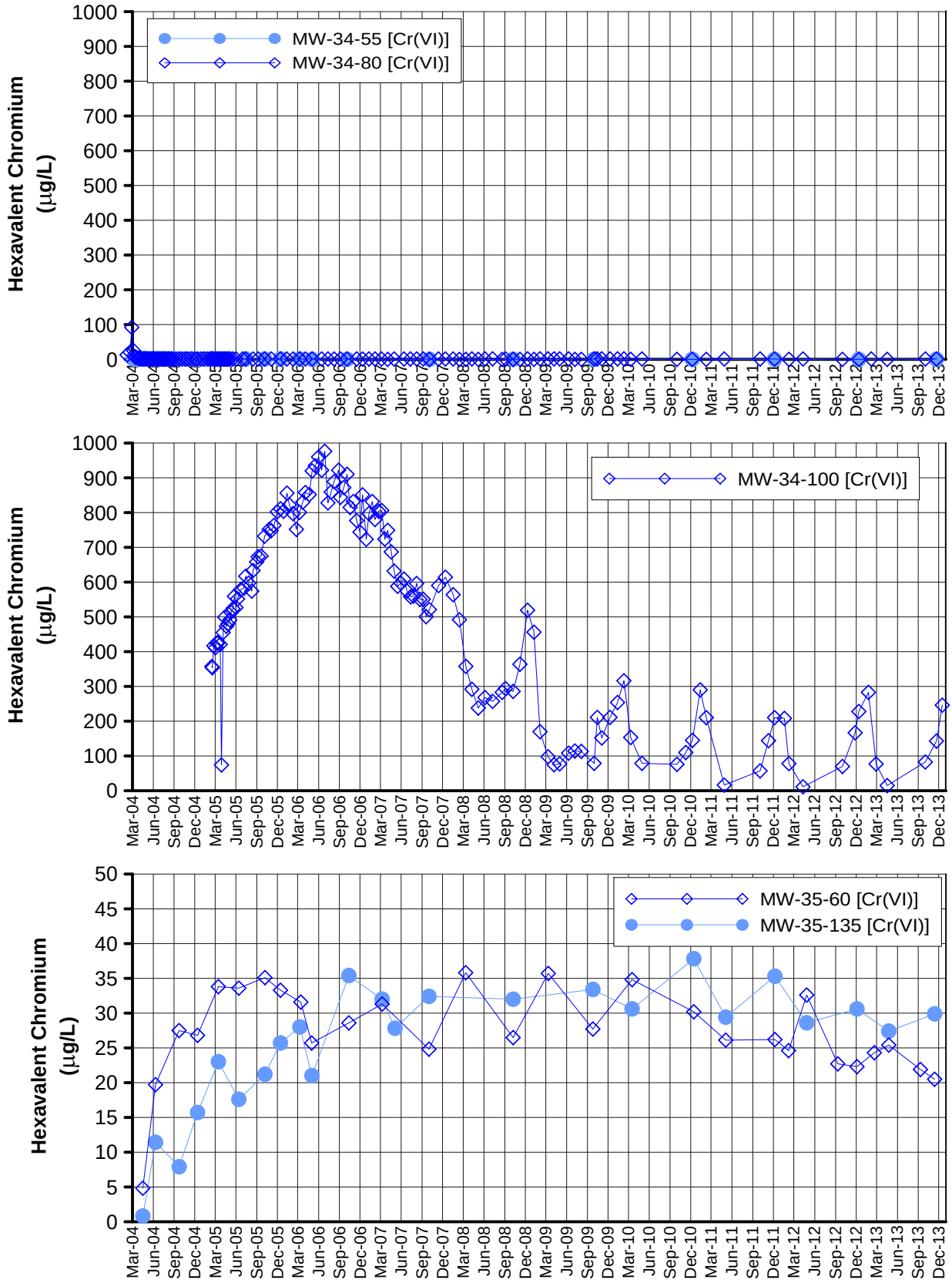
Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-33-40 is 20 µg/L.
3) The trigger level for MW-33-90 is 25 µg/L.
4) The trigger level for MW-33-150 is 20 µg/L.
5) The trigger level for MW-33-210 is 20 µg/L.

FIGURE C-5
HEXAVALENT CHROMIUM
IN MW-33 CLUSTER

FIRST QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).

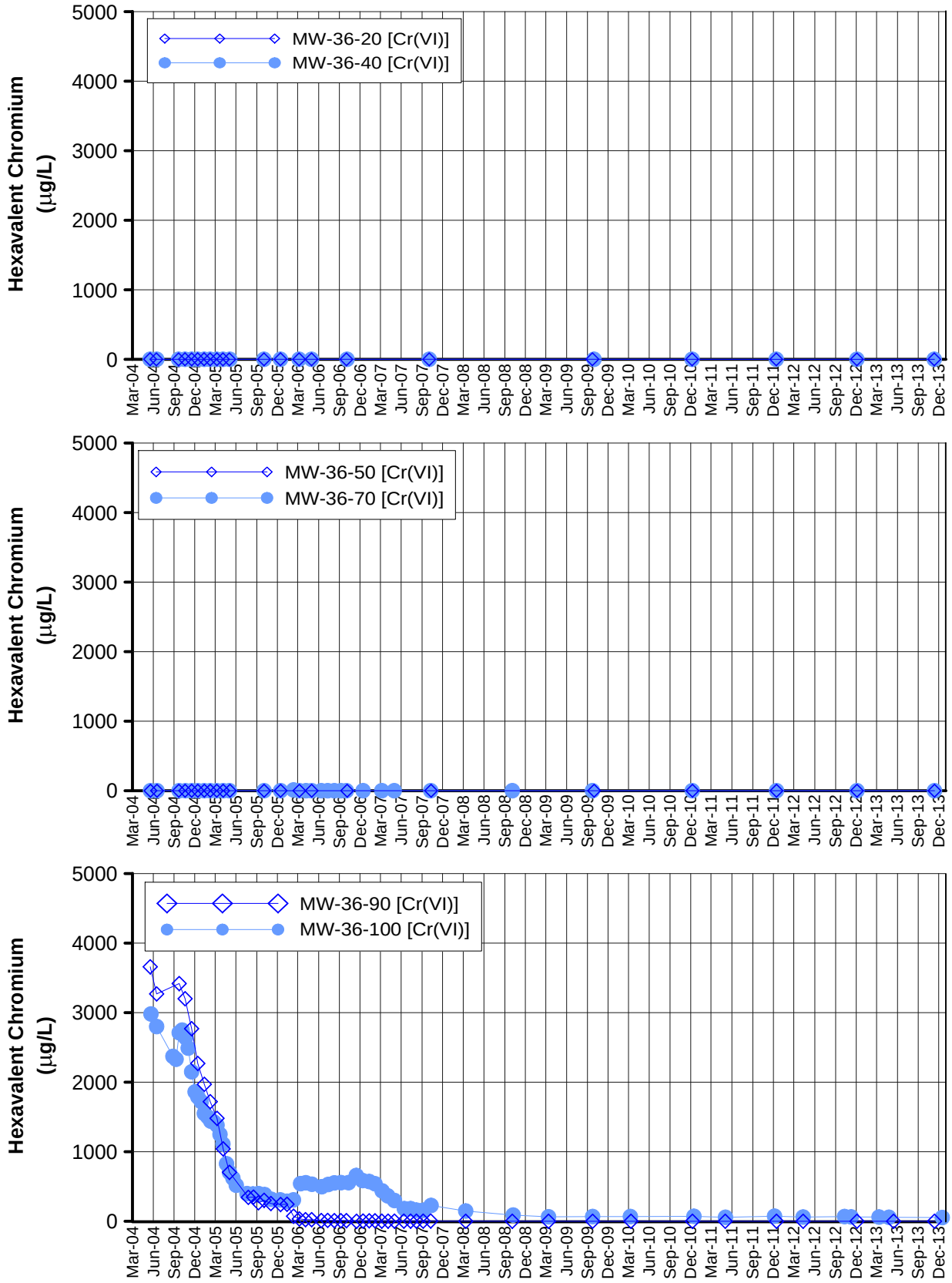
2) The trigger level for MW-34-80 is 20 µg/L.

3) The trigger level for MW-34-100 is 750 µg/L.

FIGURE C-6
HEXAVALENT CHROMIUM
IN MW-34 AND MW-35 CLUSTERS

FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

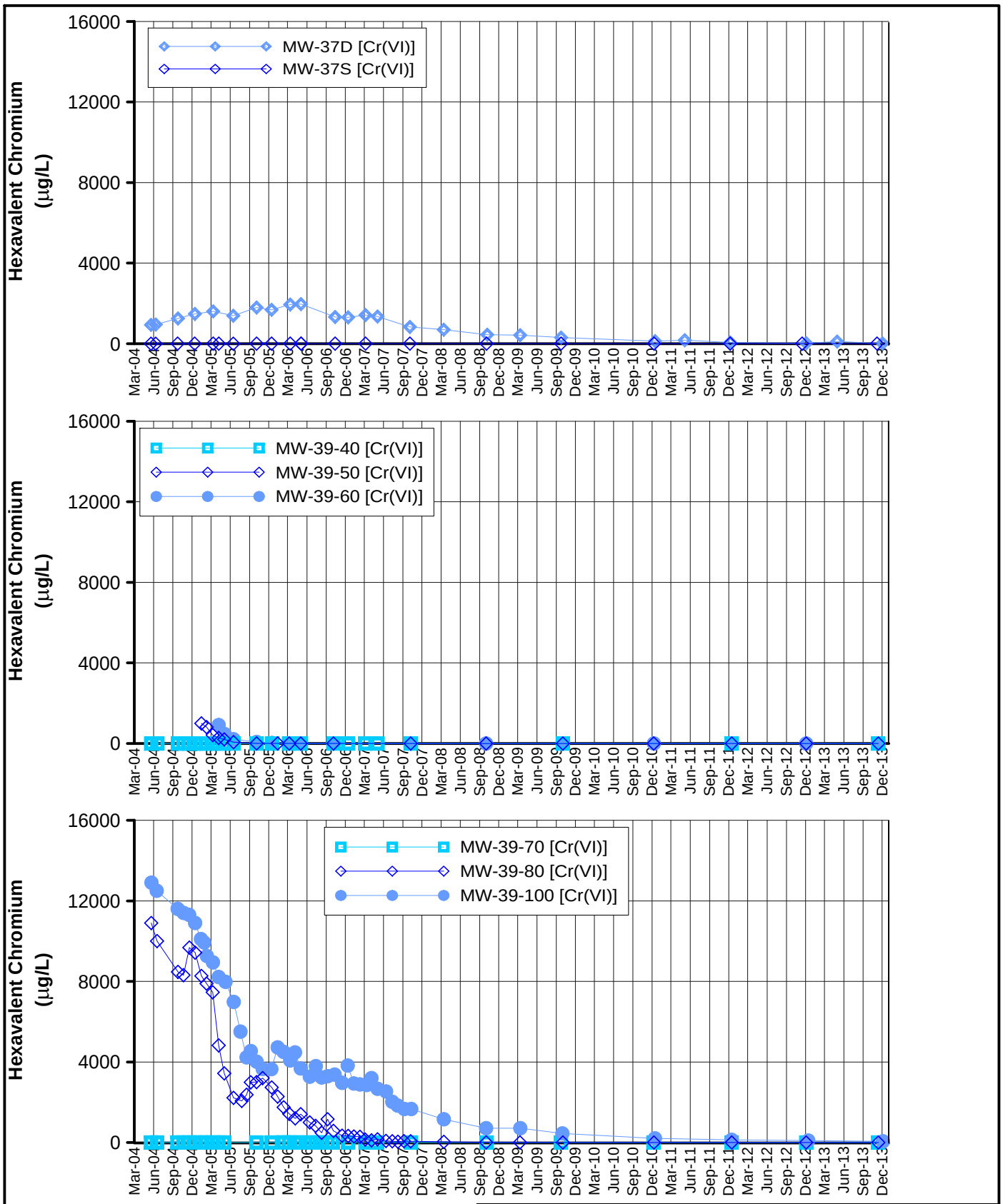
CH2MHILL



Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-36-70 is 20 µg/L.

FIGURE C-7
HEXAVALENT CHROMIUM
IN MW-36 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-39-40 is 20 µg/L.

FIGURE C-8
HEXAVALENT CHROMIUM
IN MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

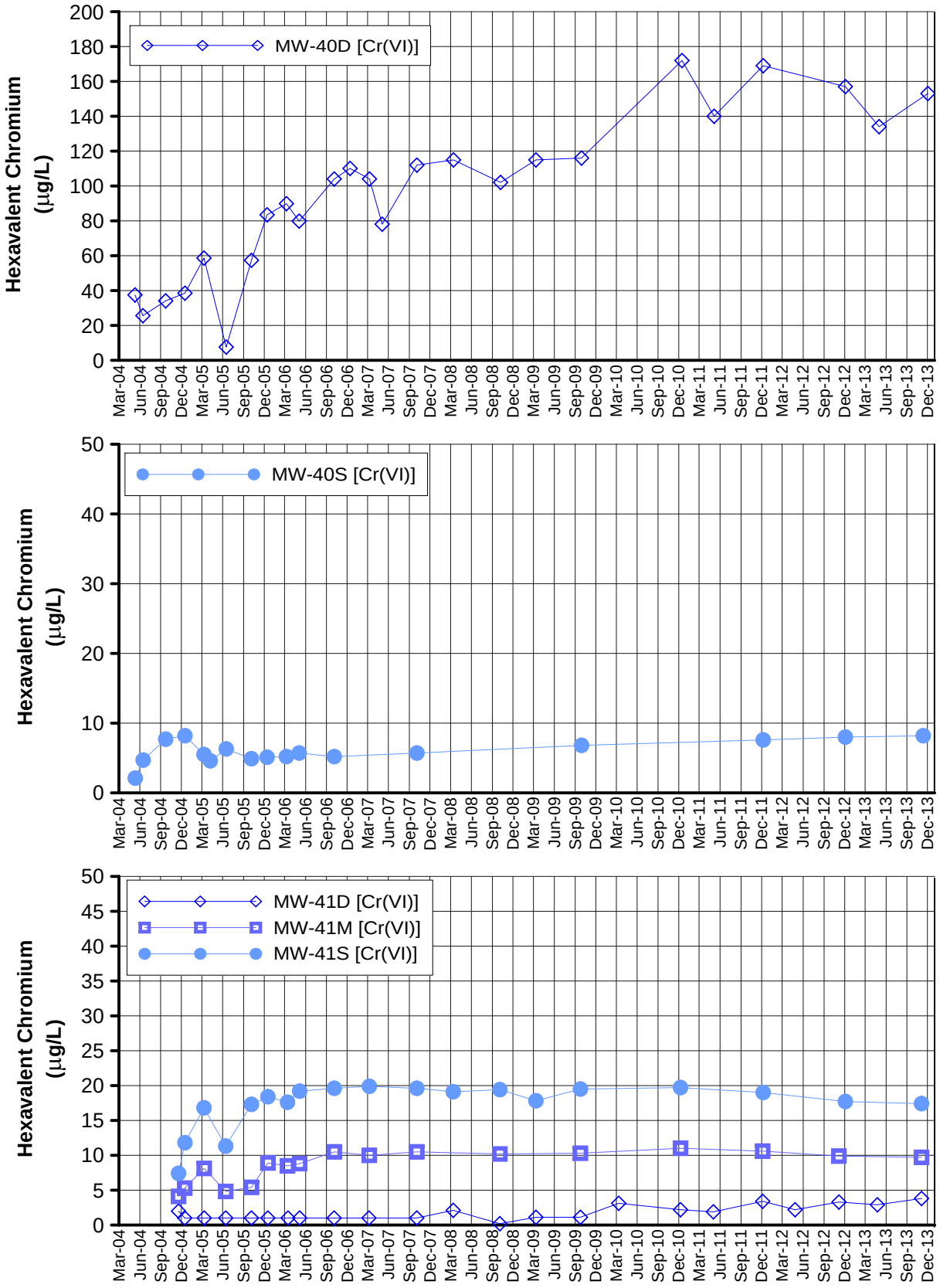
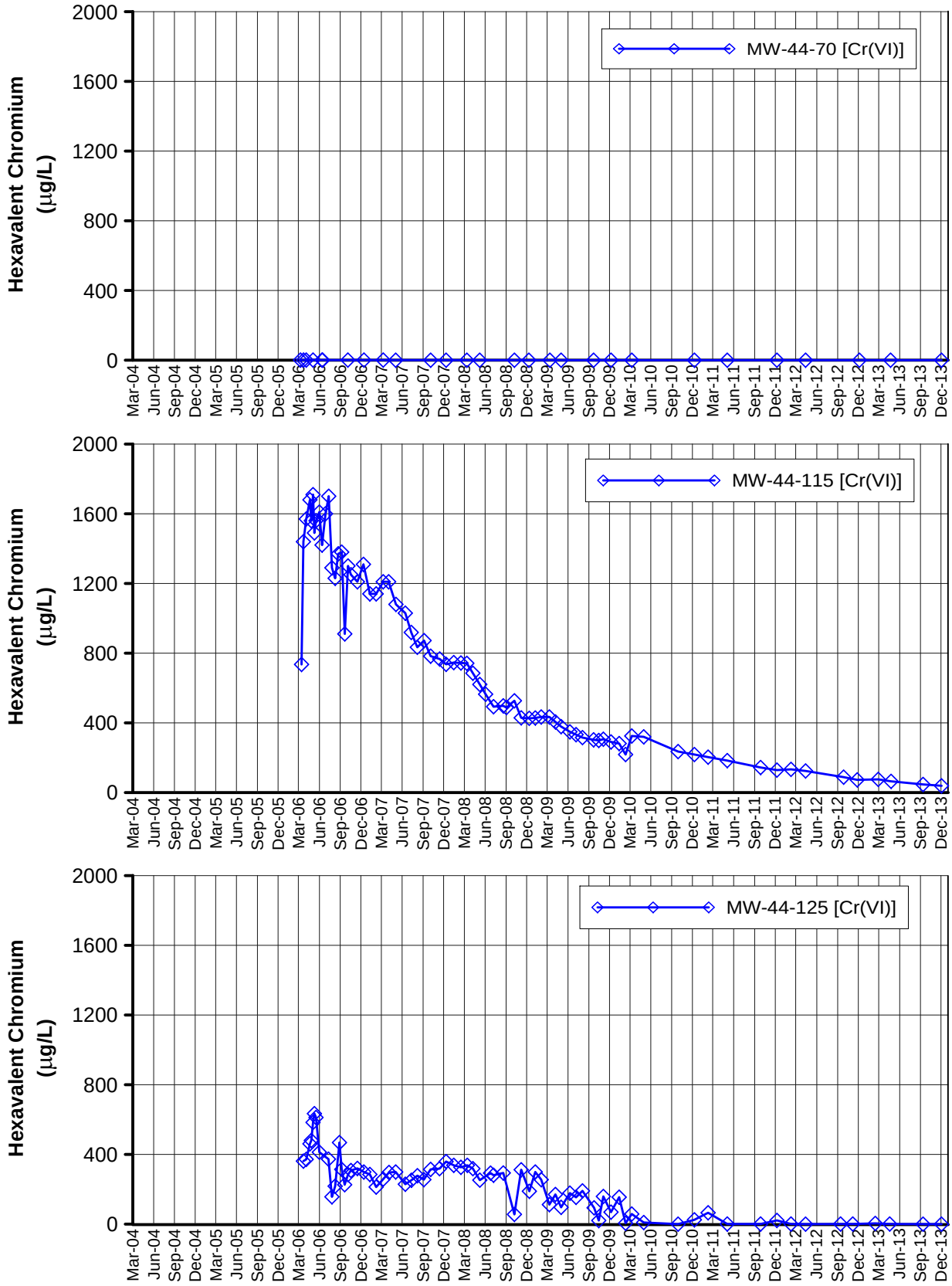


FIGURE C-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

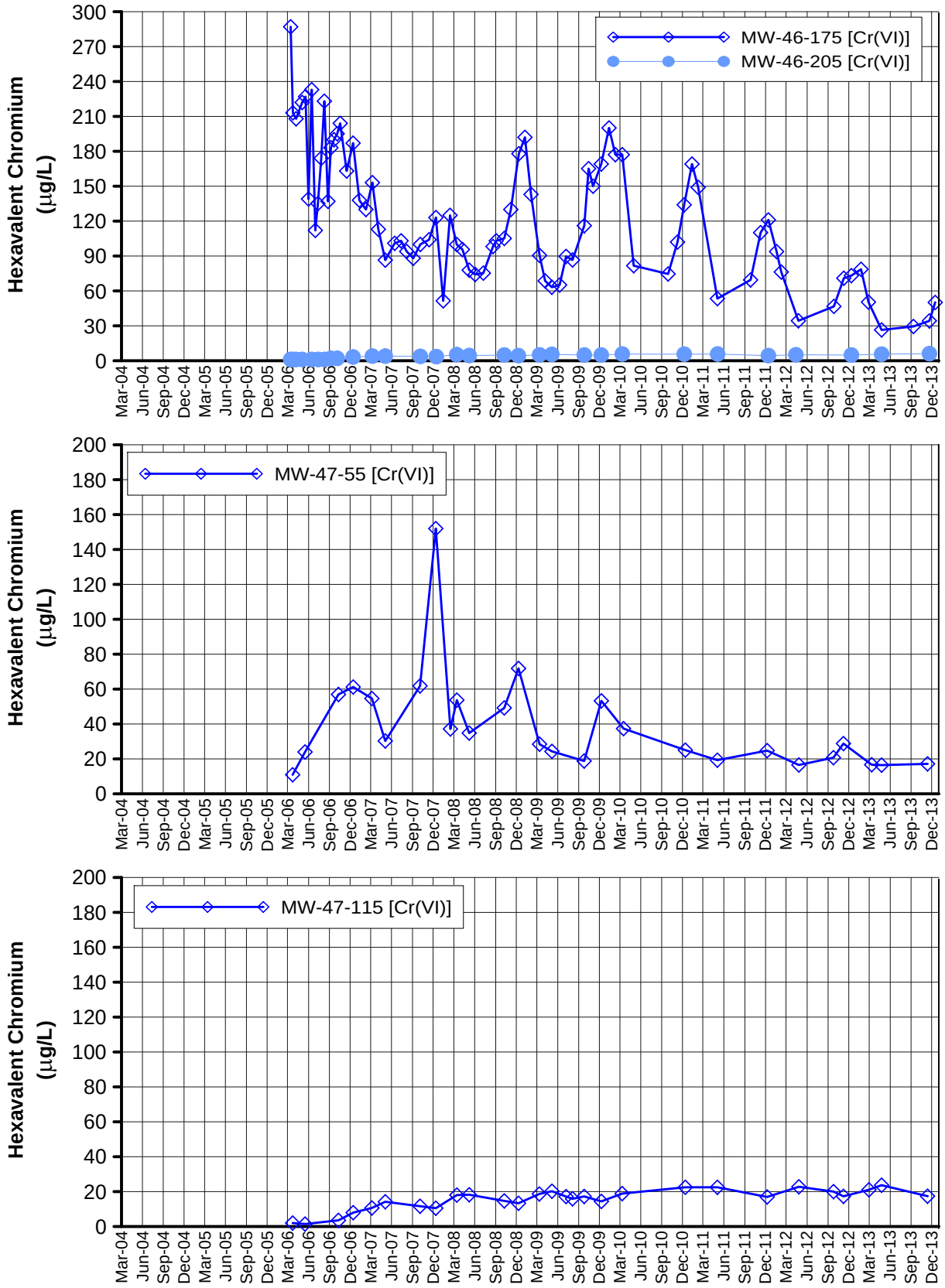
CH2MHILL



Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-44-70 is 20 µg/L.
3) The trigger level for MW-44-115 is 1,200 µg/L.
4) The trigger level for MW-44-125 is 475 µg/L.

FIGURE C-10
HEXAVALENT CHROMIUM
IN MW-44 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

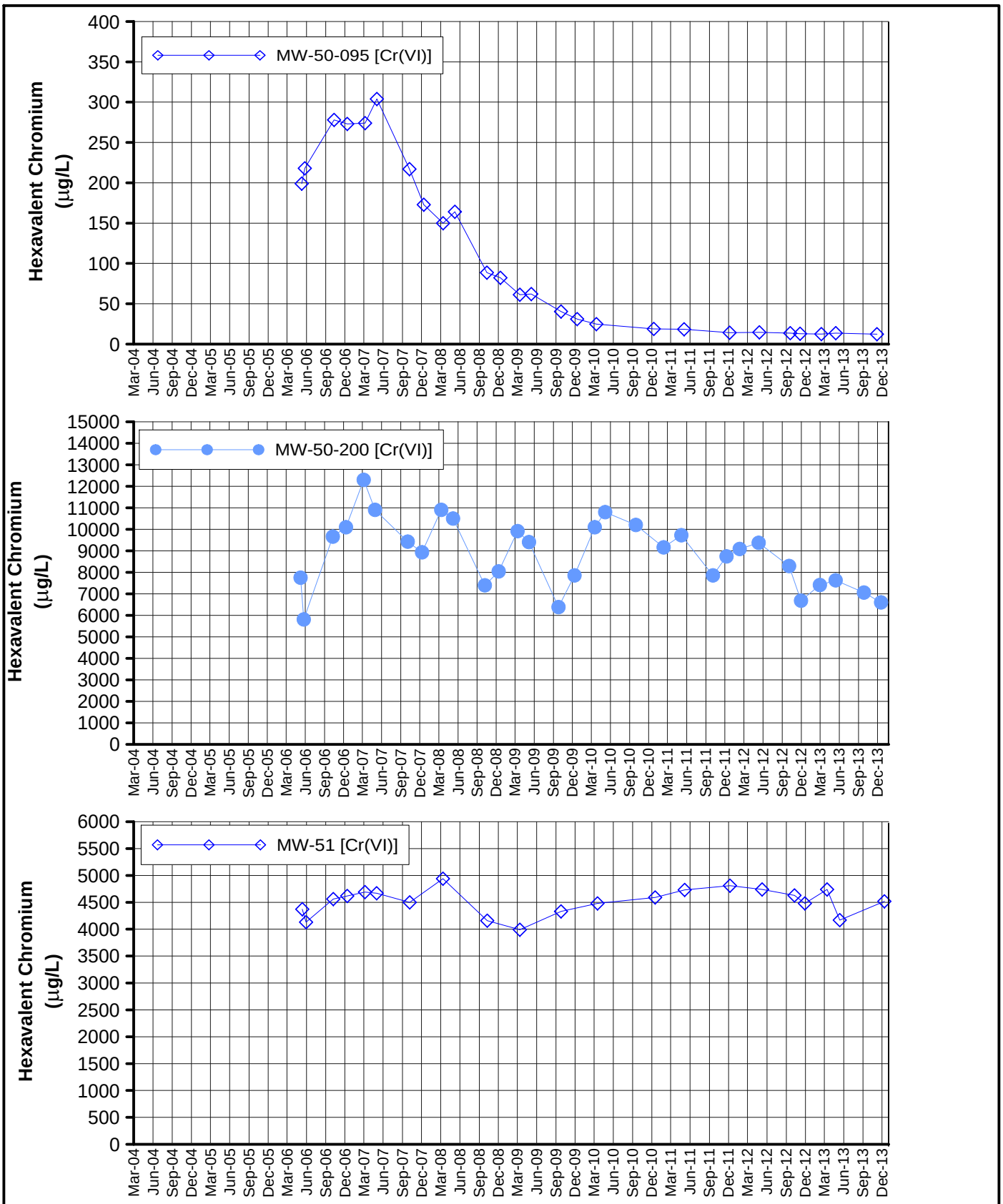


Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-46-175 is 225 µg/L.
3) The trigger level for MW-46-205 is 20 µg/L.
4) The trigger level for MW-47-55 is 475 µg/L.
5) The trigger level for MW-47-115 is 31 µg/L.

FIGURE C-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

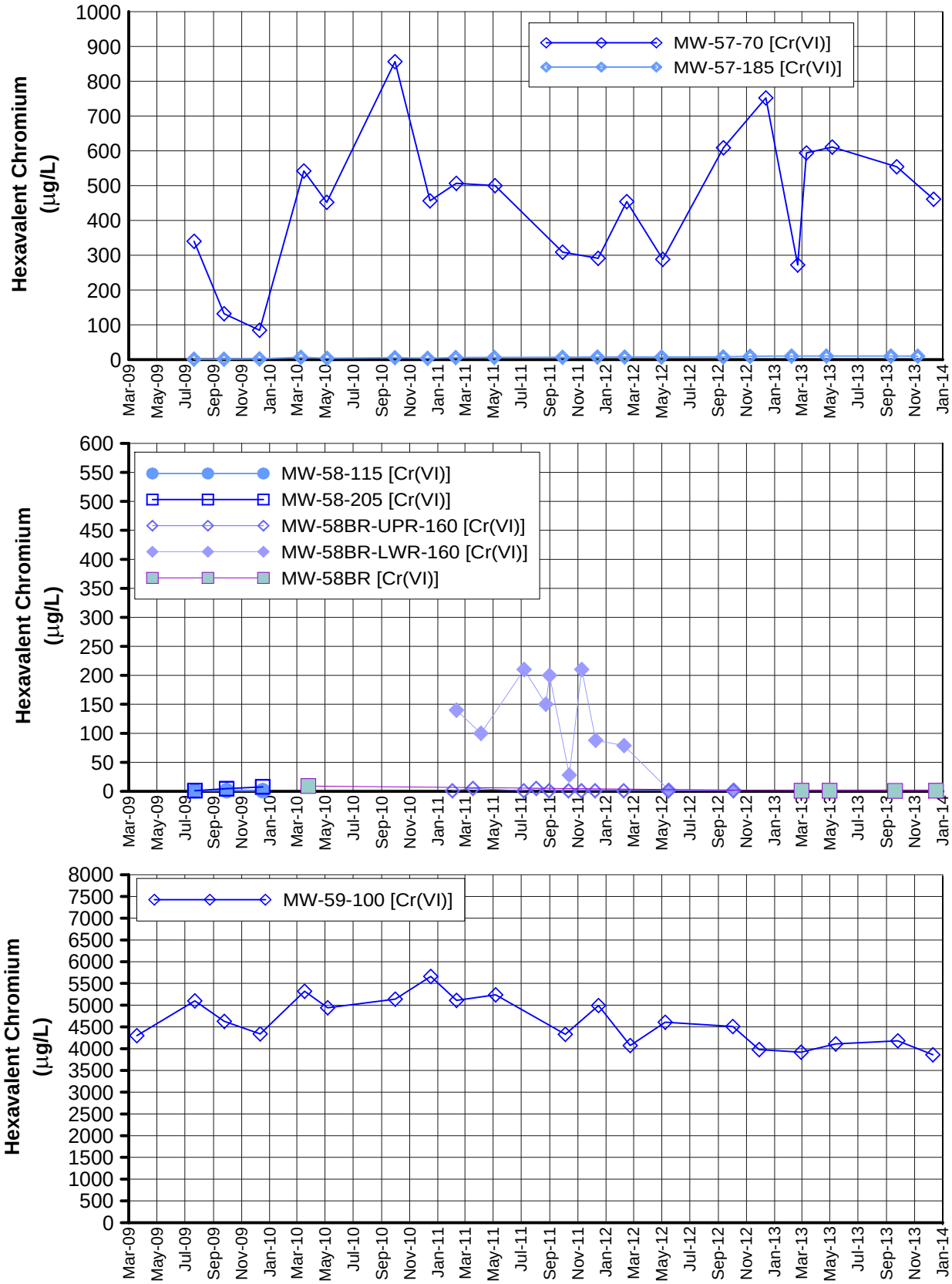
CH2MHILL



Notes:
1) Fourth Quarter 2010 data for MW-50-200 collected in February 2011 due to logistical issues.

FIGURE C-12
HEXAVALENT CHROMIUM
IN MW-50 AND MW-51 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

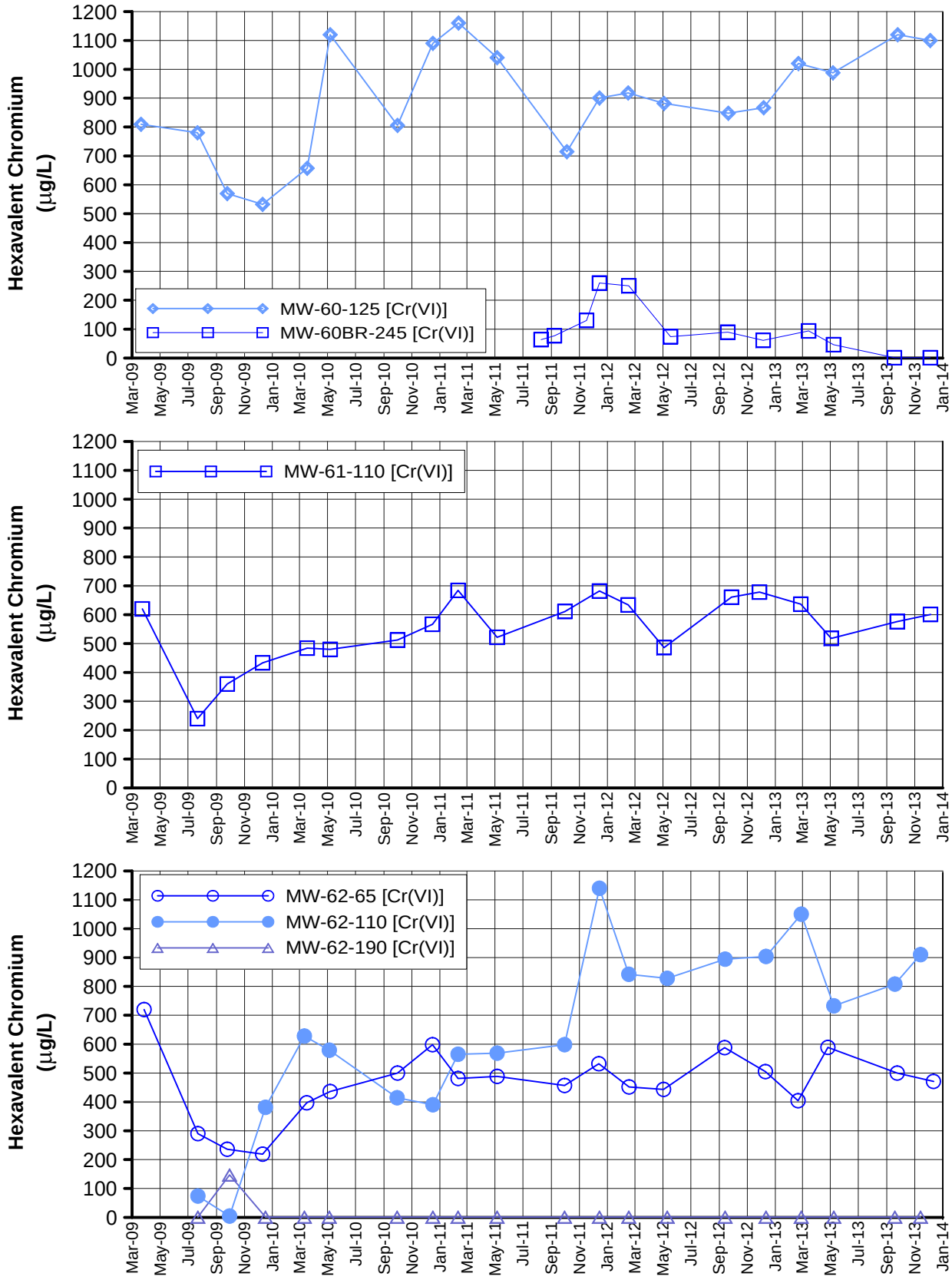
CH2MHILL



Note:

FIGURE C-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

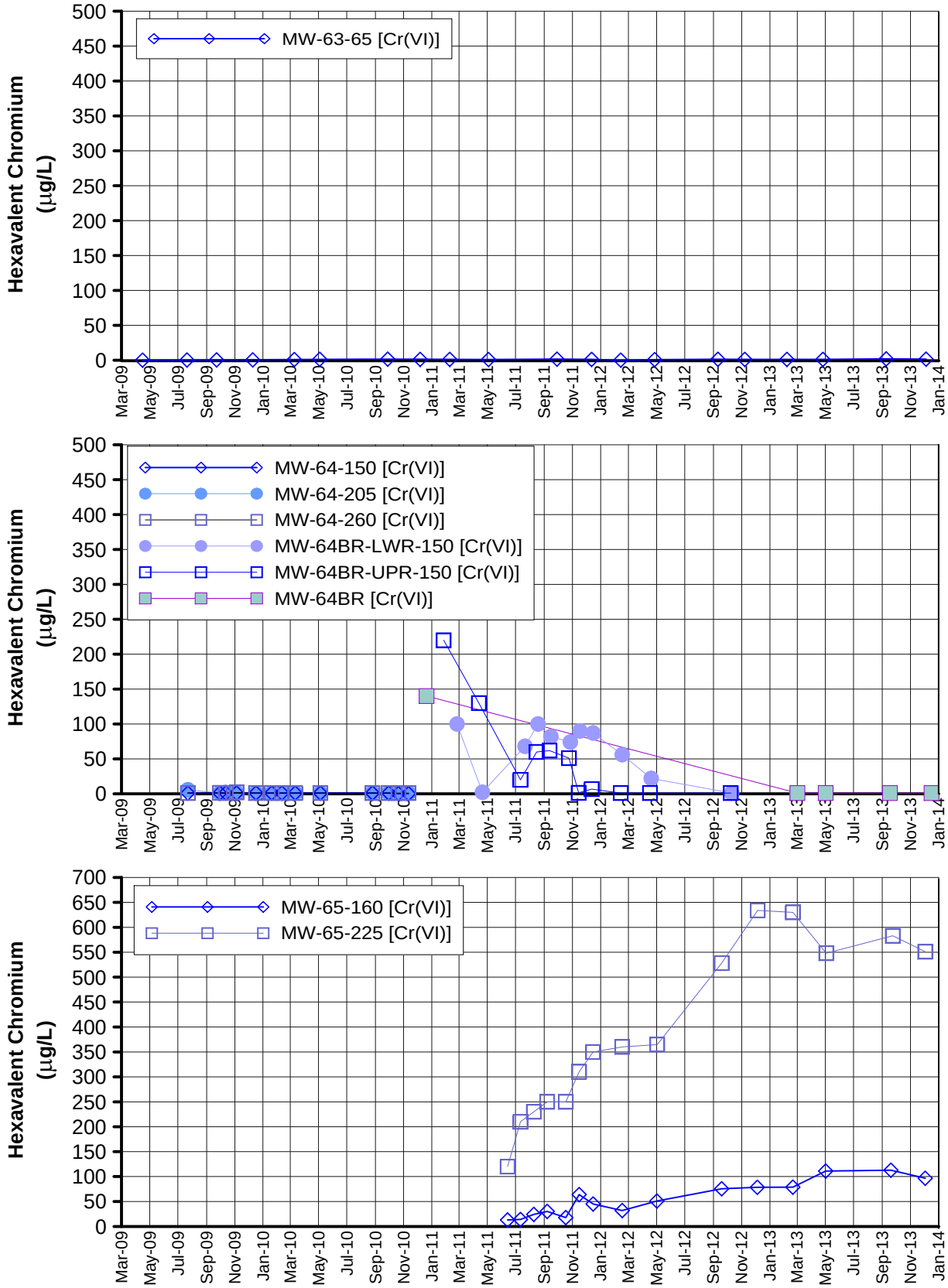
CH2MHILL



Notes:

FIGURE C-14
HEXAVALENT CHROMIUM IN THE MW-60 CLUSTER, MW-61-110 AND THE MW-62 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

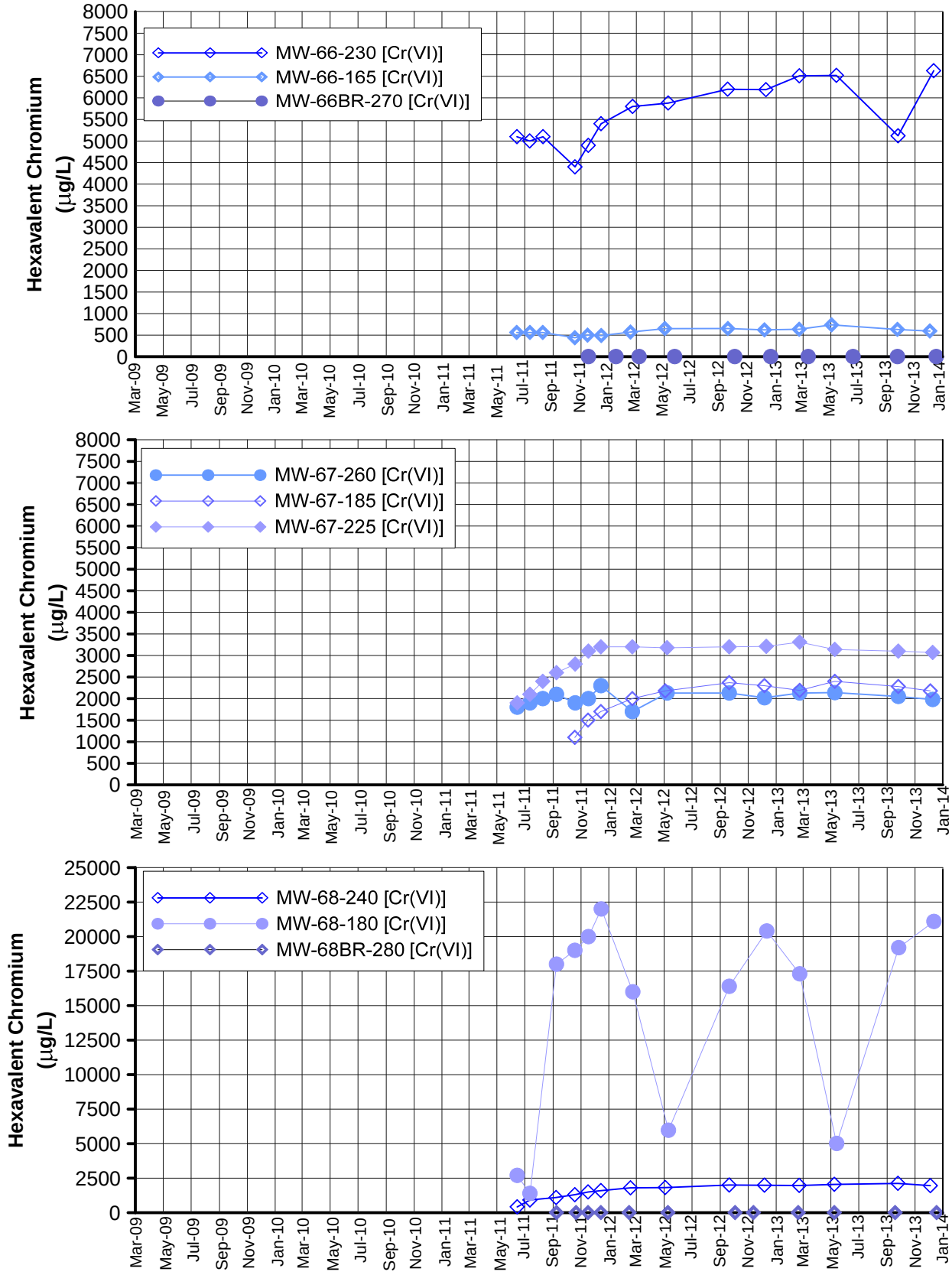
CH2MHILL



Note:

FIGURE D-15
HEXAVALENT CHROMIUM
IN MW-63-65, MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

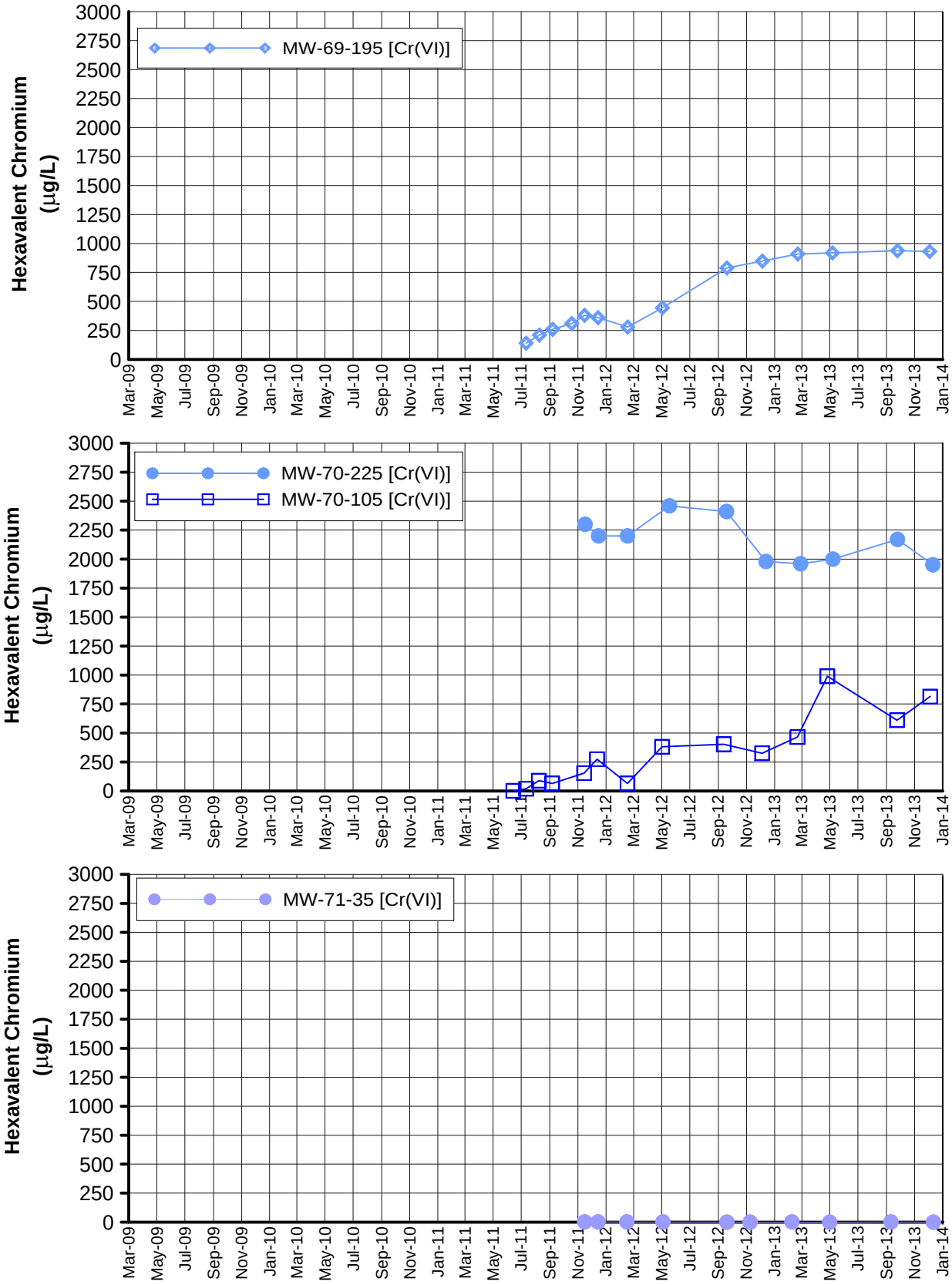
CH2MHILL



Notes:

FIGURE C-16
HEXAVALENT CHROMIUM
IN MW-66, MW-67, AND MW-68 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

FIGURE C-17
HEXAVALENT CHROMIUM
IN MW-69-195, THE MW-70 CLUSTER, AND MW-71-35
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

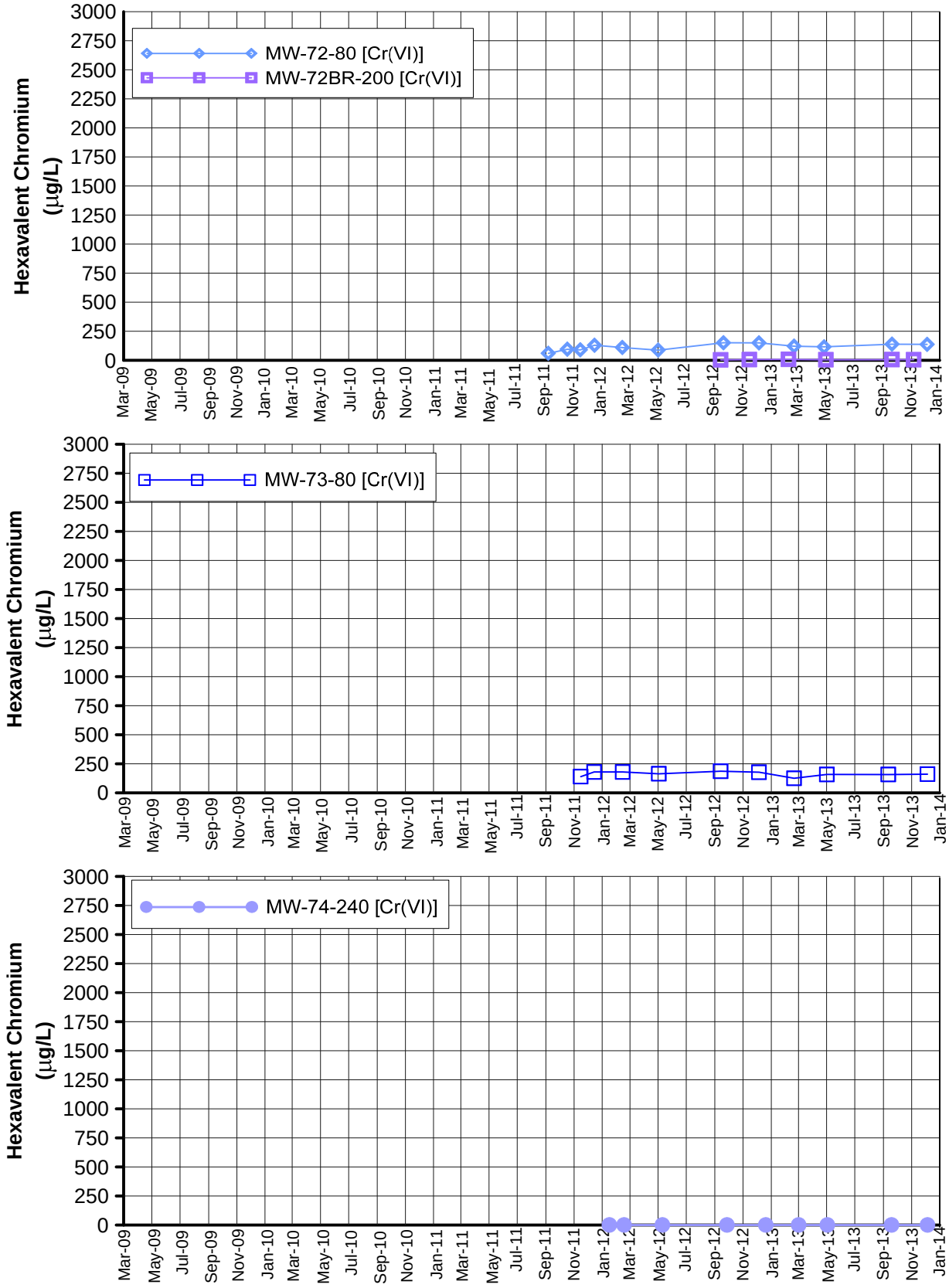


FIGURE C-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-80, AND MW-74-240
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

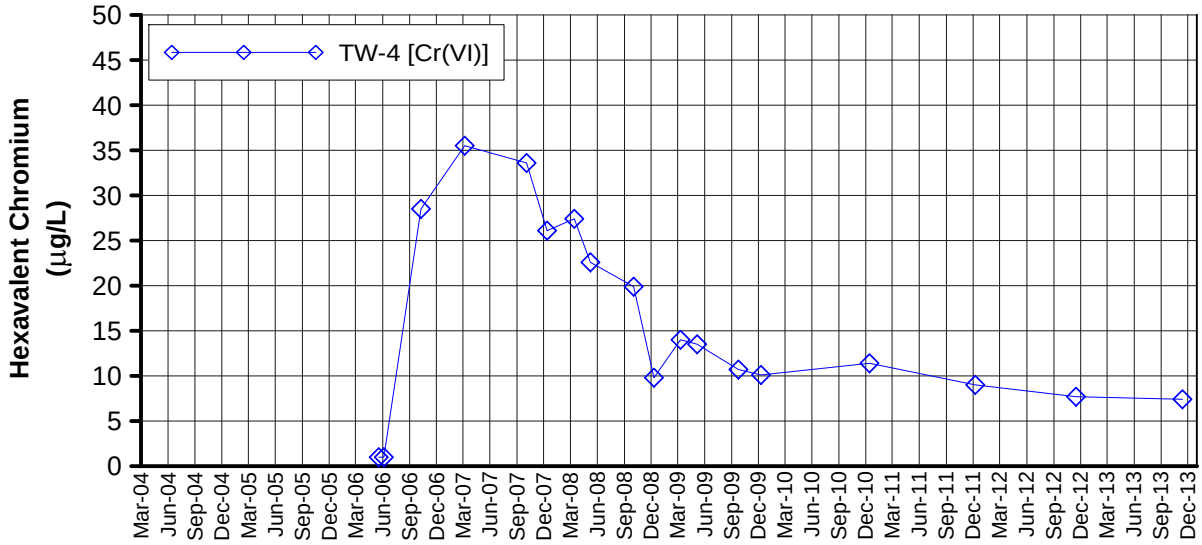


FIGURE C-19
HEXAVALENT CHROMIUM
IN TW-4
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

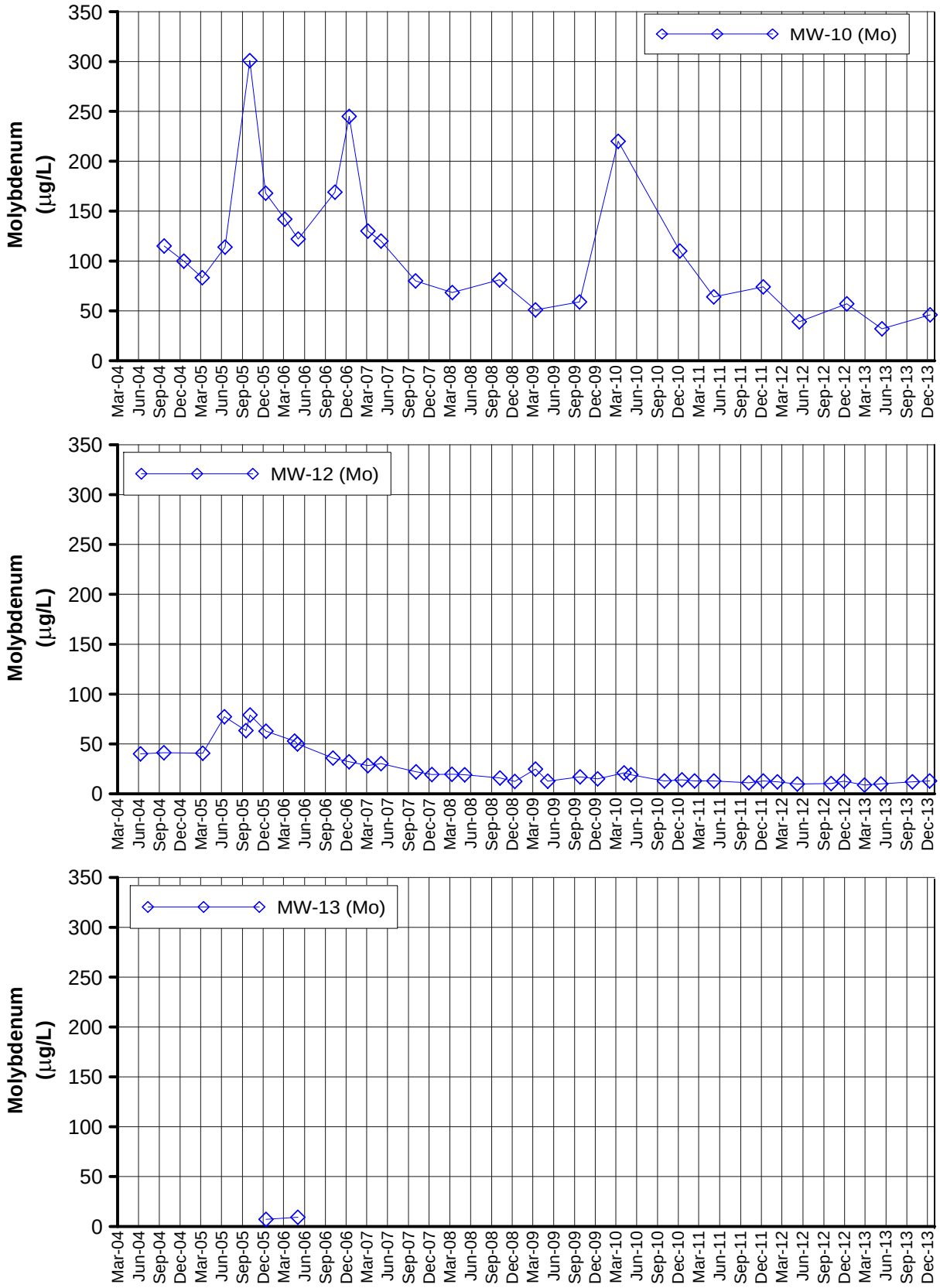


FIGURE C-20
MOLYBDENUM
IN MW-10, MW-12, AND MW-13
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

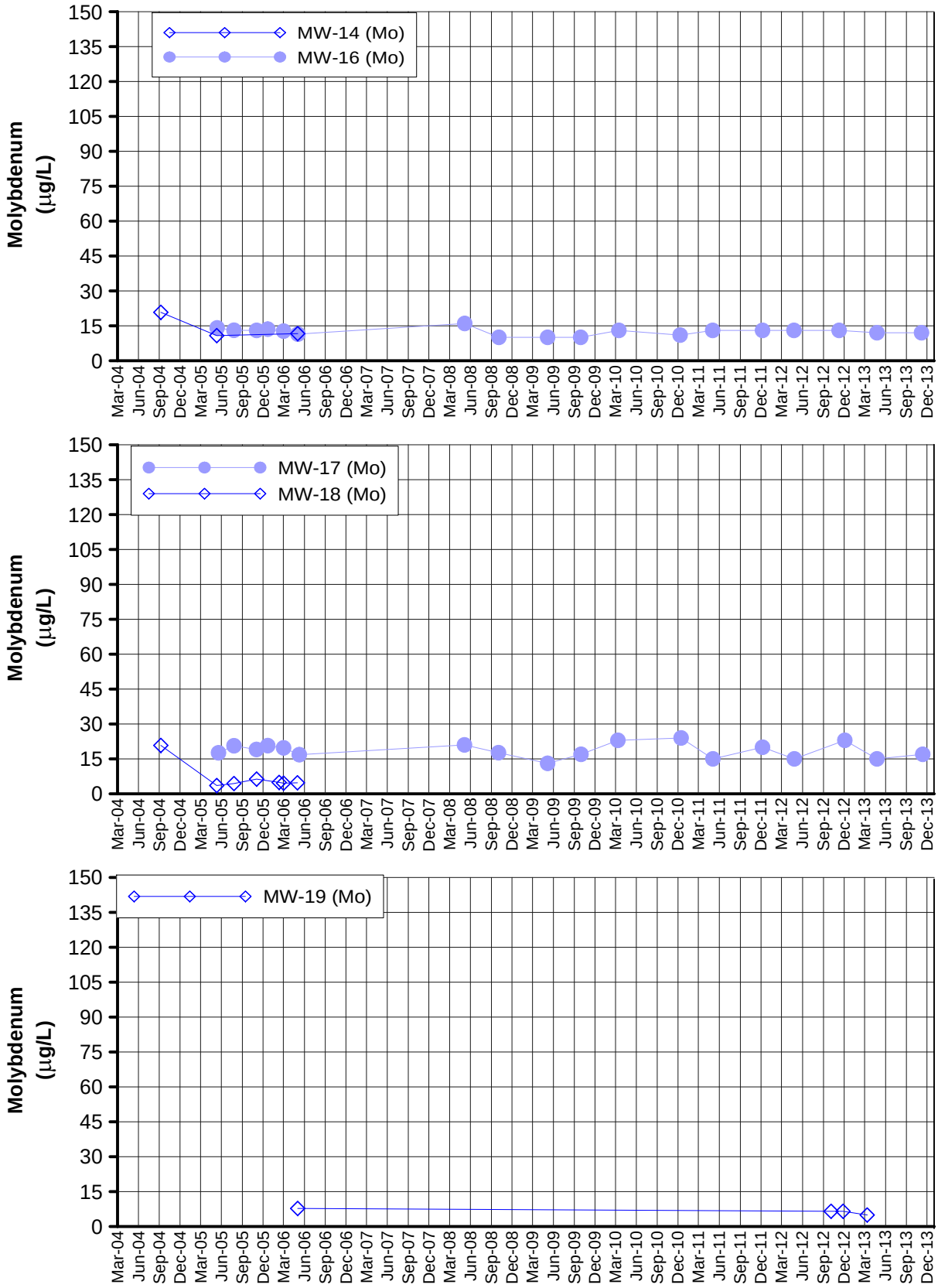


FIGURE C-21
MOLYBDENUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

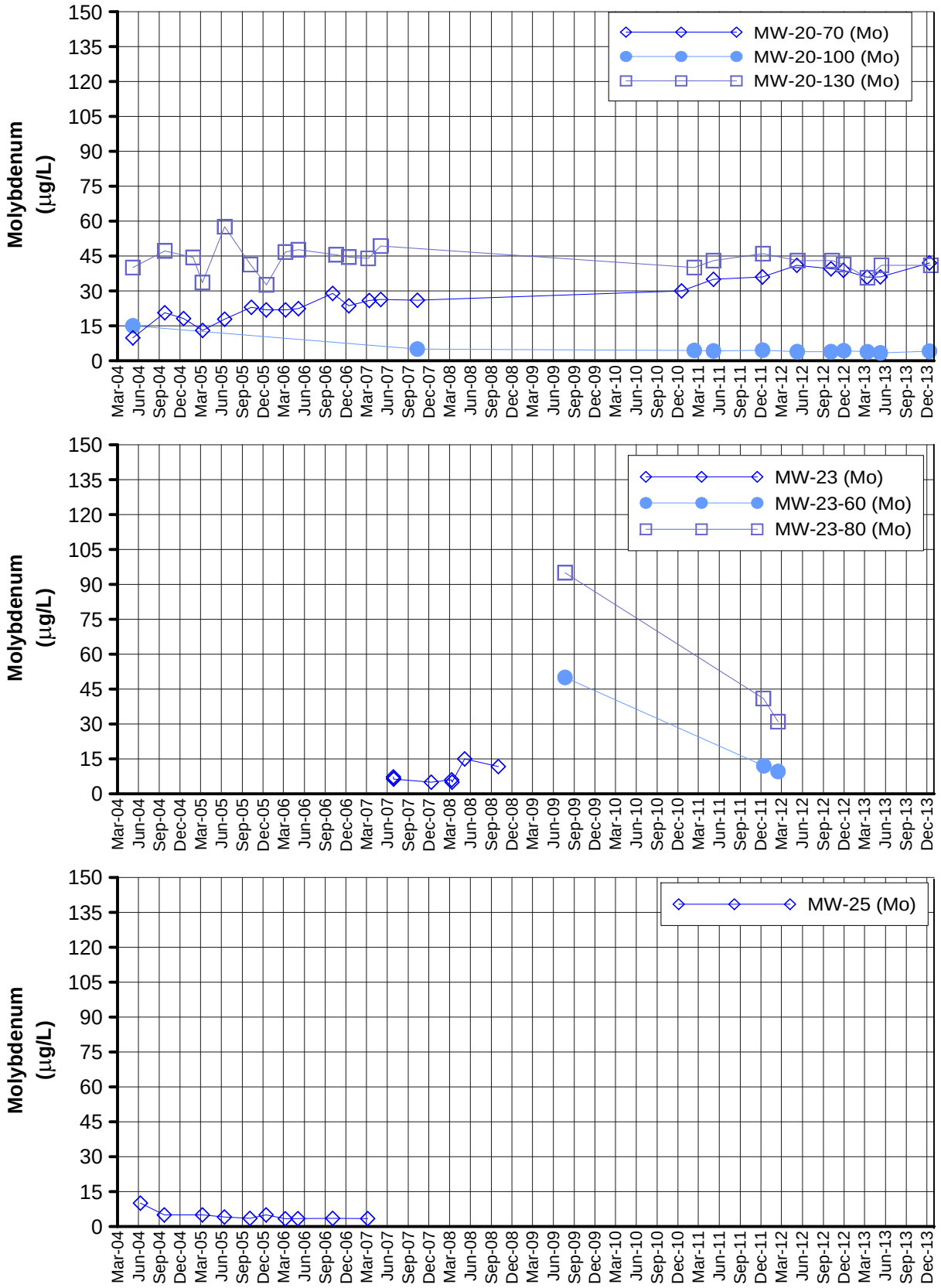


FIGURE C-22
MOLYBDENUM
IN MW-20 CLUSTER, MW-23 CLUSTER, AND MW-25
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

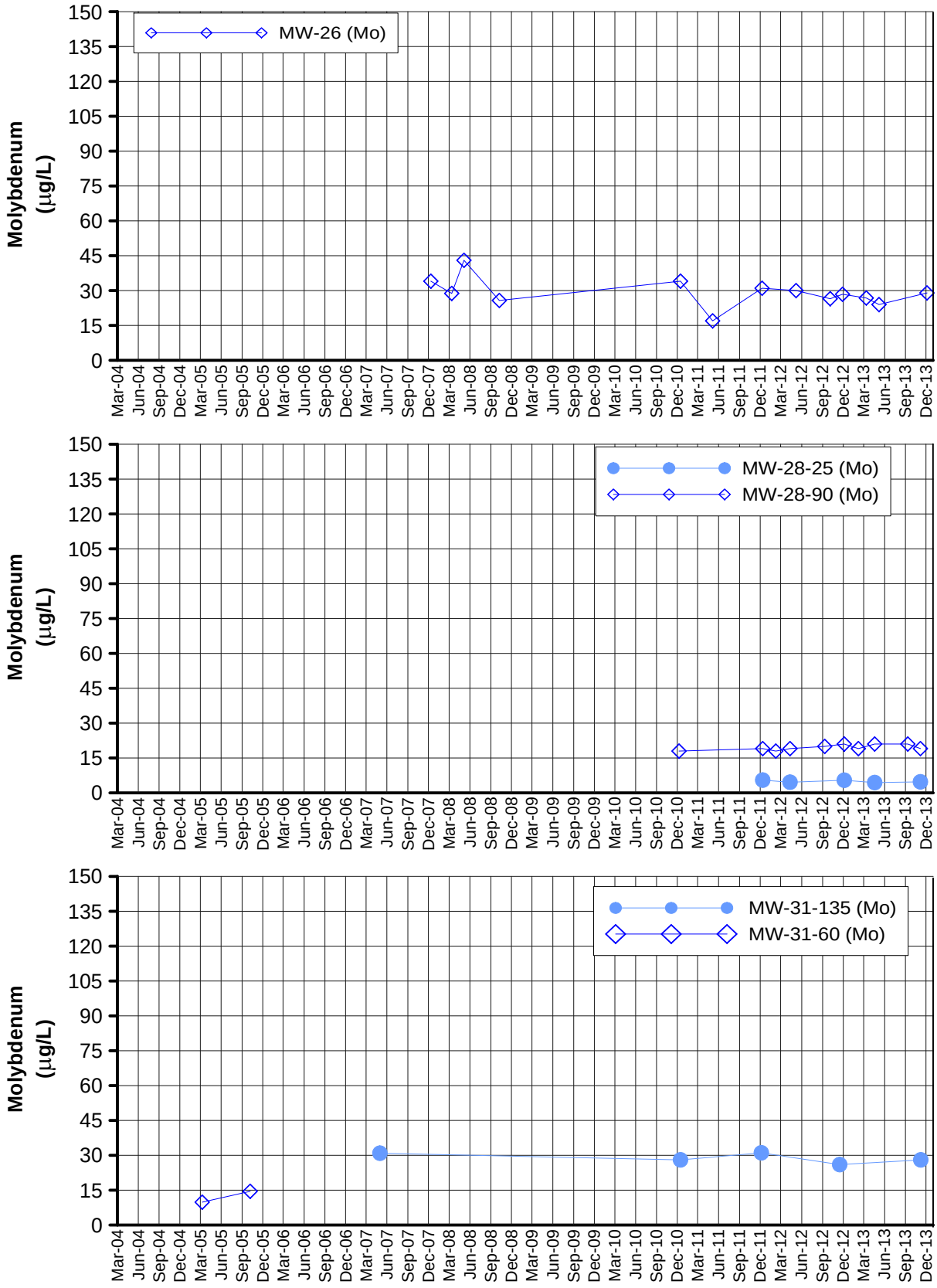


FIGURE C-23
MOLYBDENUM
IN MW-26, MW-28 CLUSTER AND MW-31 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

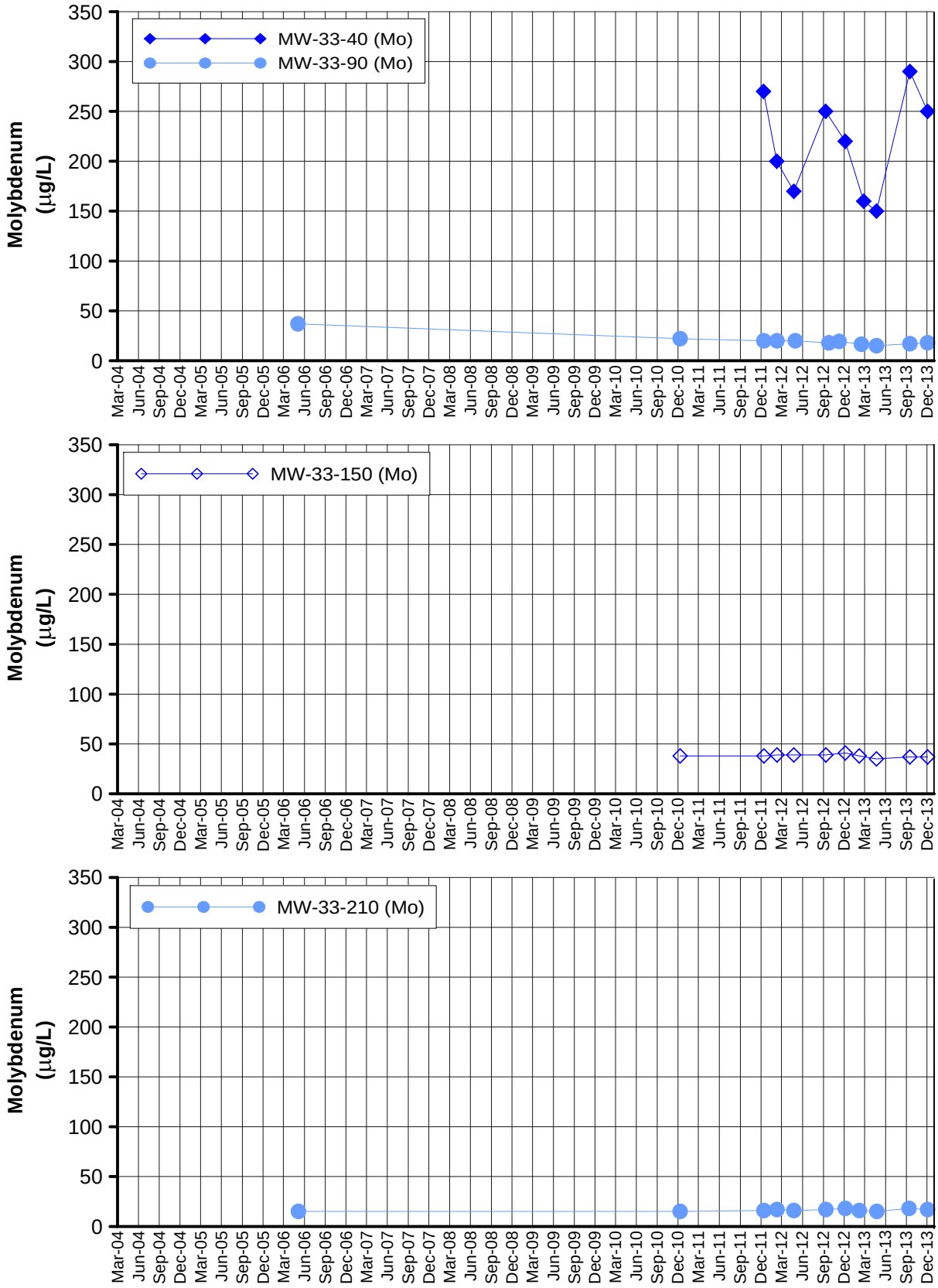


FIGURE C-24
MOLYBDENUM
IN MW-33 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

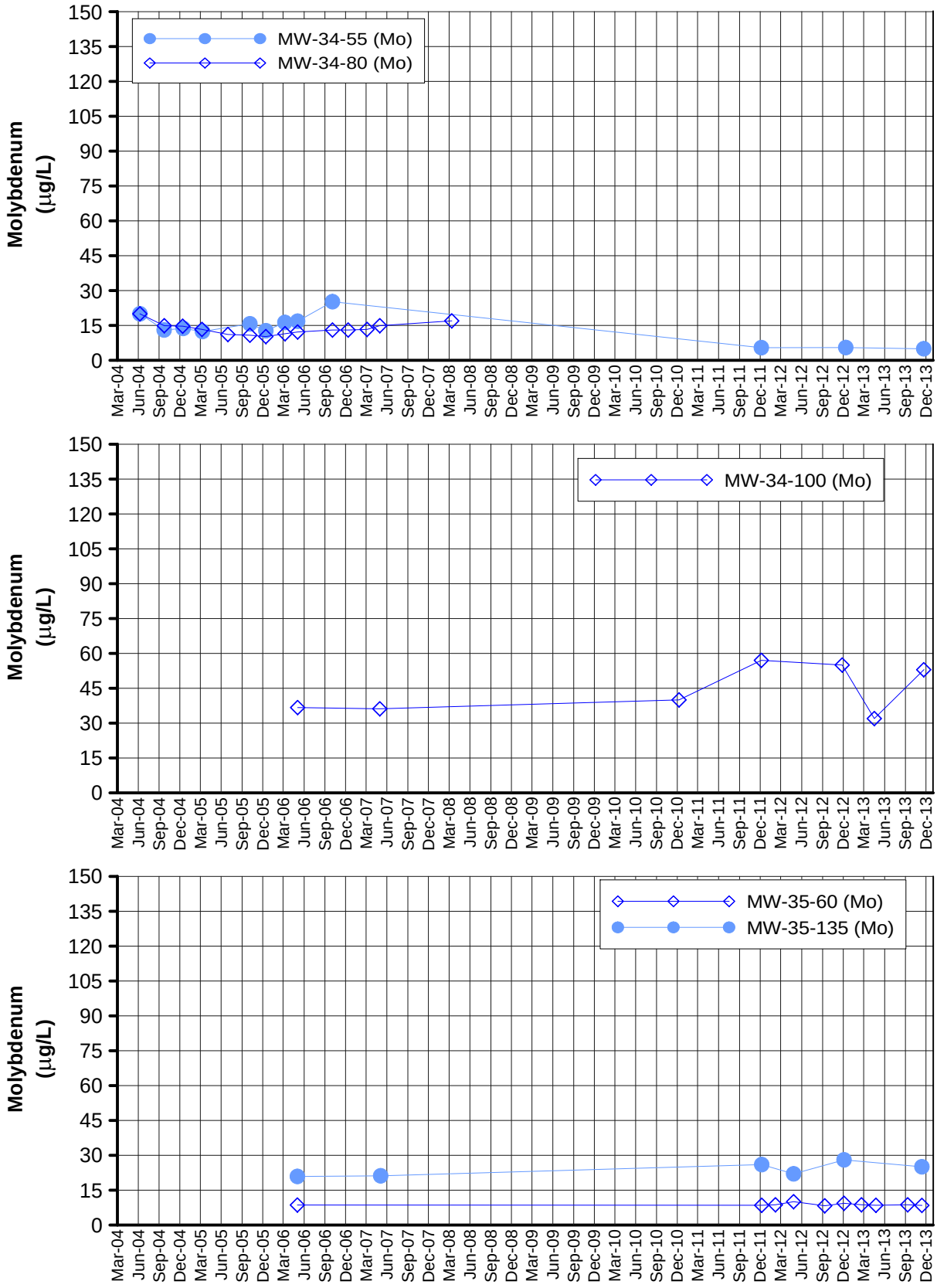


FIGURE C-25
MOLYBDENUM
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

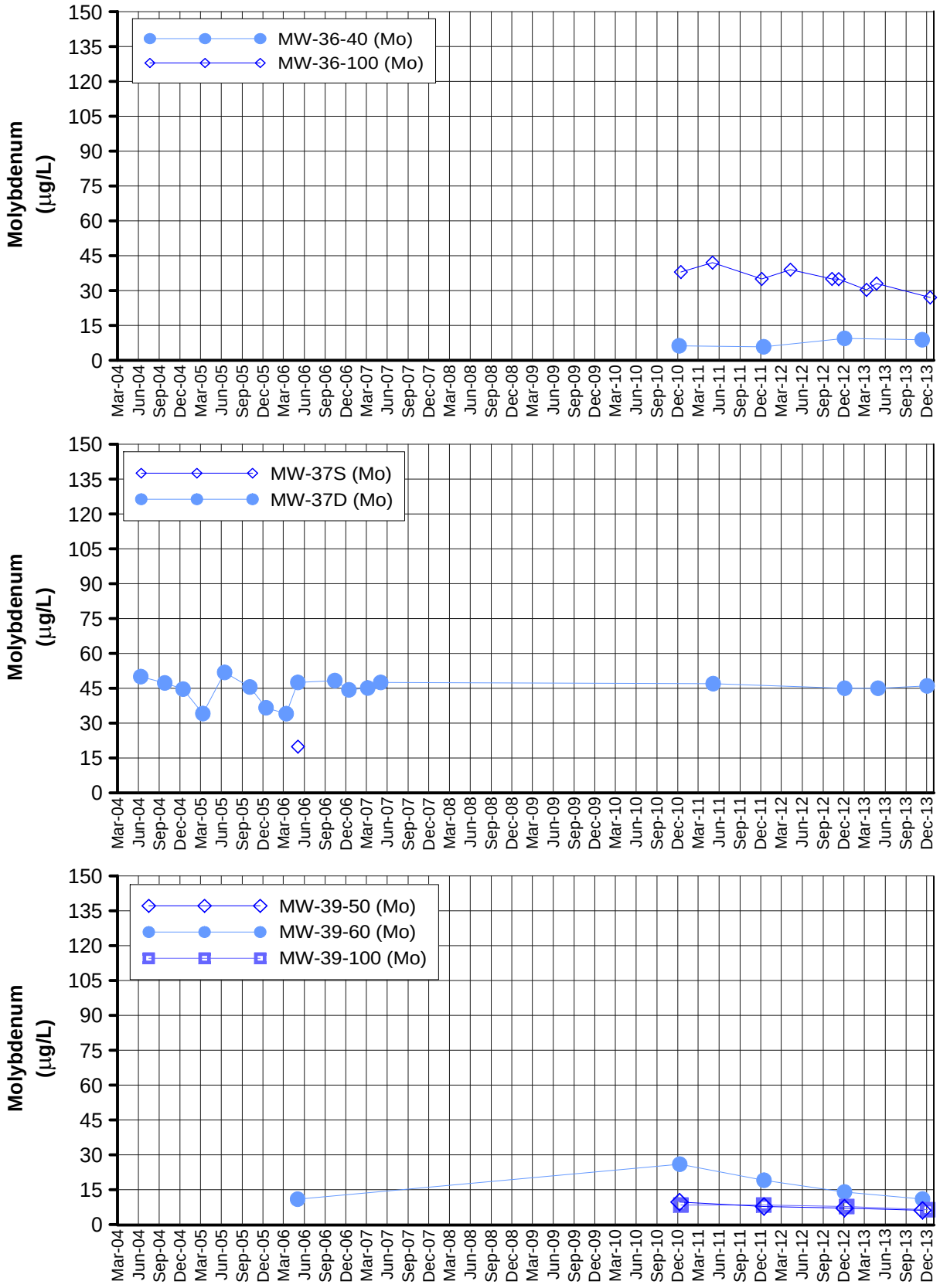


FIGURE C-26
MOLYBDENUM
IN MW-36, MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

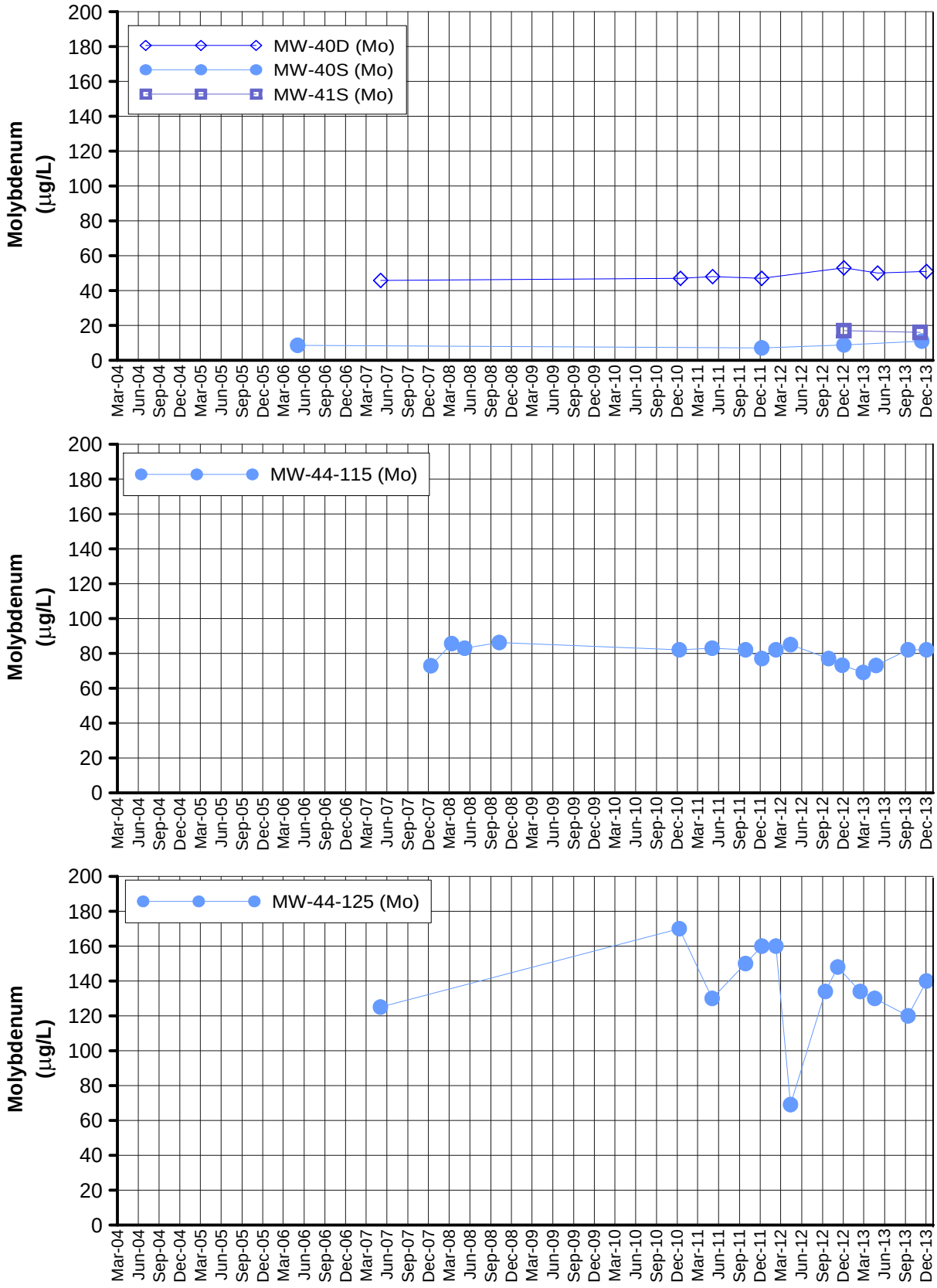


FIGURE C-27
MOLYBDENUM
IN MW-40 CLUSTER, MW-41S, AND MW-44 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

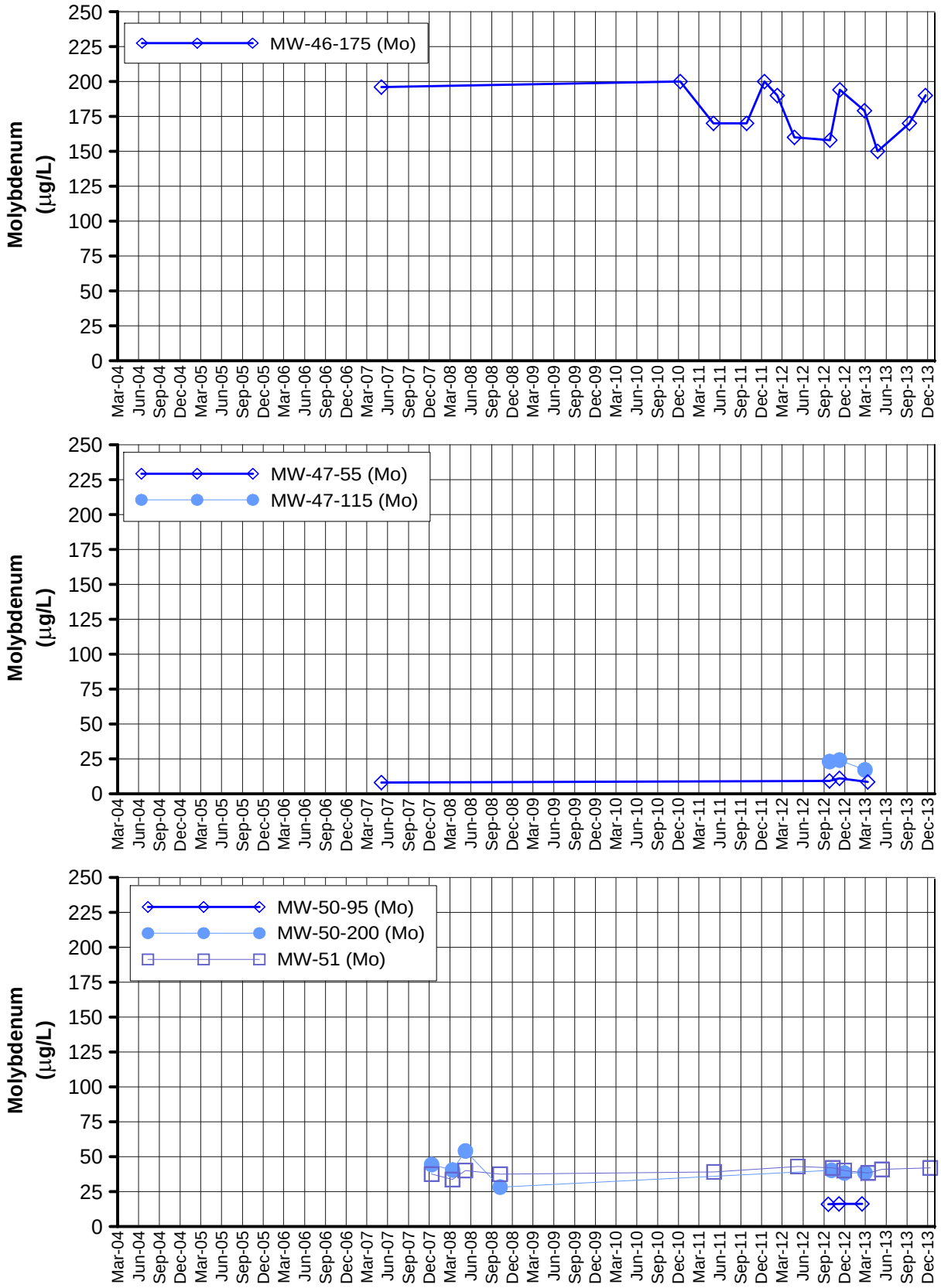
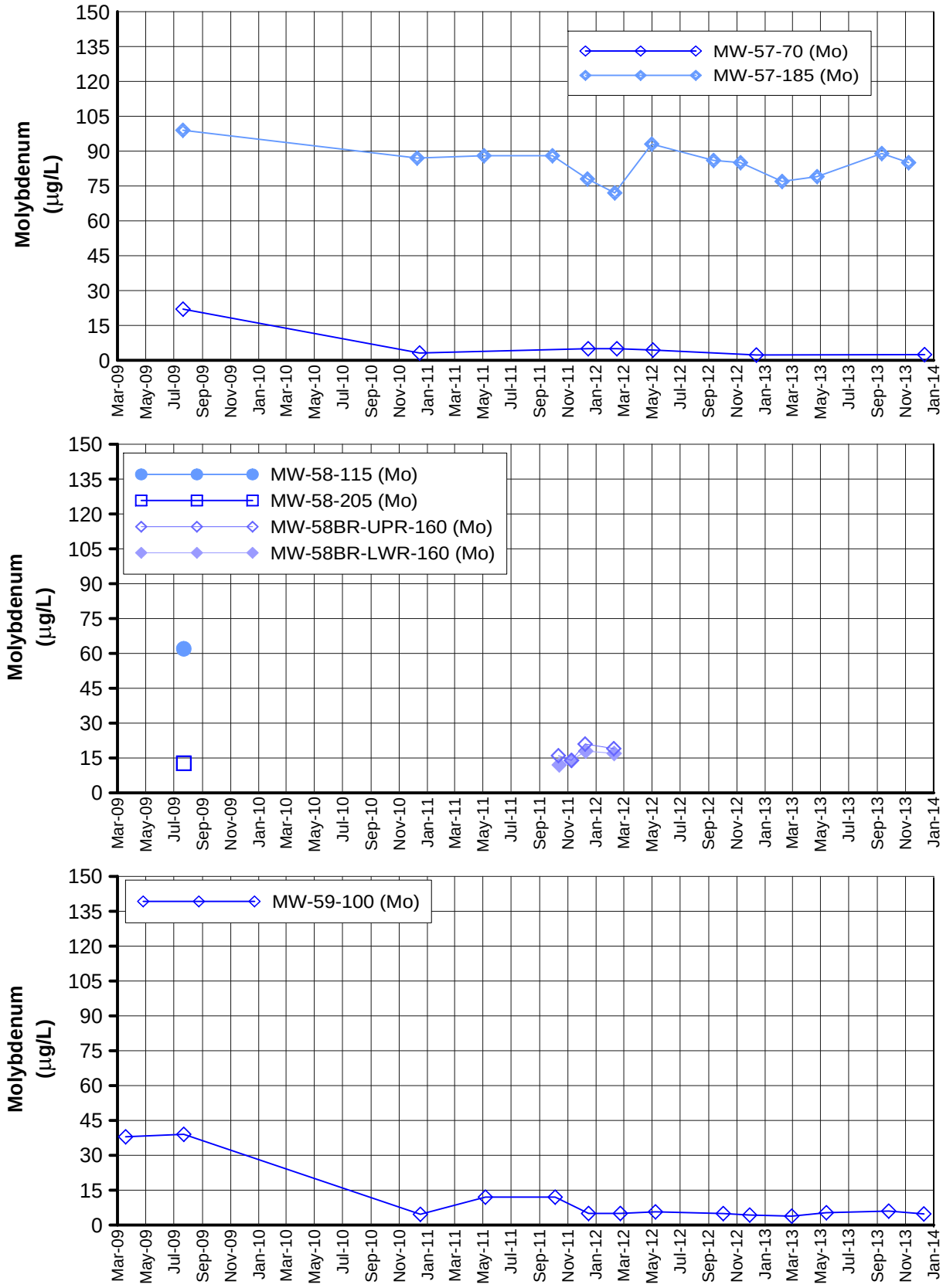


FIGURE C-28
MOLYBDENUM
IN MW-46-175, MW-47 CLUSTER, MW-50 CLUSTER, AND MW-51
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

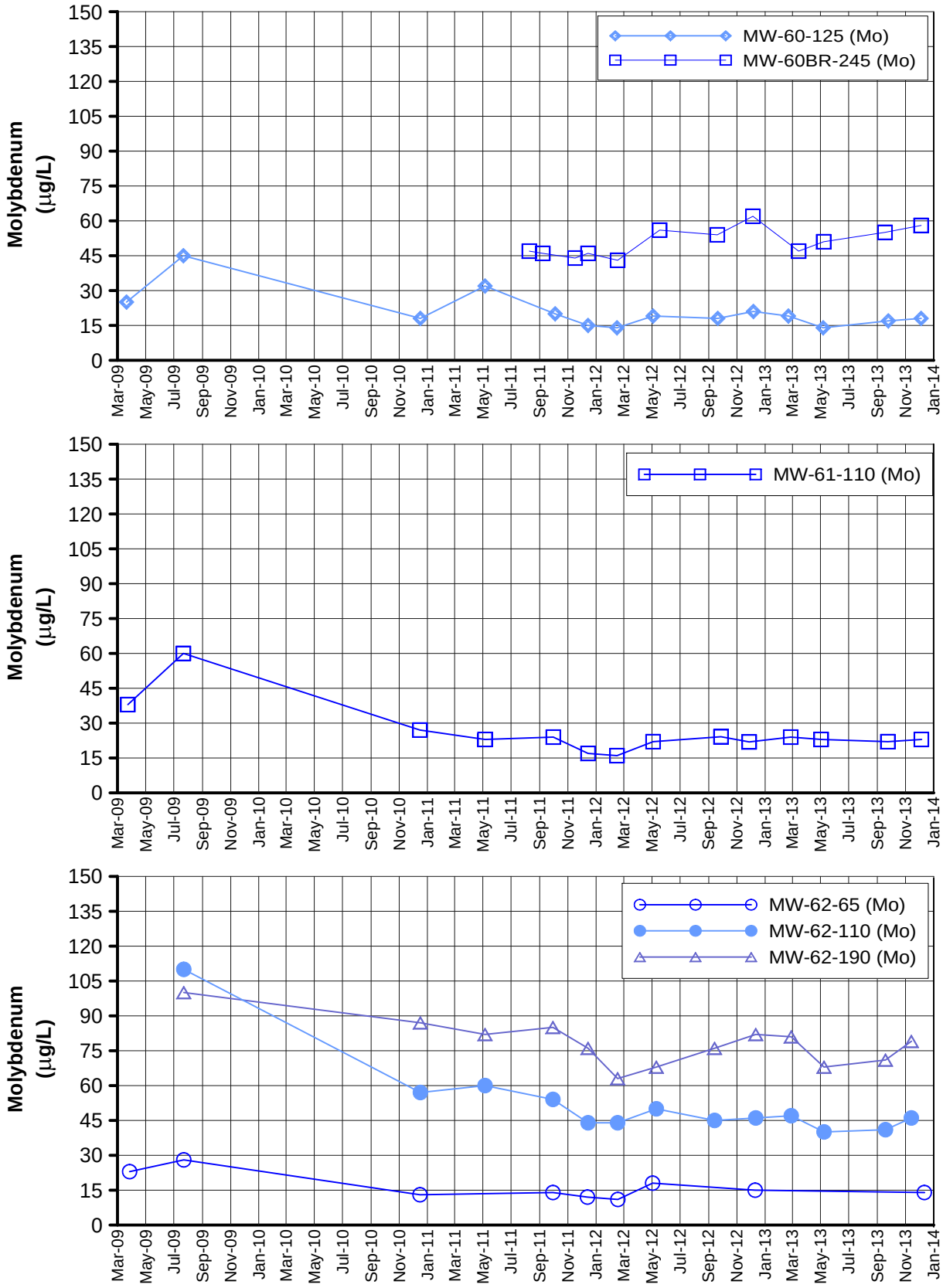
CH2MHILL



Notes:

FIGURE C-29
MOLYBDENUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

FIGURE C-30
MOLYBDENUM
IN THE MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

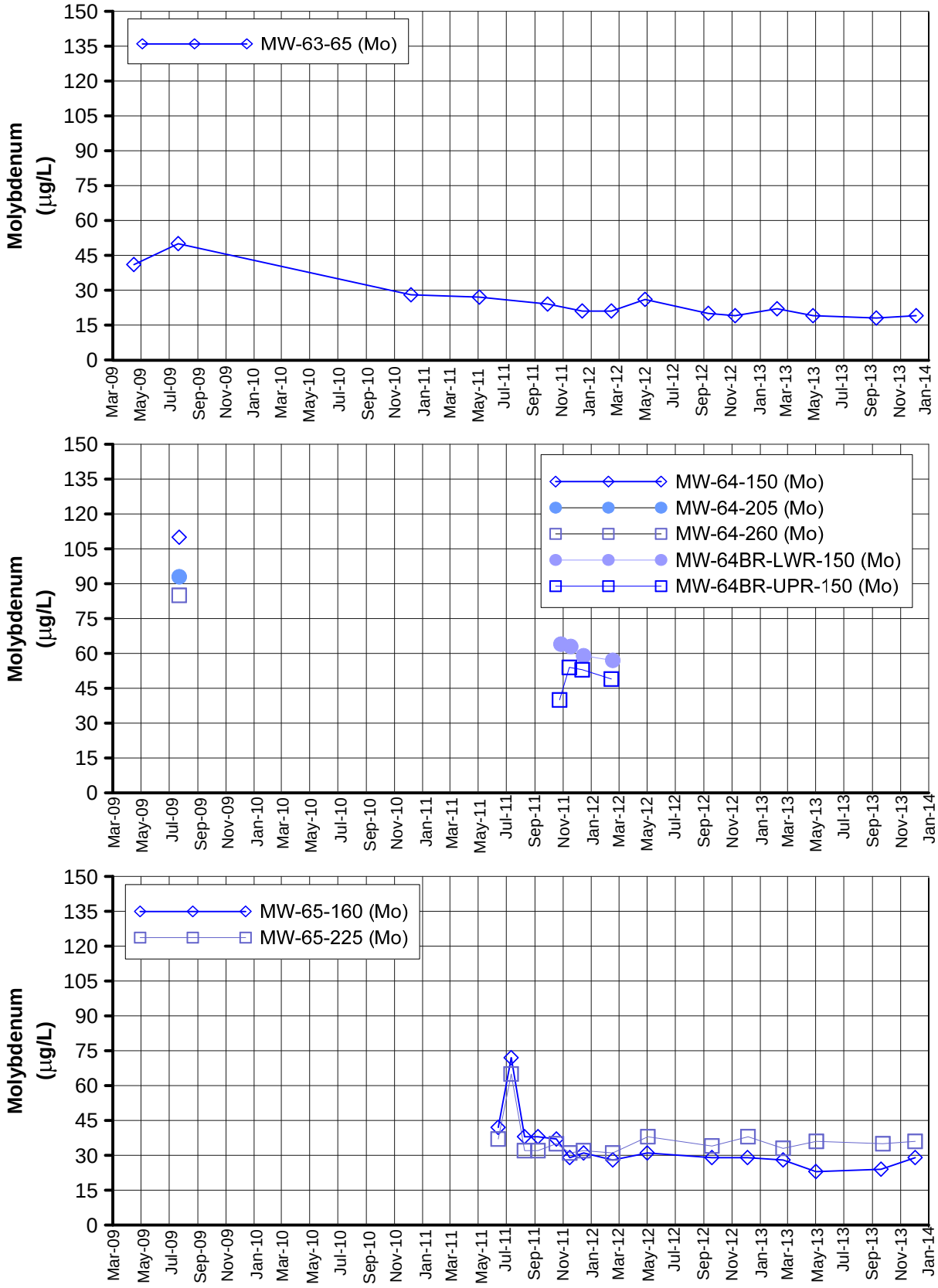


FIGURE C-31
MOLYBDENUM
IN MW-63-065, MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

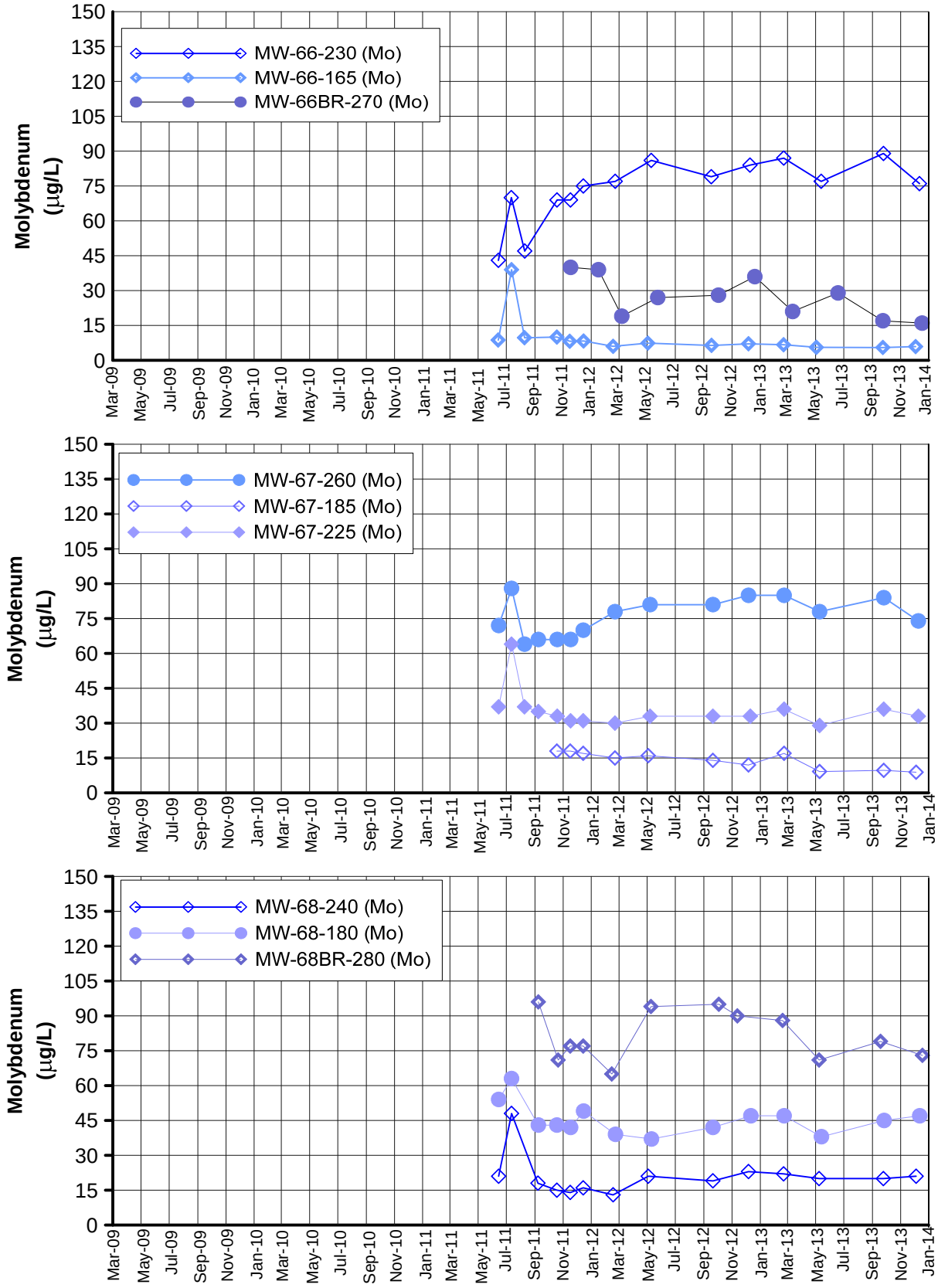


FIGURE C-32
MOLYBDENUM
IN MW-66, MW-67 AND MW-68 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

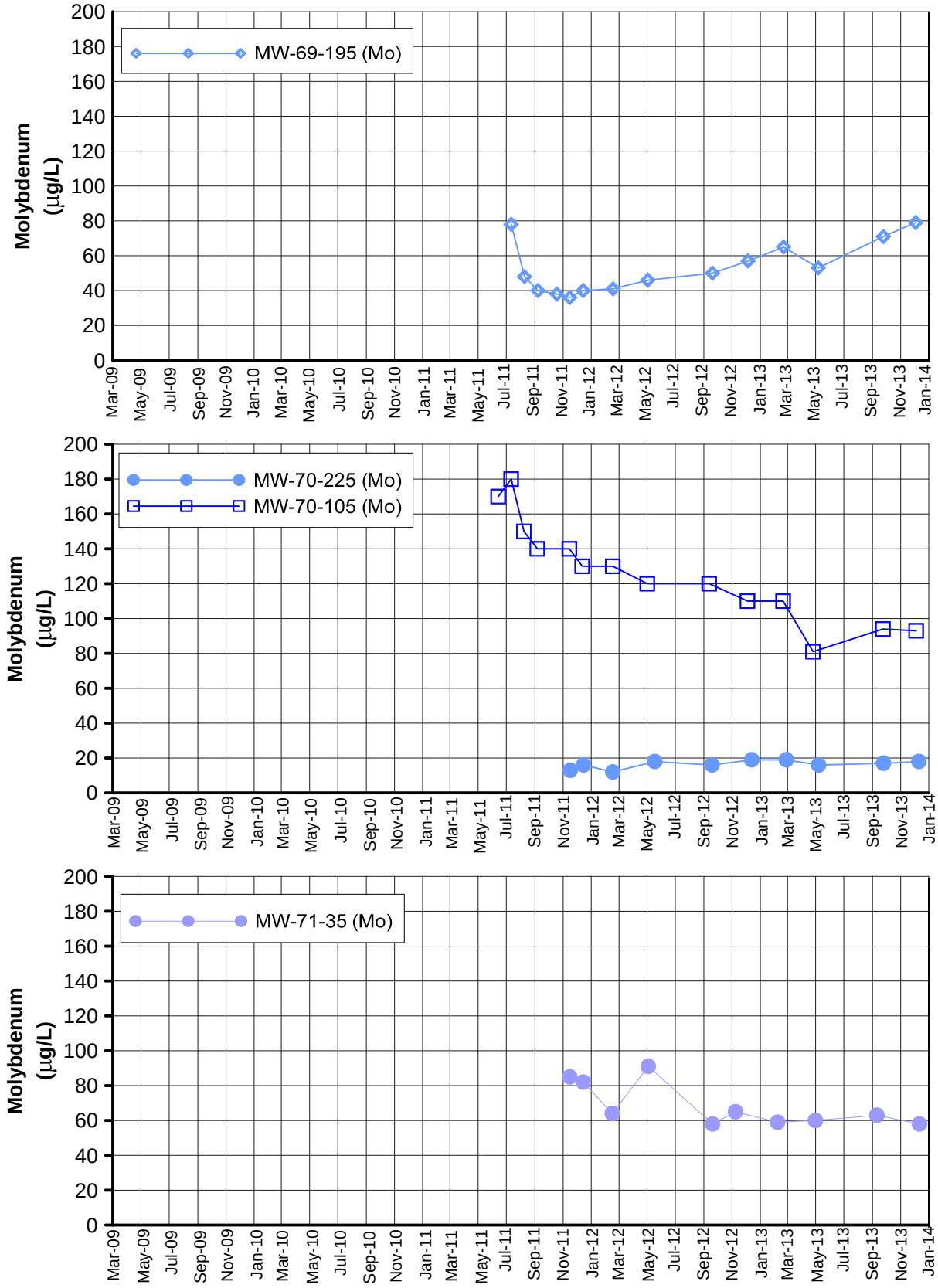


FIGURE C-33
MOLYBDENUM
IN MW-69-195, MW-70 CLUSTER, AND MW-71-35
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

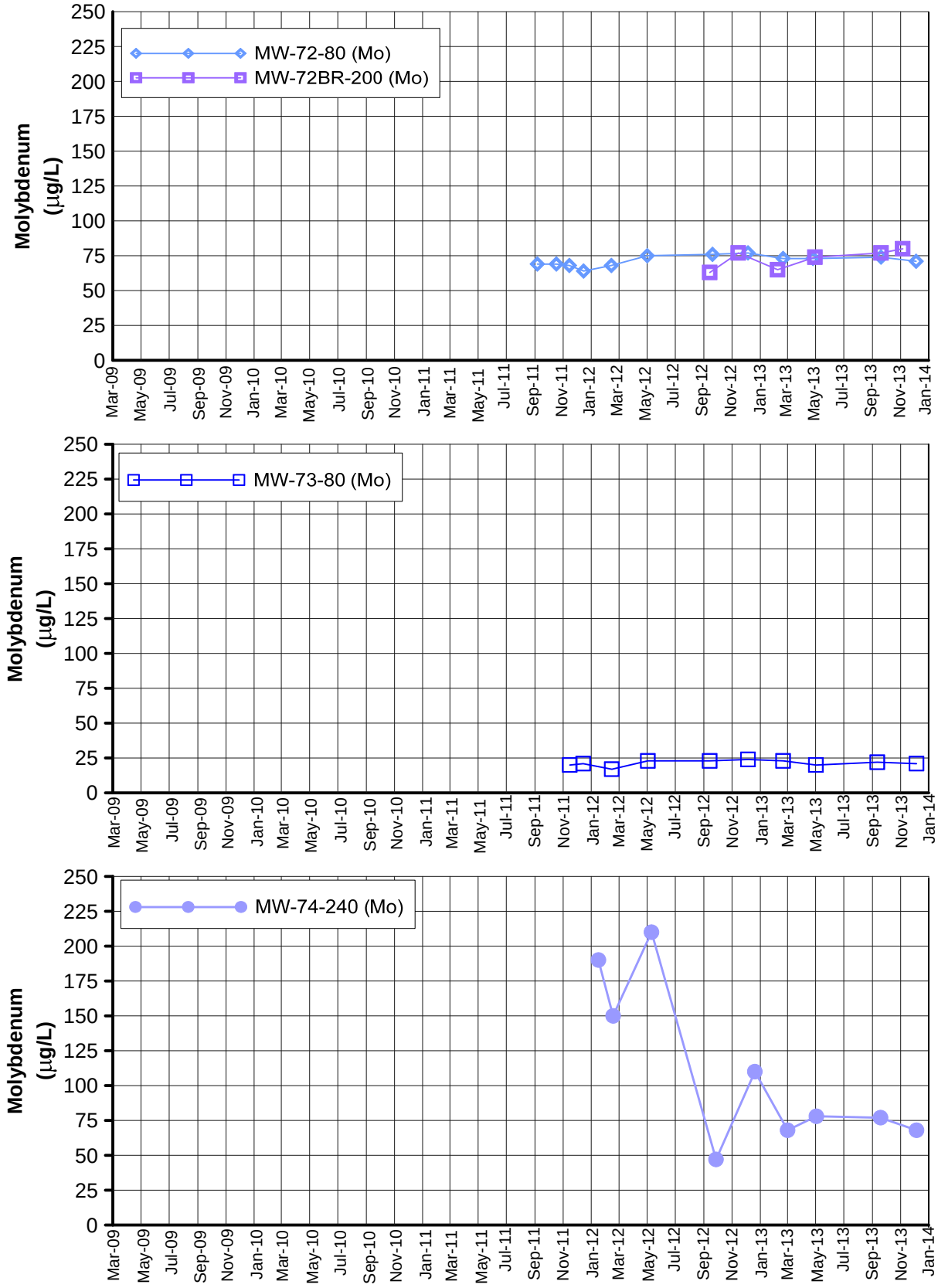
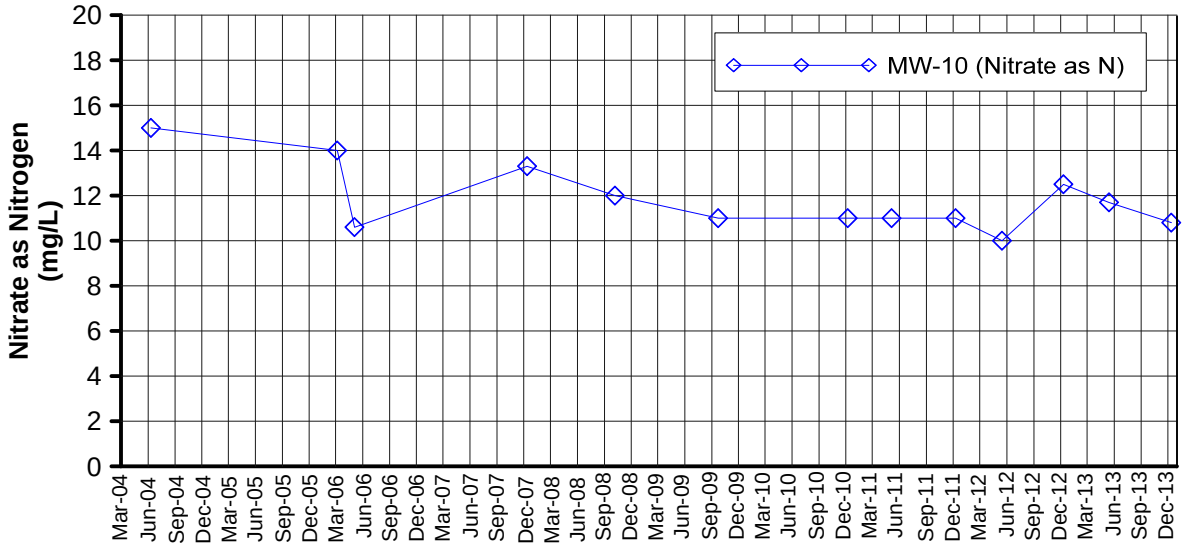
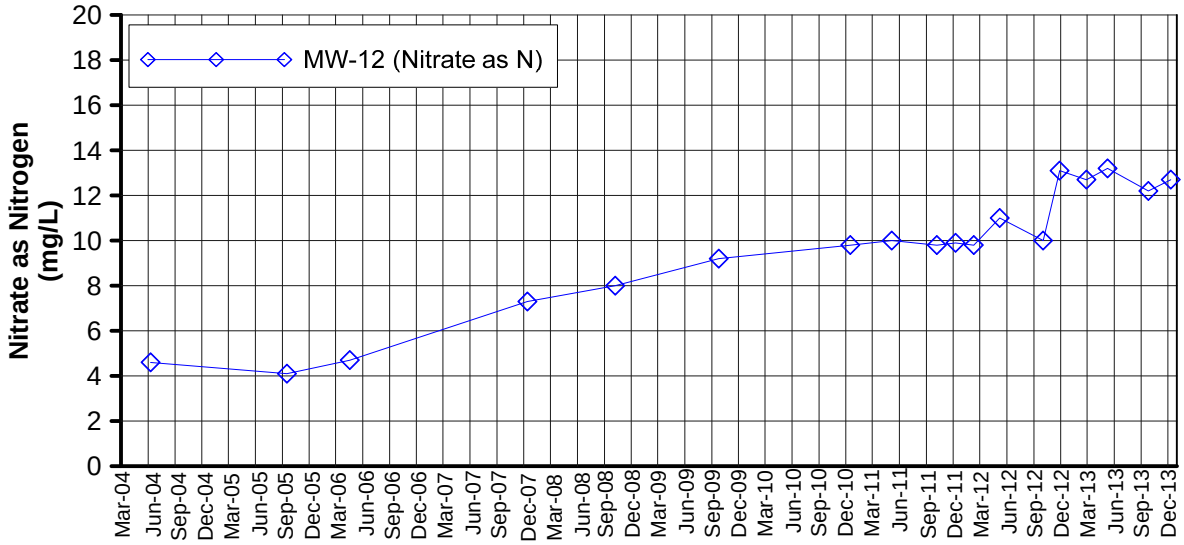
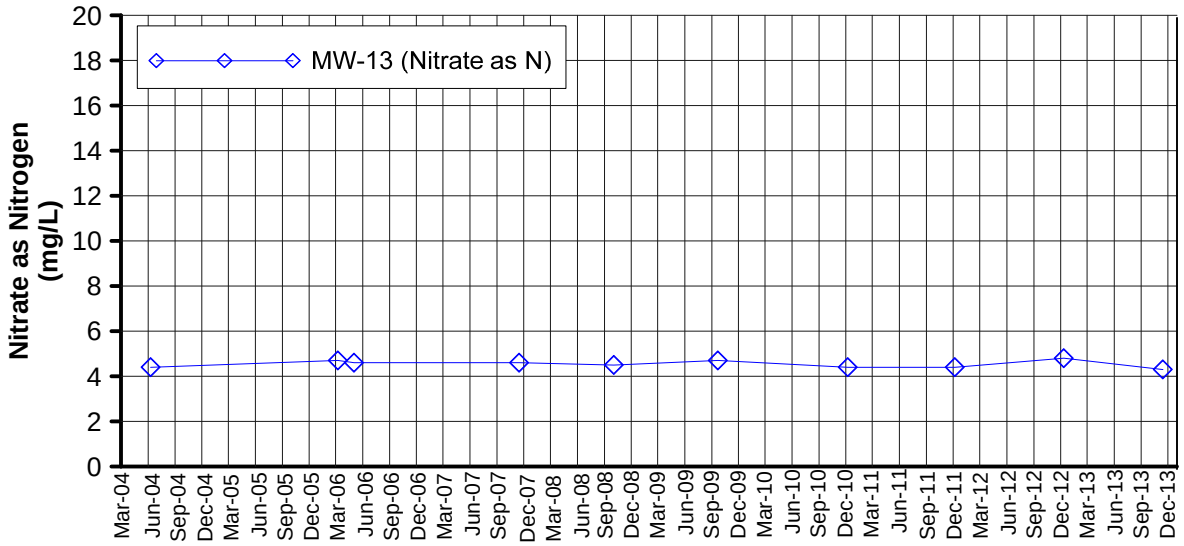


FIGURE C-34
MOLYBDENUM
IN MW-72 CLUSTER, MW-73-80, AND MW-74-240
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





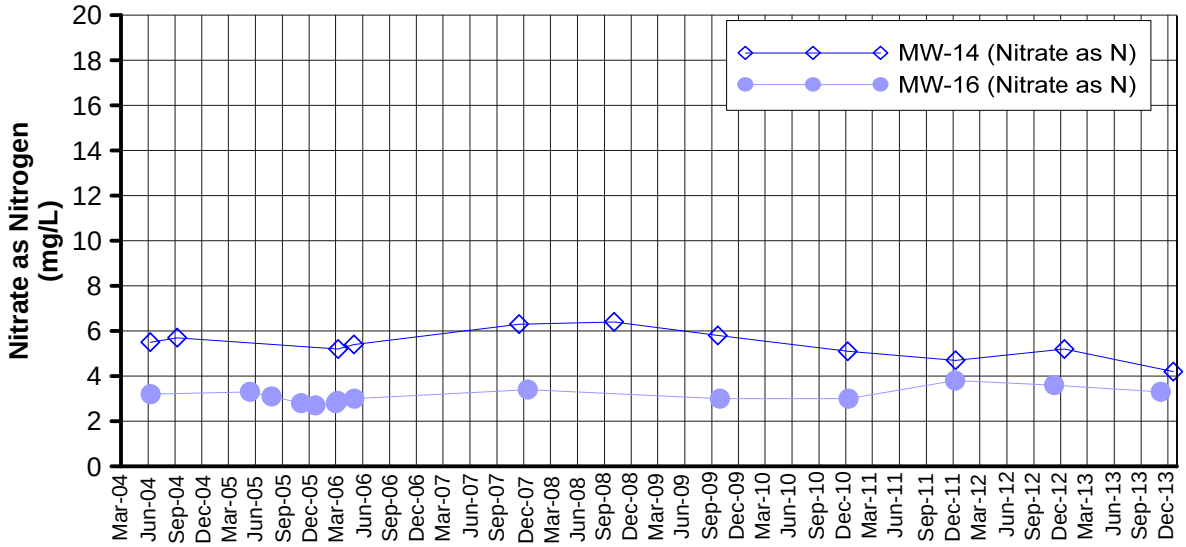


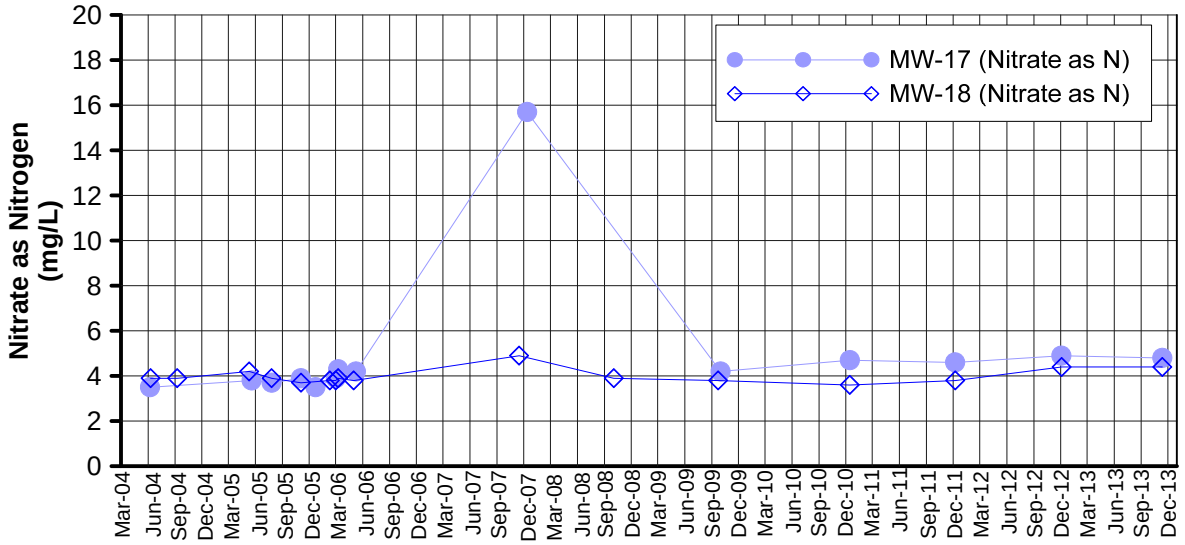
Notes:

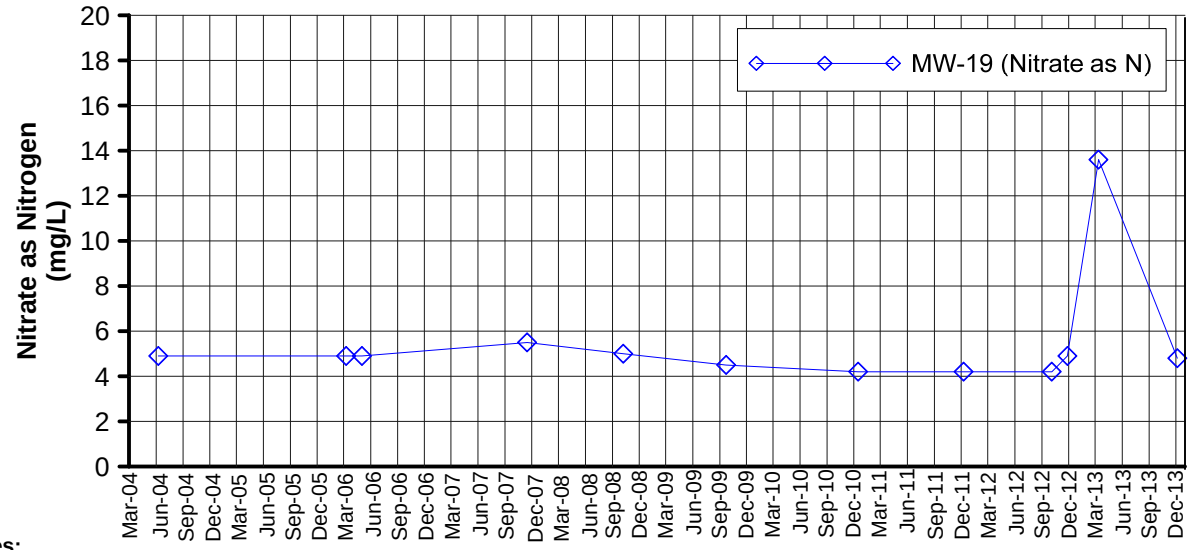
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-35
NITRATE as NITROGEN
IN MW-10, MW-12, AND MW-13
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





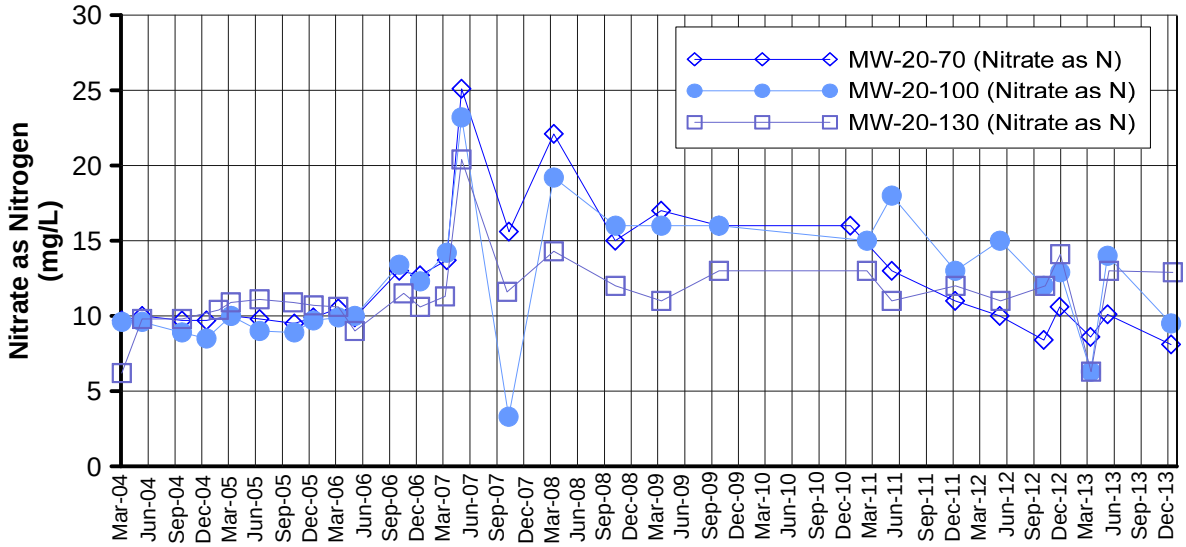


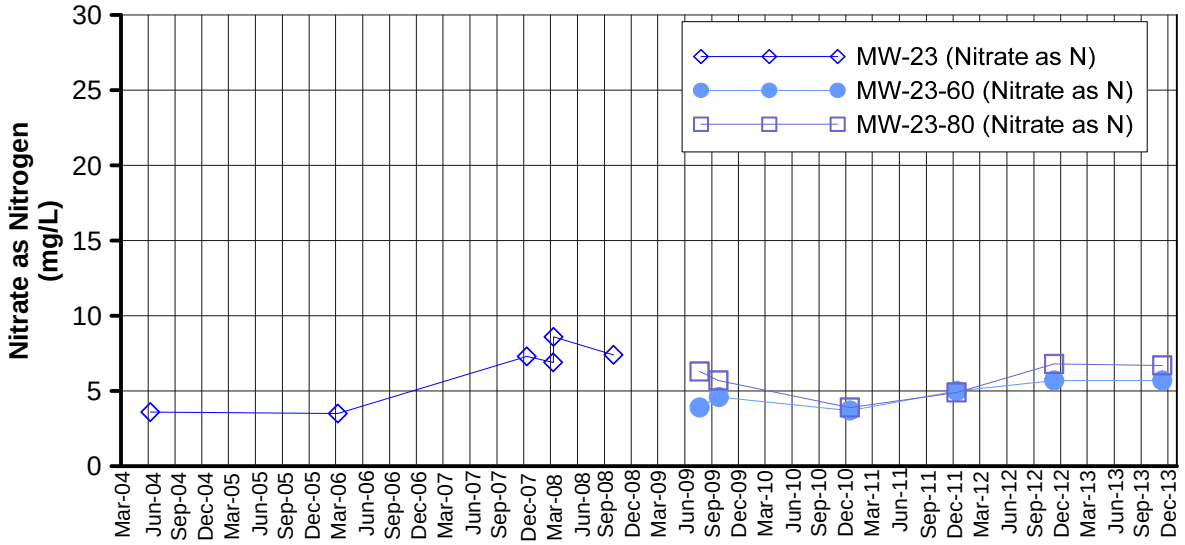
Notes:

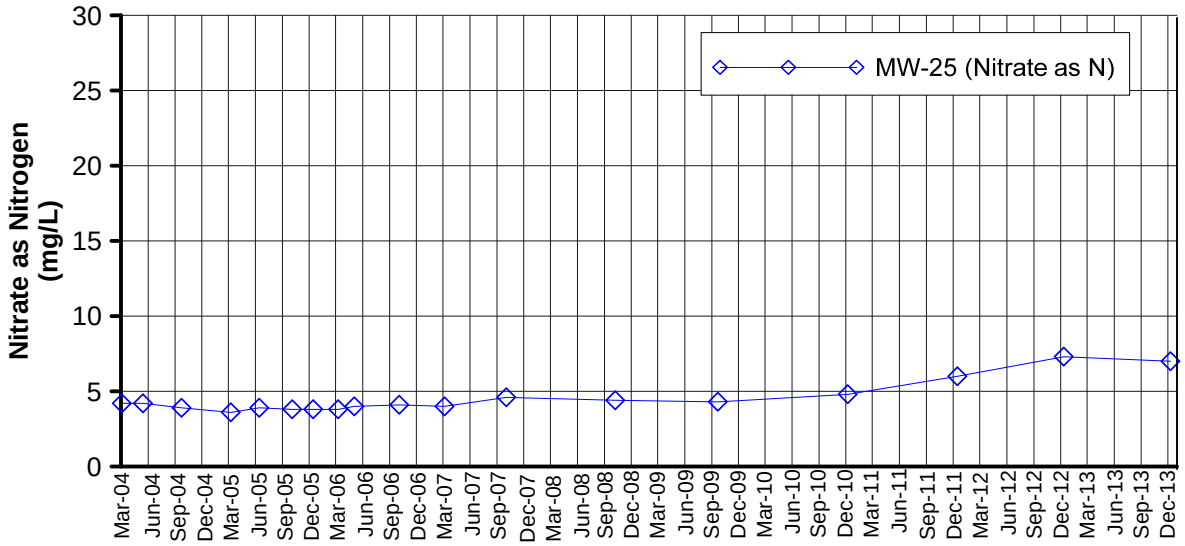
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-36
NITRATE as NITROGEN
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





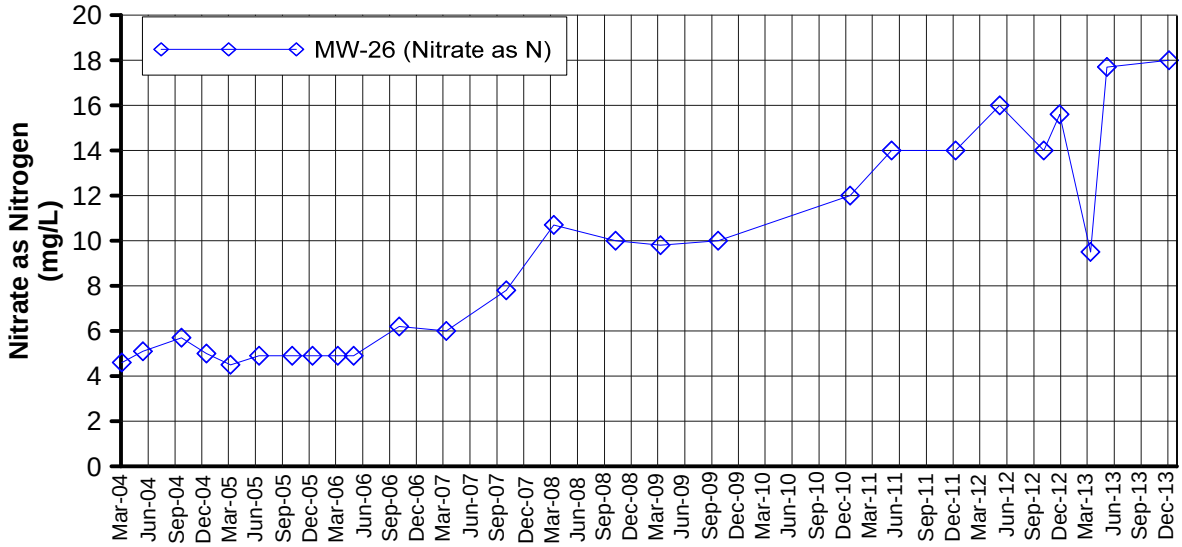


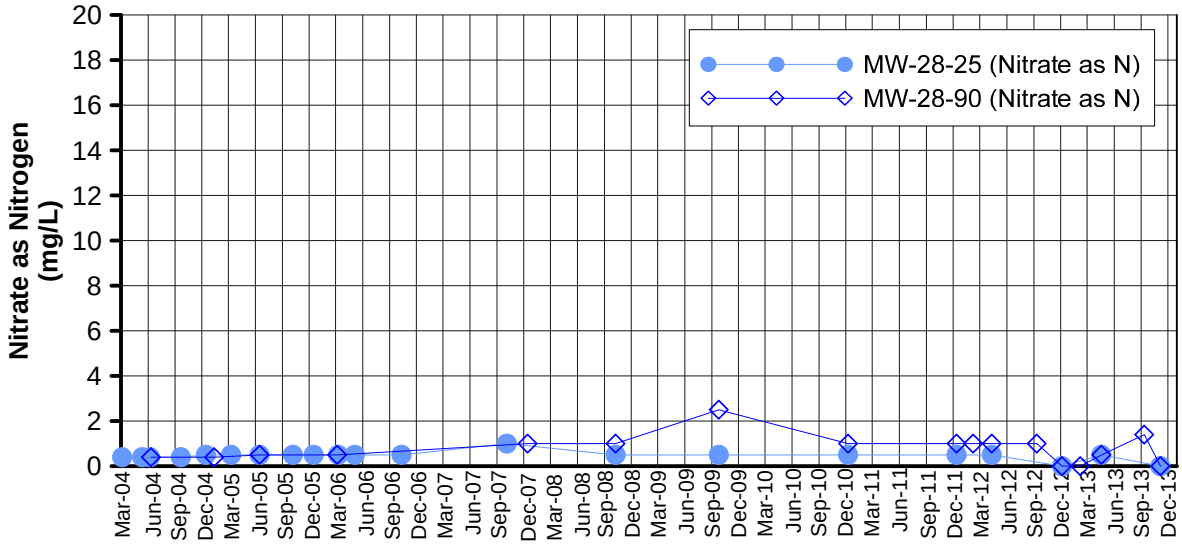
Notes:

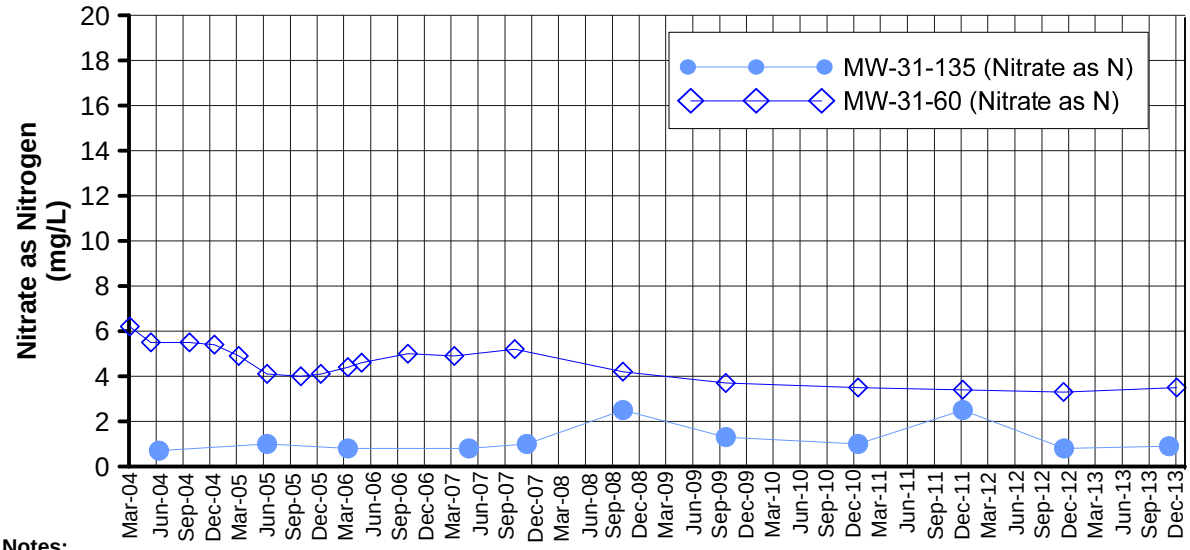
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-37
NITRATE as NITROGEN
IN MW-20 CLUSTER, MW-23 CLUSTER, AND MW-25
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





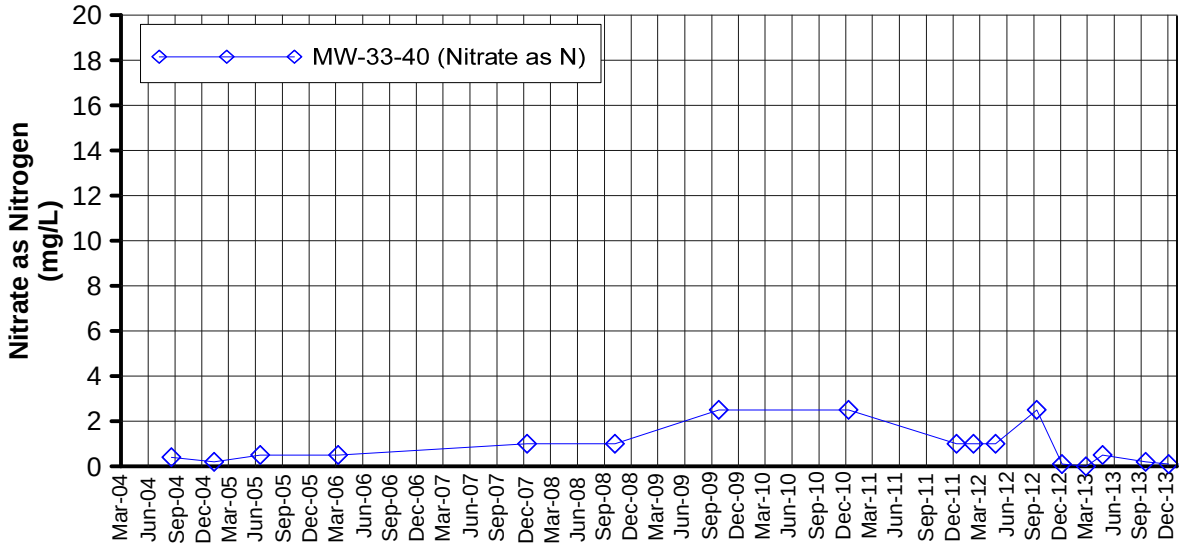


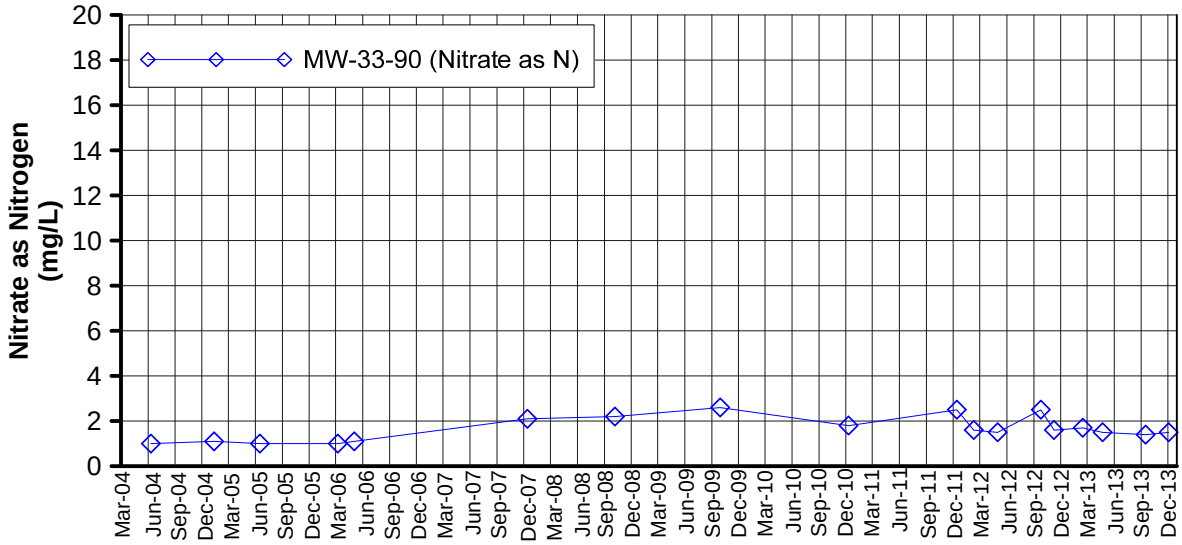
Notes:

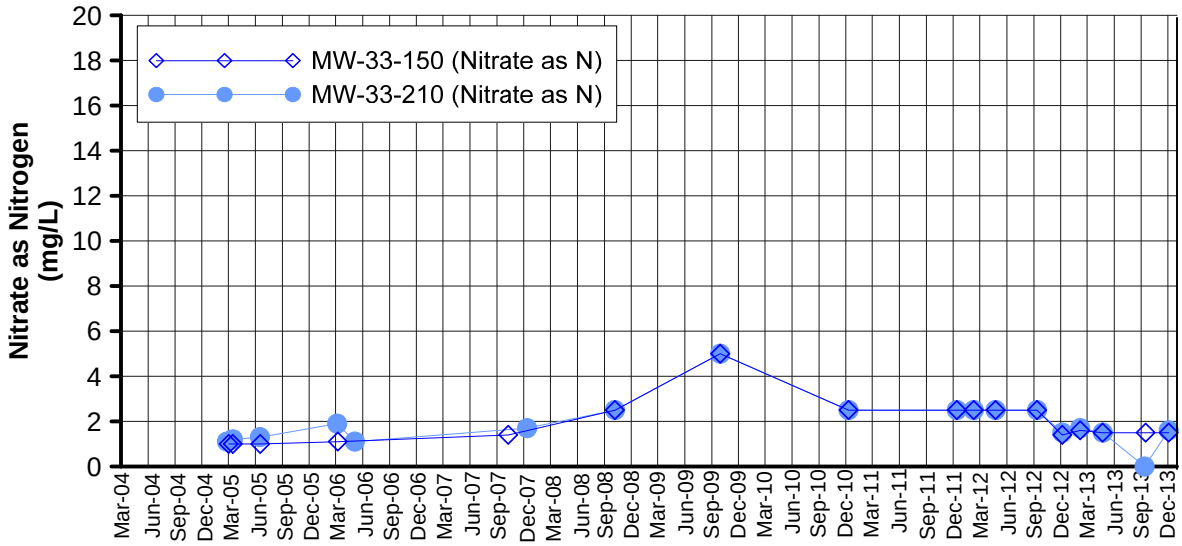
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-38
NITRATE as NITROGEN
IN MW-26, MW-28 CLUSTER, AND MW-31 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





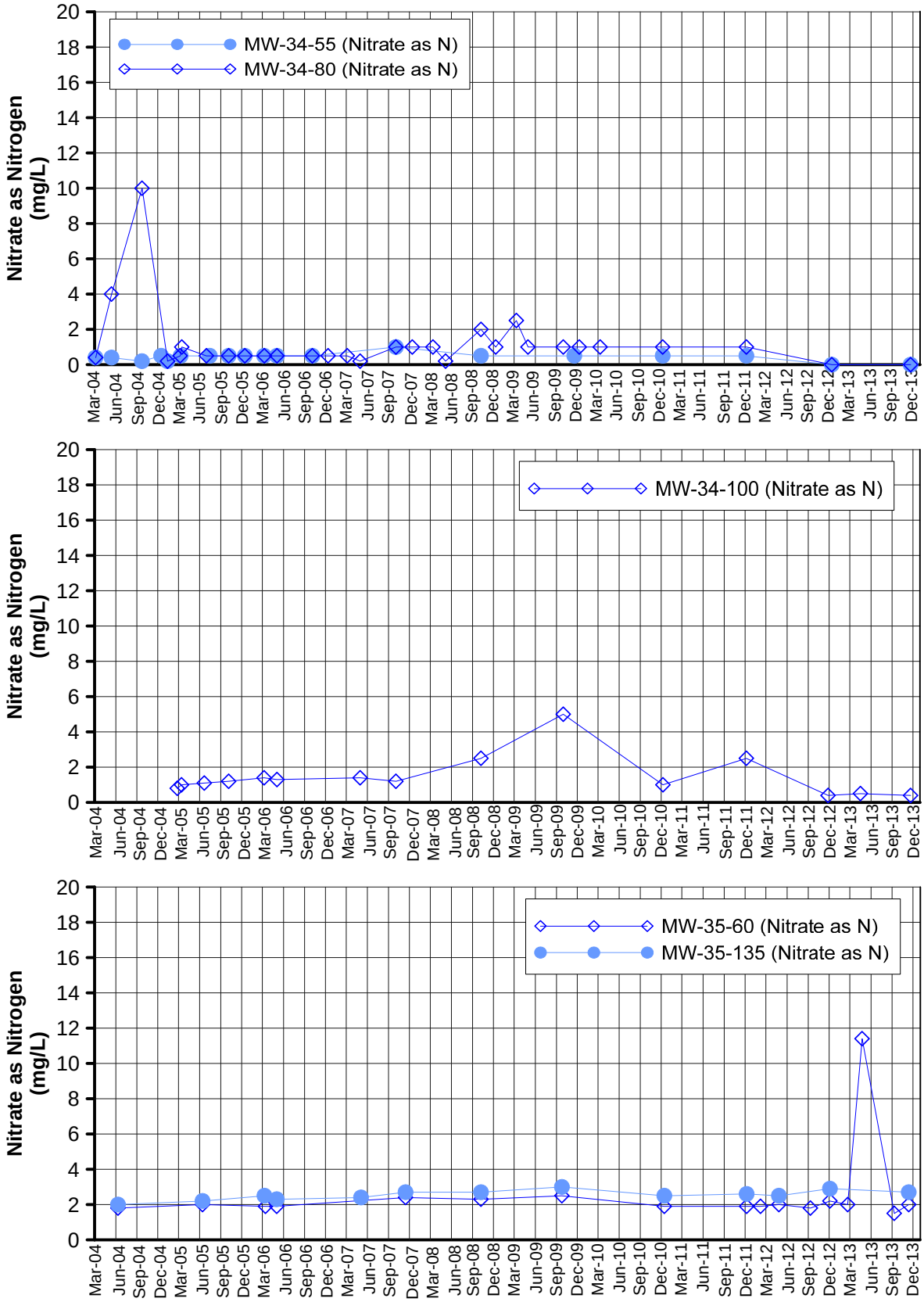


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-39
NITRATE as NITROGEN
IN MW-33 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

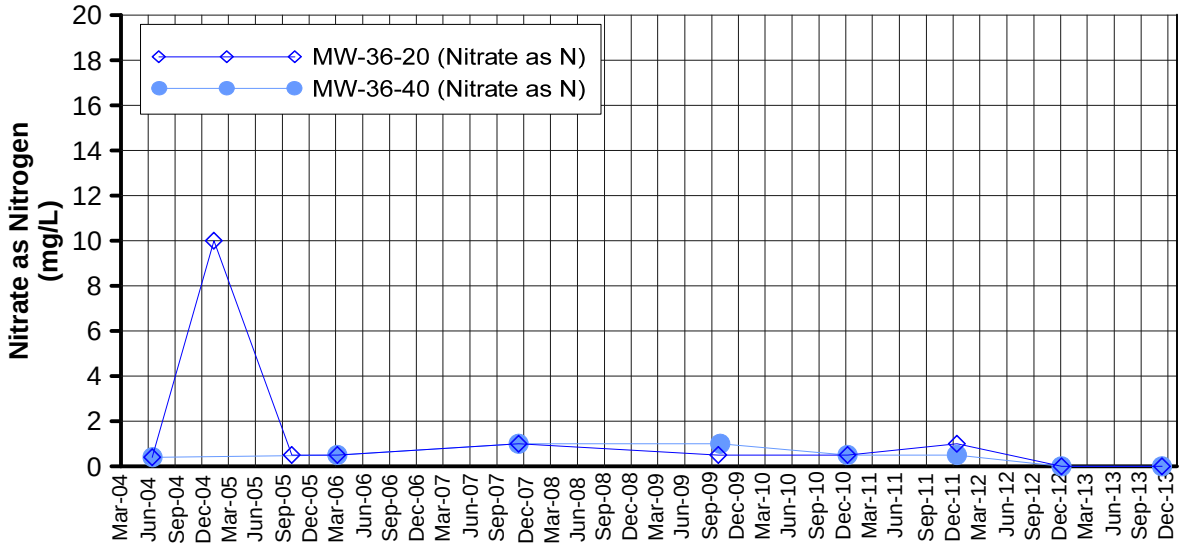


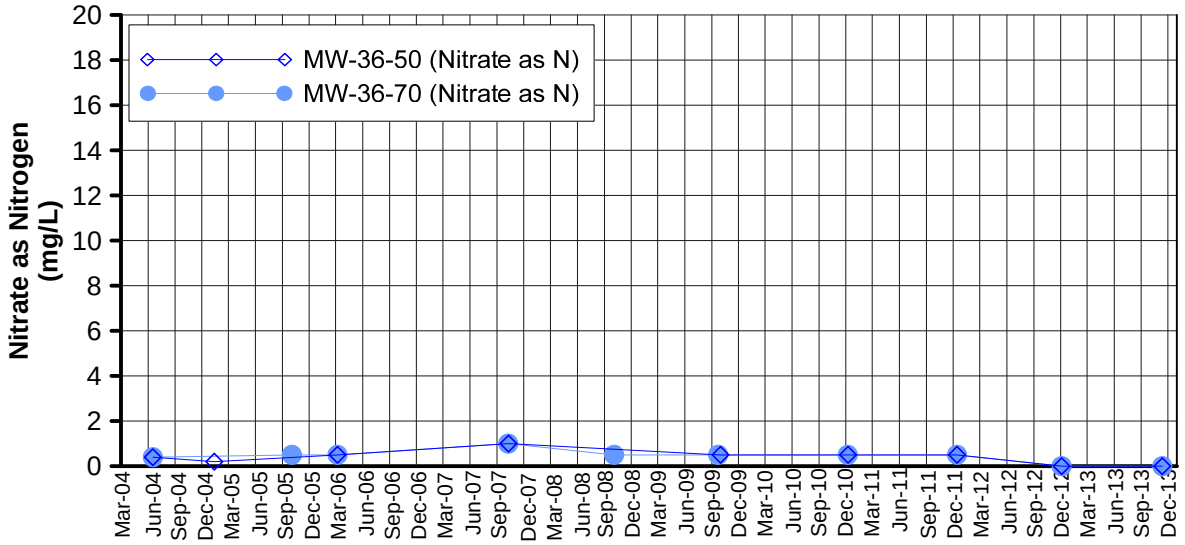
Notes:

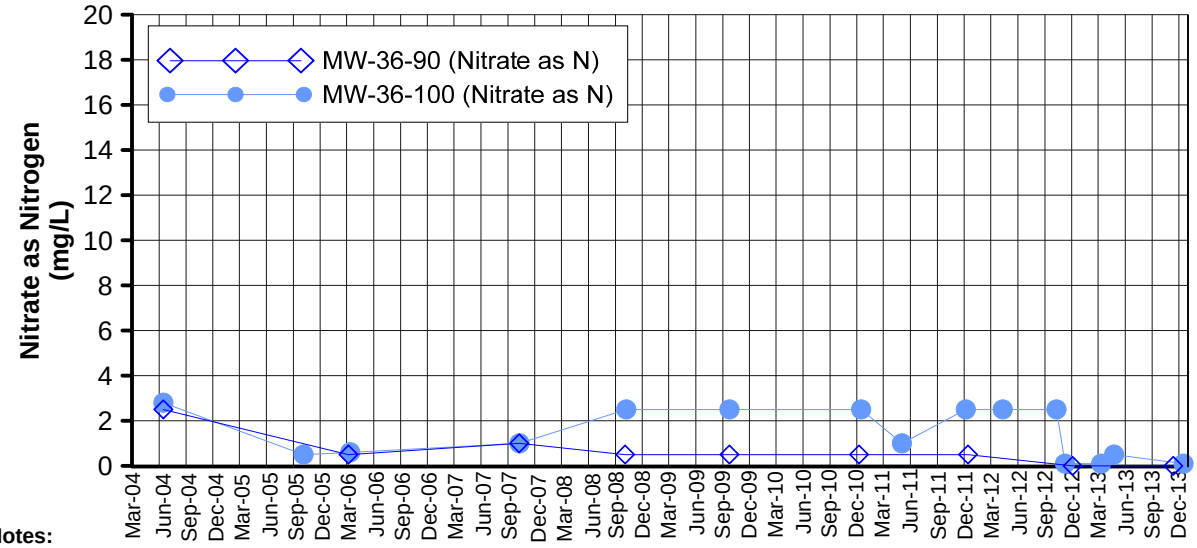
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-40
NITRATE as NITROGEN
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





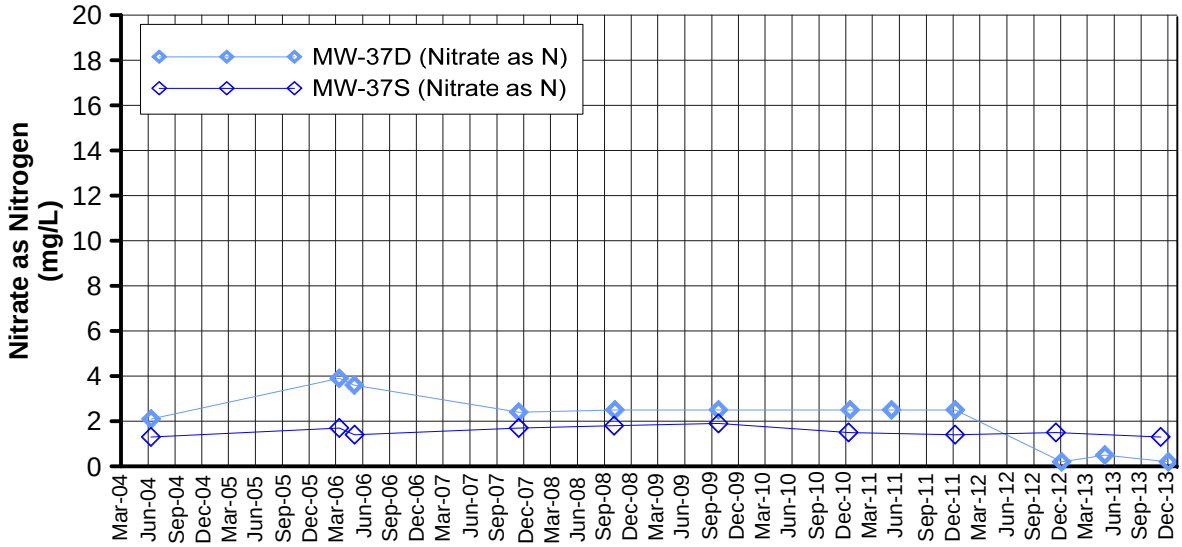


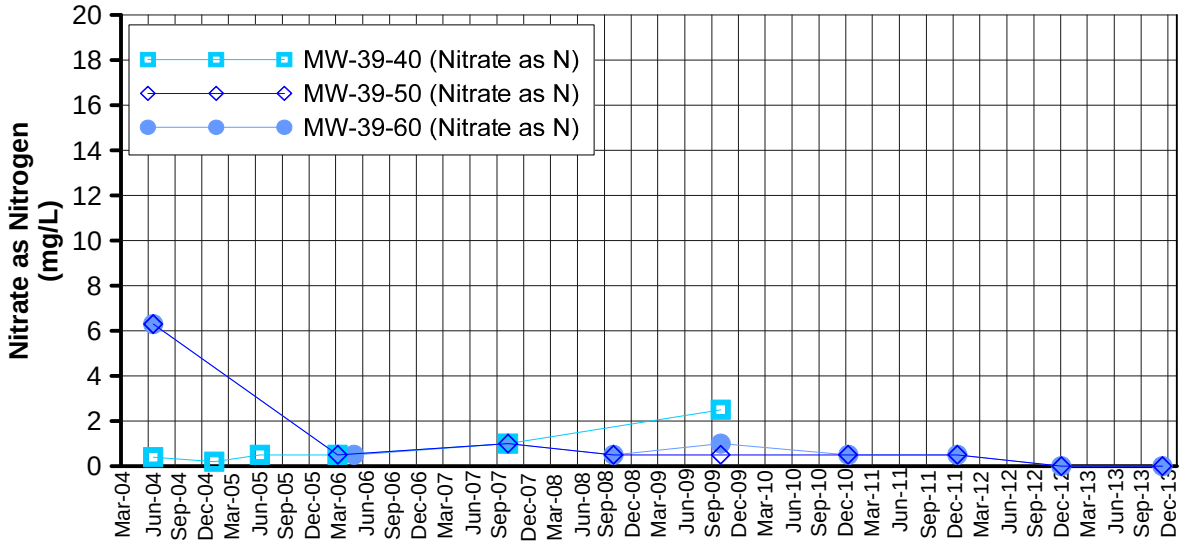
Notes:

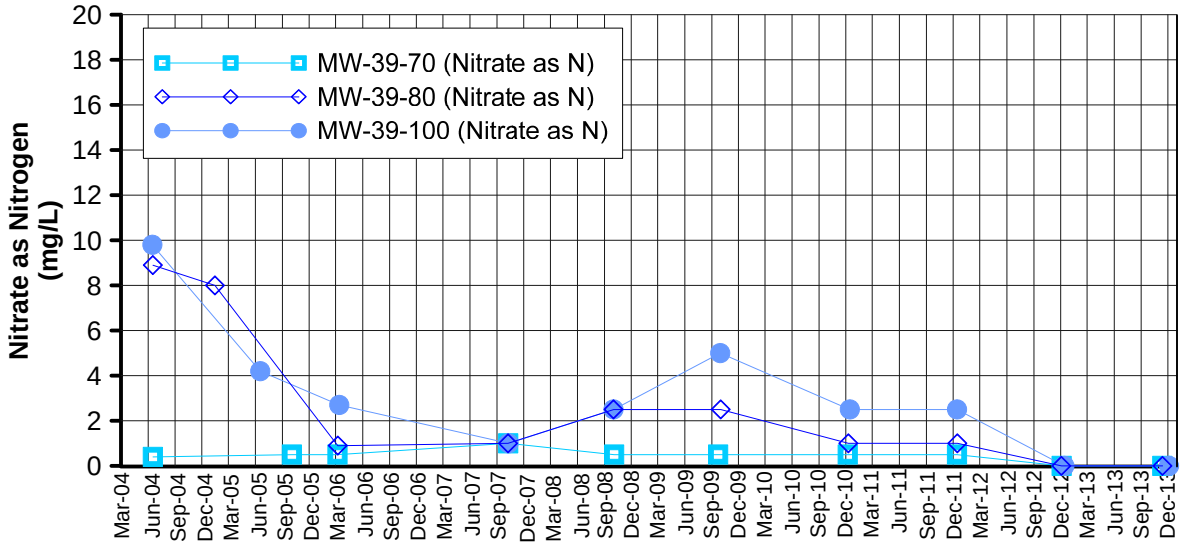
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-41
NITRATE as NITROGEN
IN MW-36 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





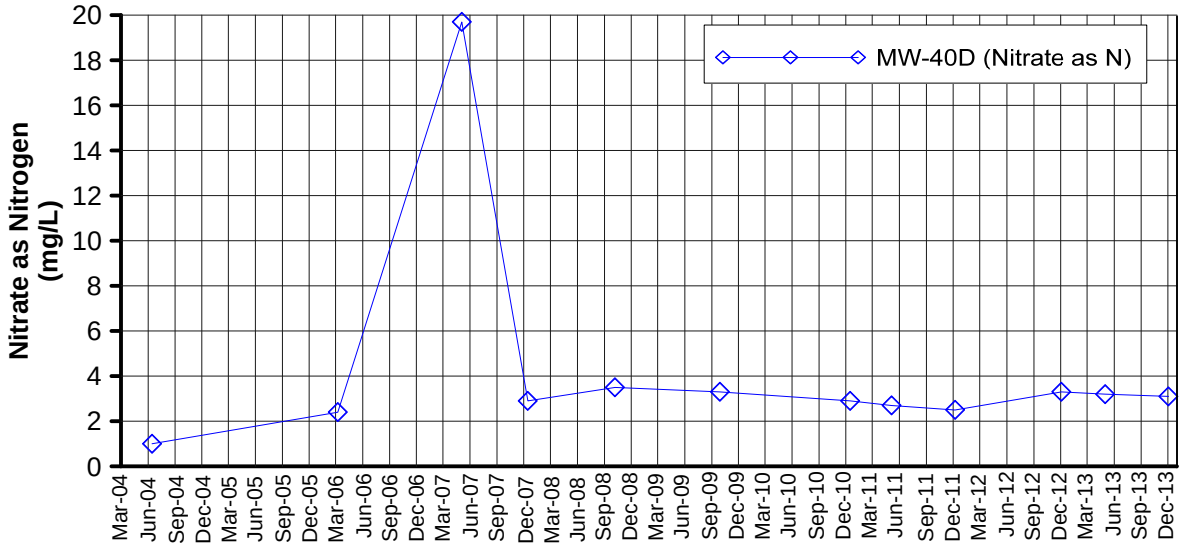


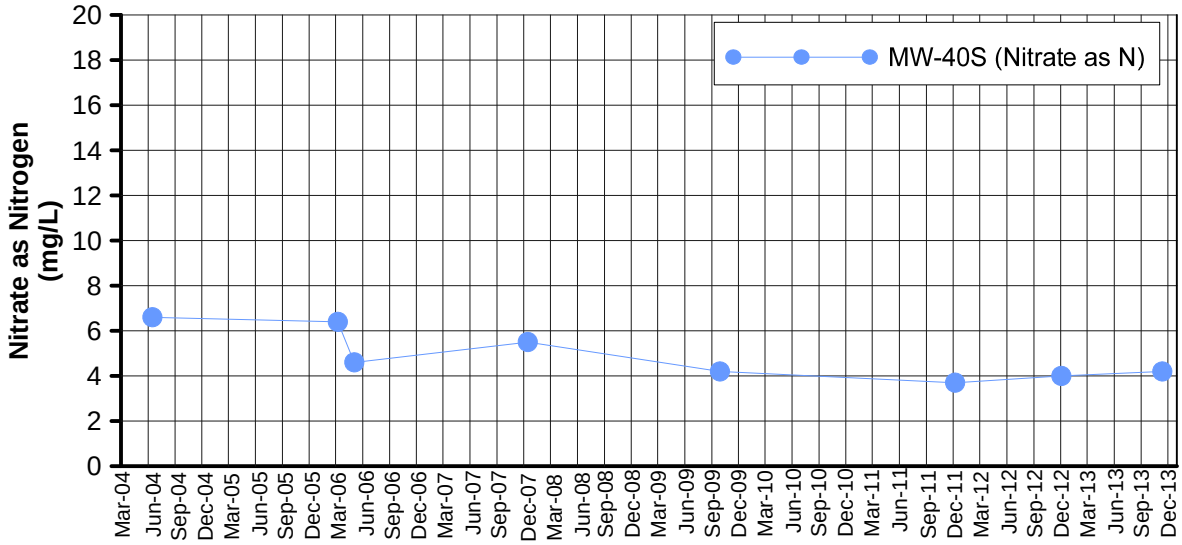
Notes:

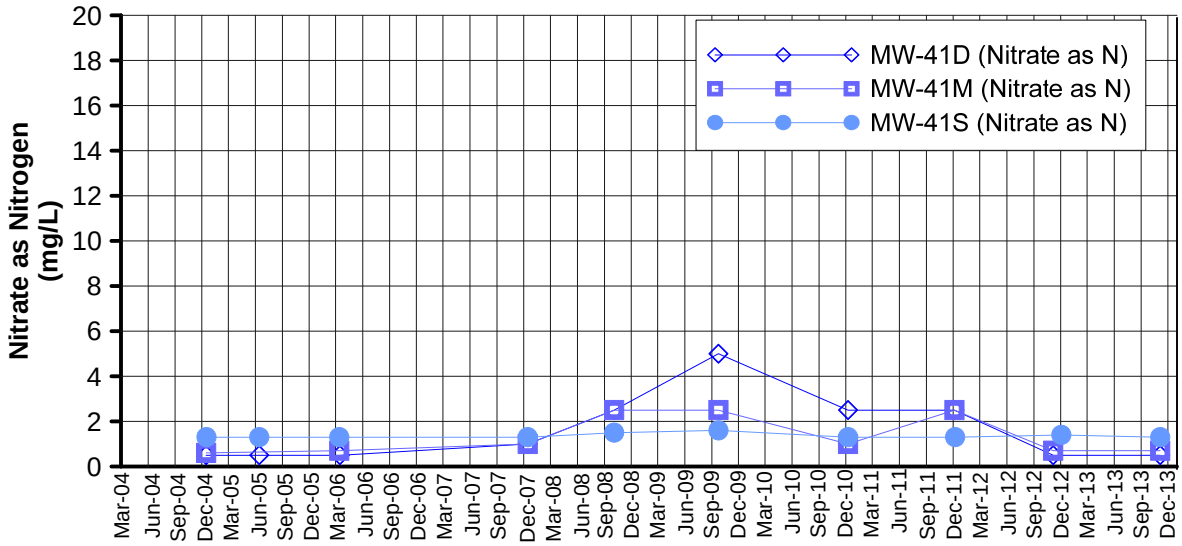
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-42
NITRATE as NITROGEN
IN MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





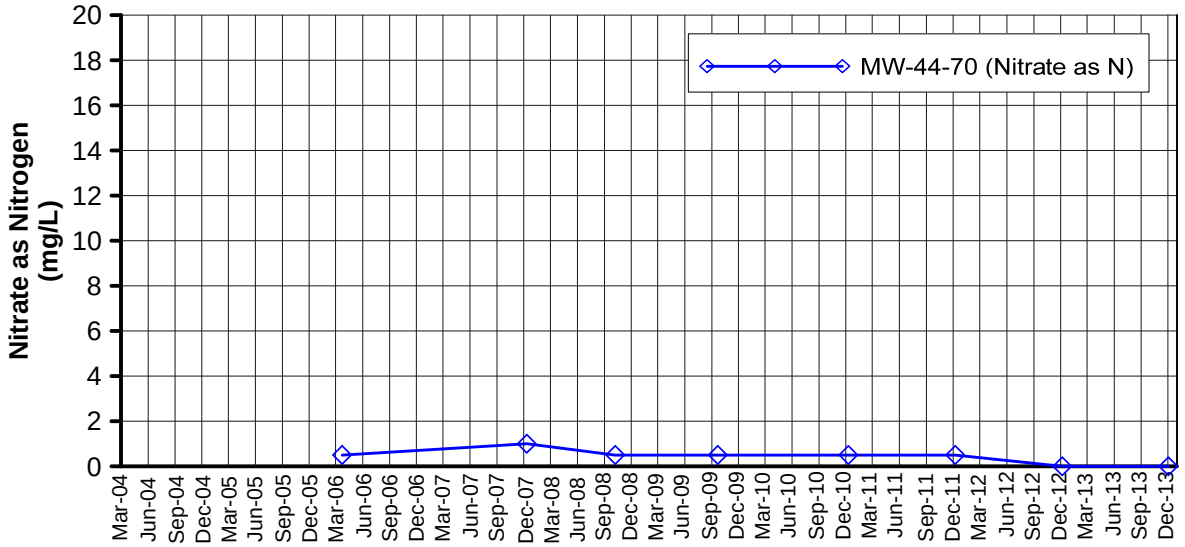


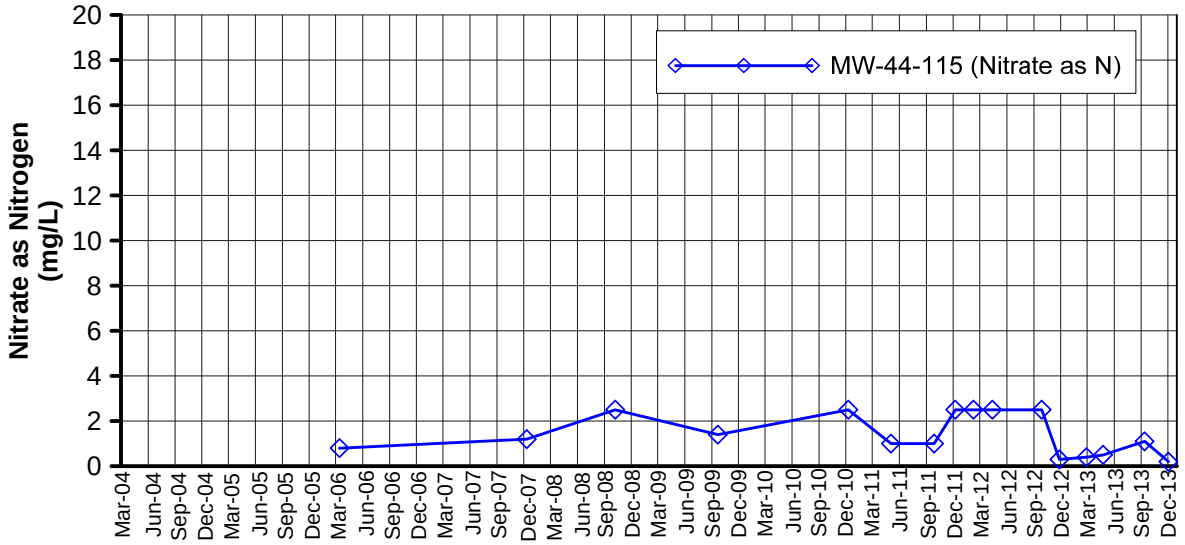
Notes:

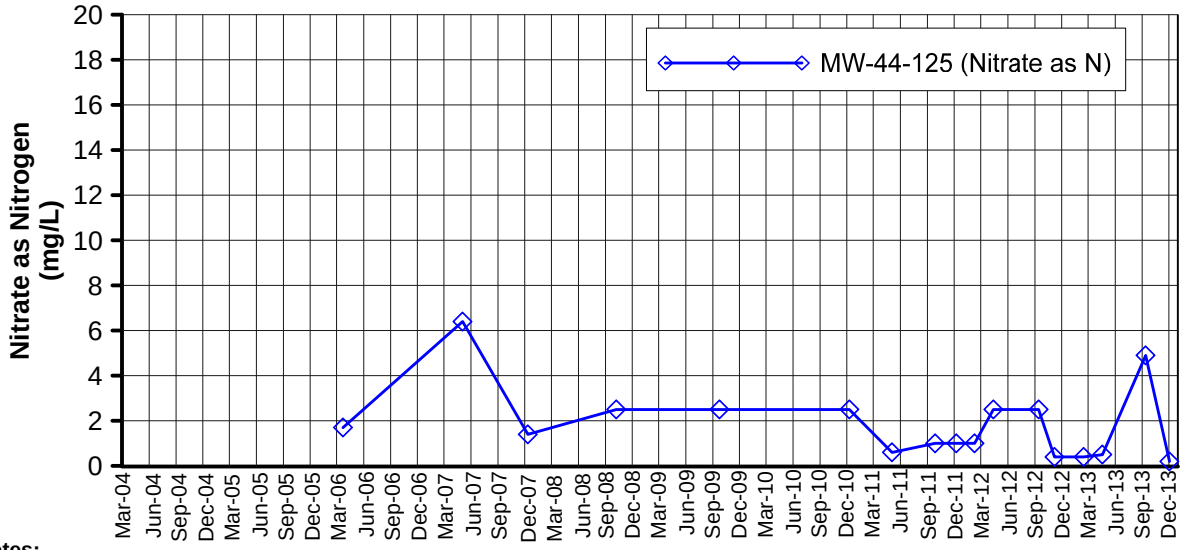
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-43
NITRATE as NITROGEN
IN MW-40 AND MW-41 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL







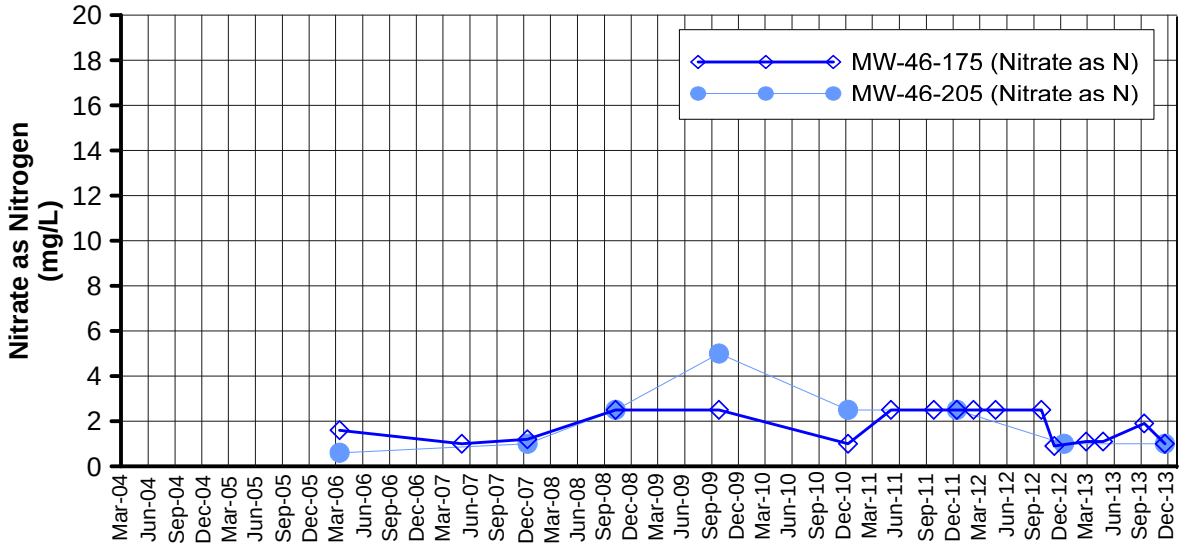
Notes:

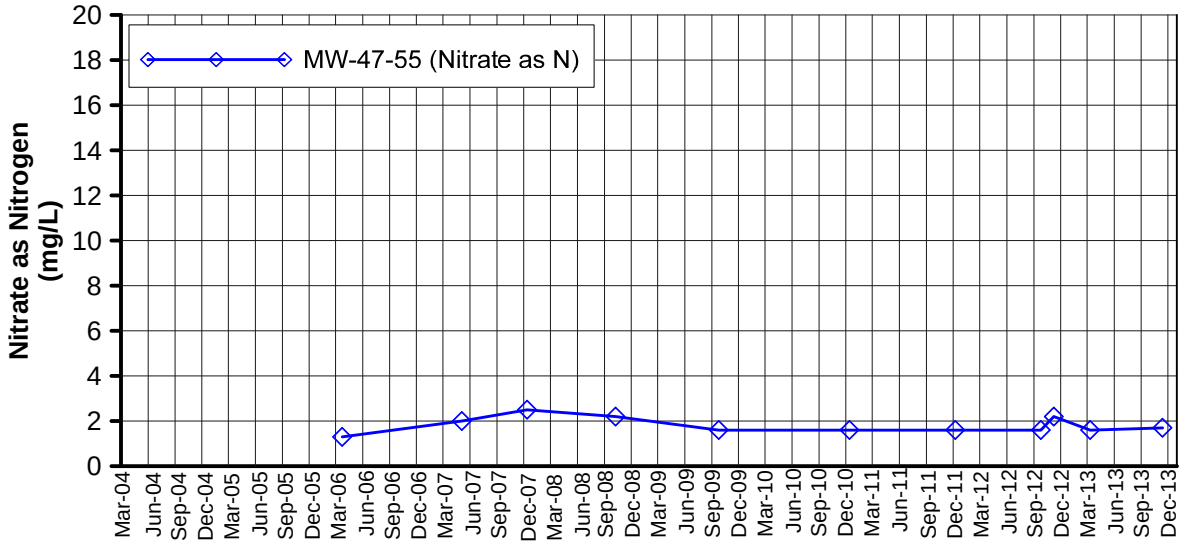
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

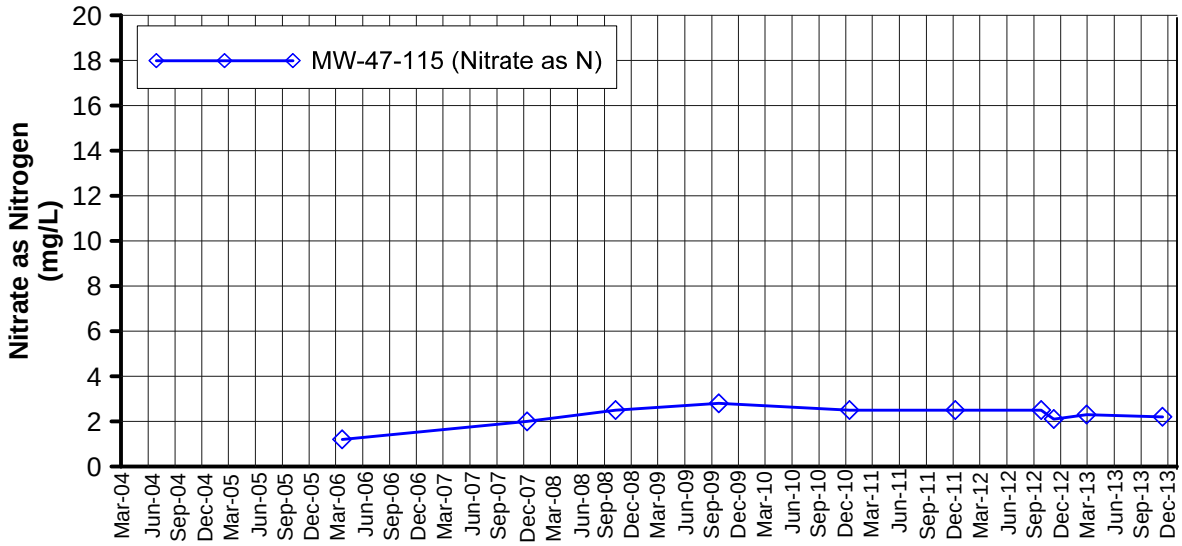
FIGURE C-44
NITRATE as NITROGEN
IN MW-44 CLUSTER

FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





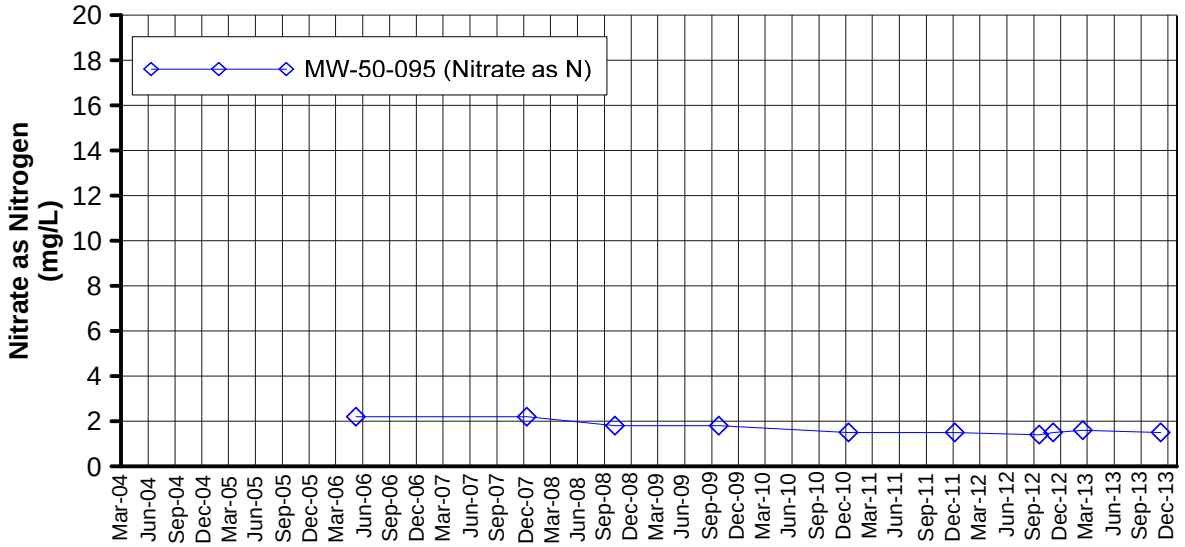


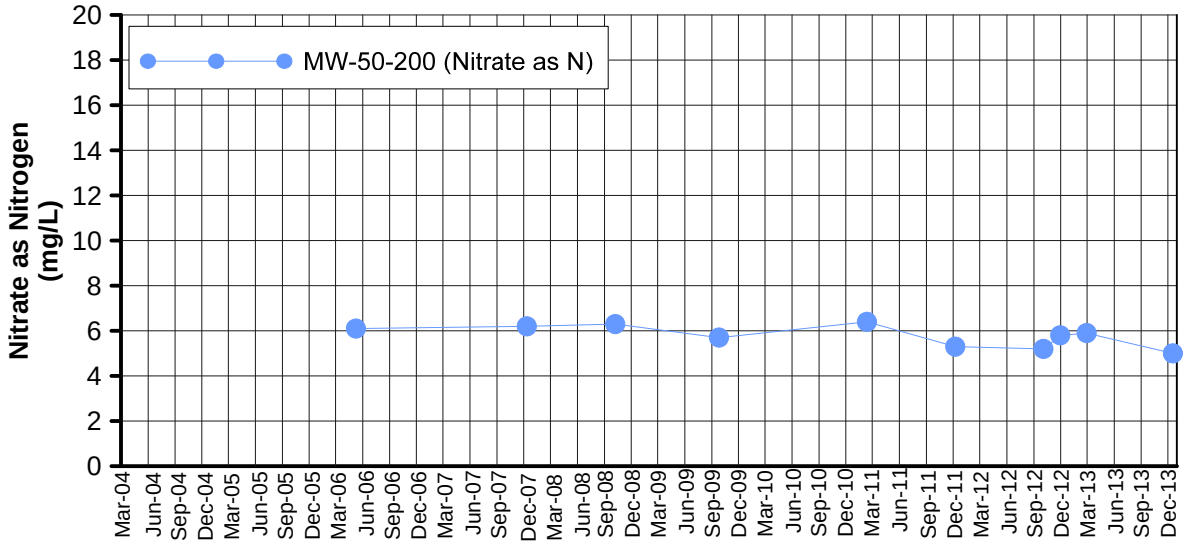
Notes:

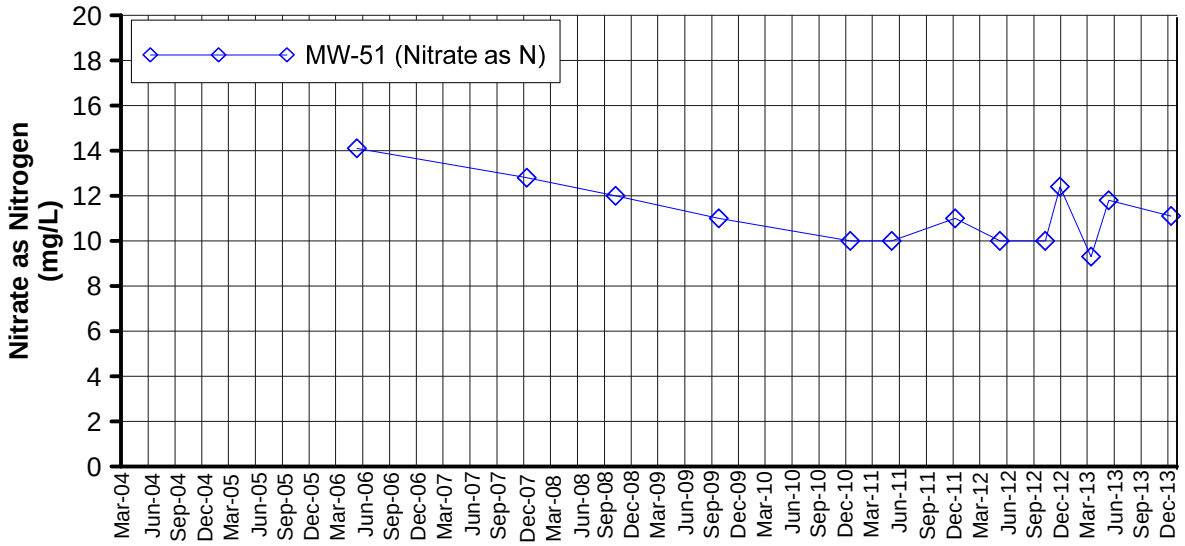
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-45
NITRATE as NITROGEN
IN MW-46 AND MW-47 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





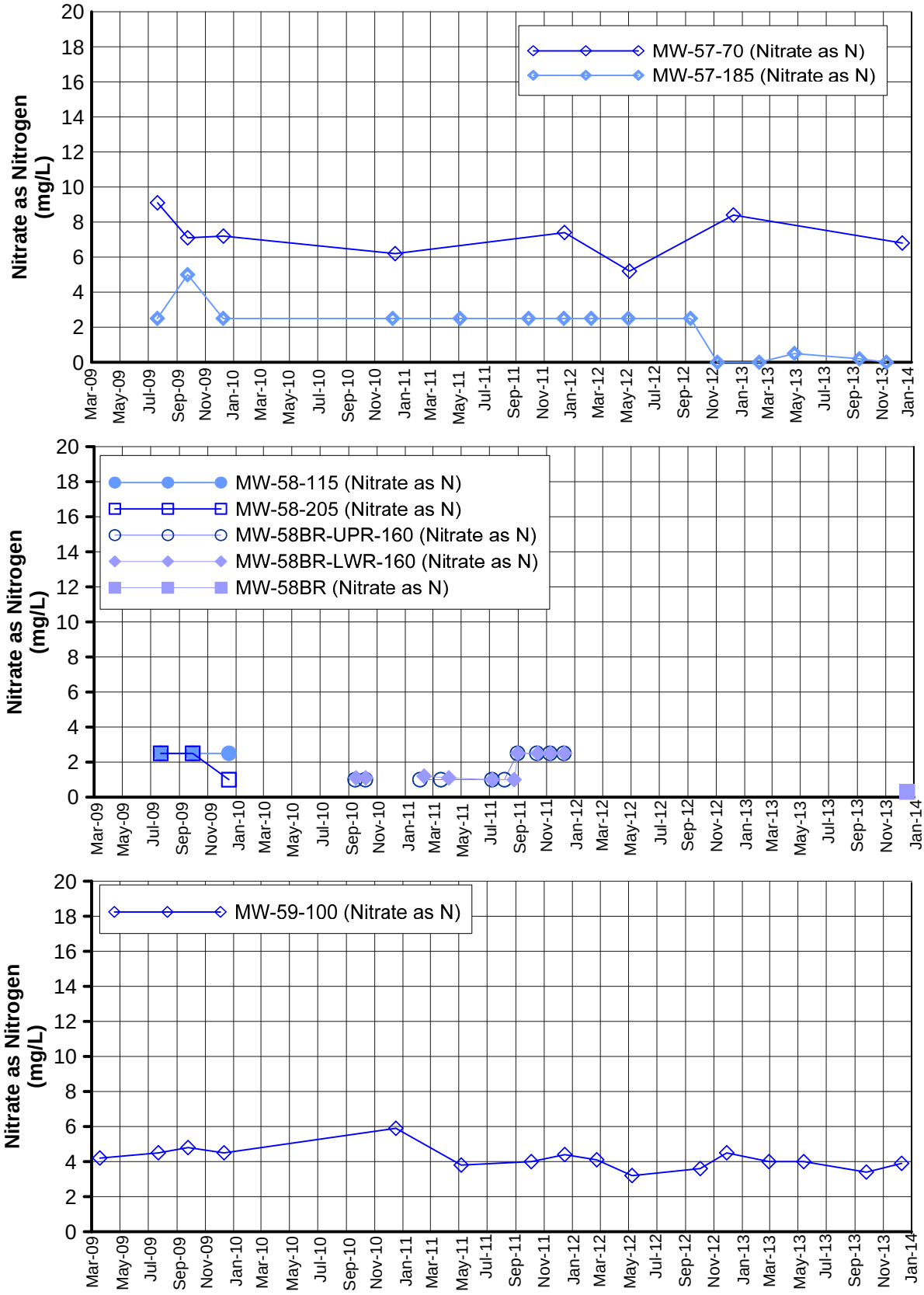


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-46
NITRATE as NITROGEN
IN MW-50 AND MW-51 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

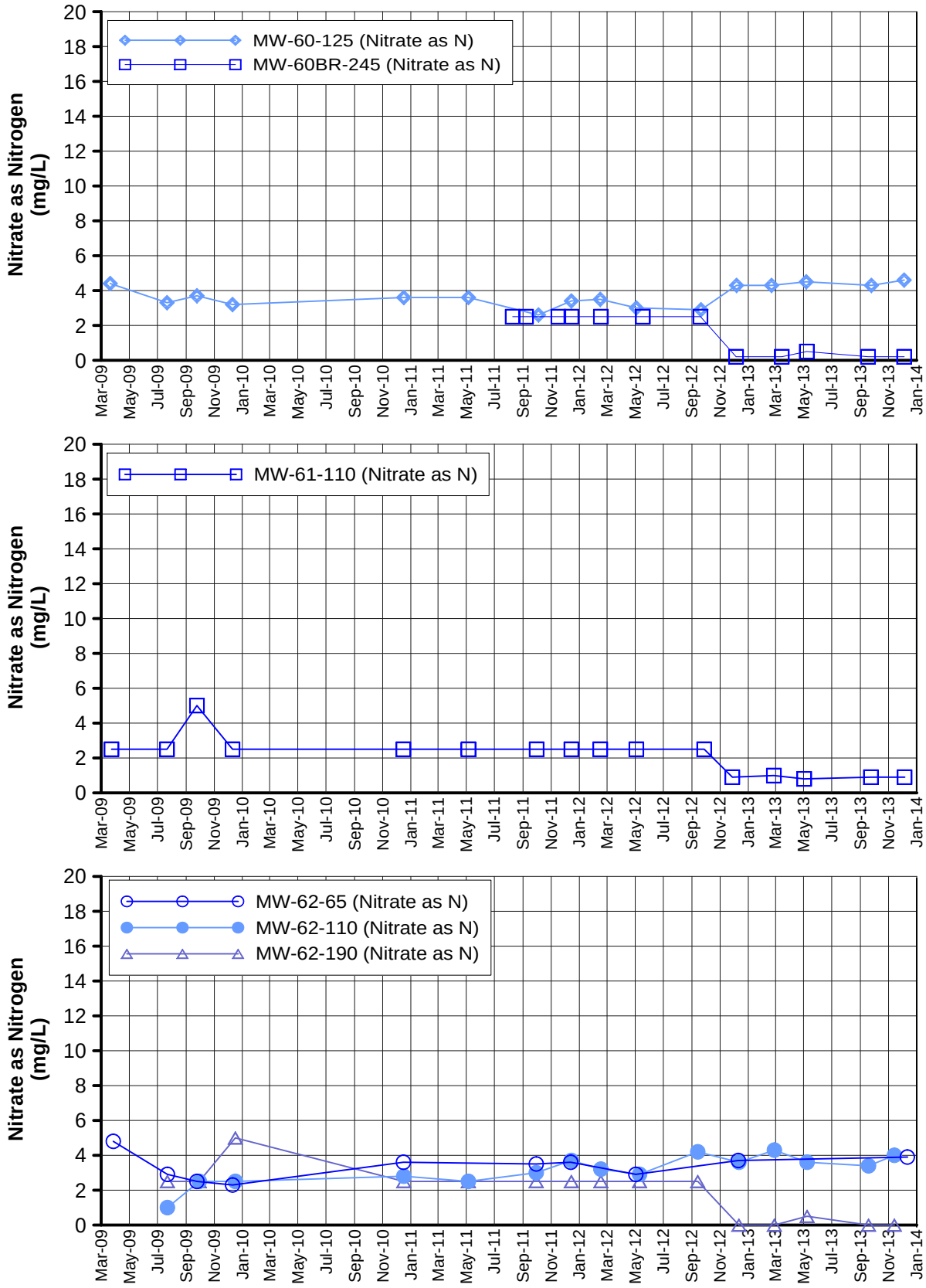


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-47
NITRATE as NITROGEN
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

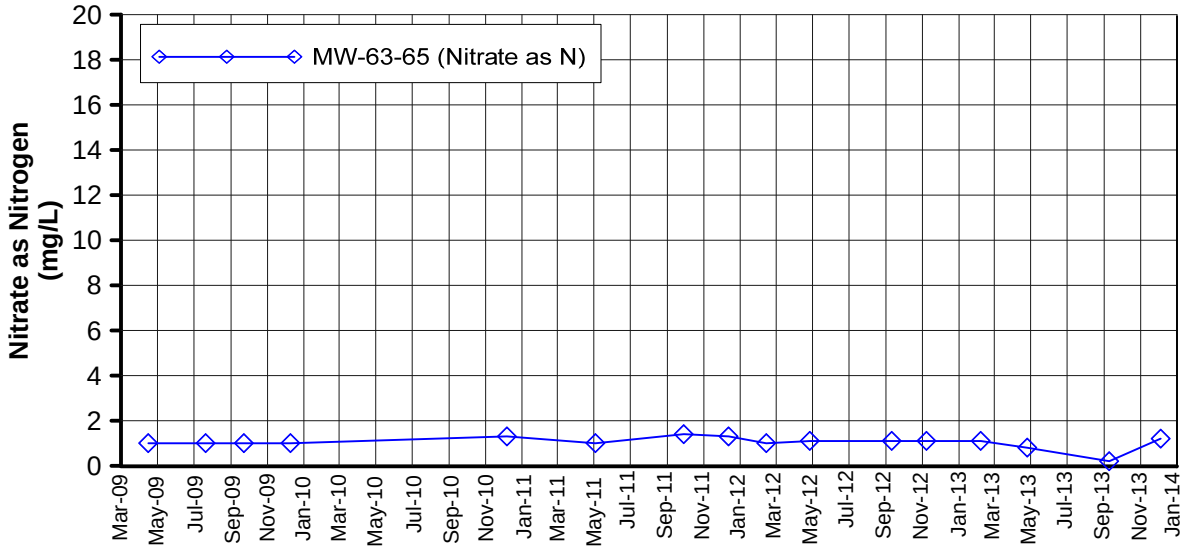


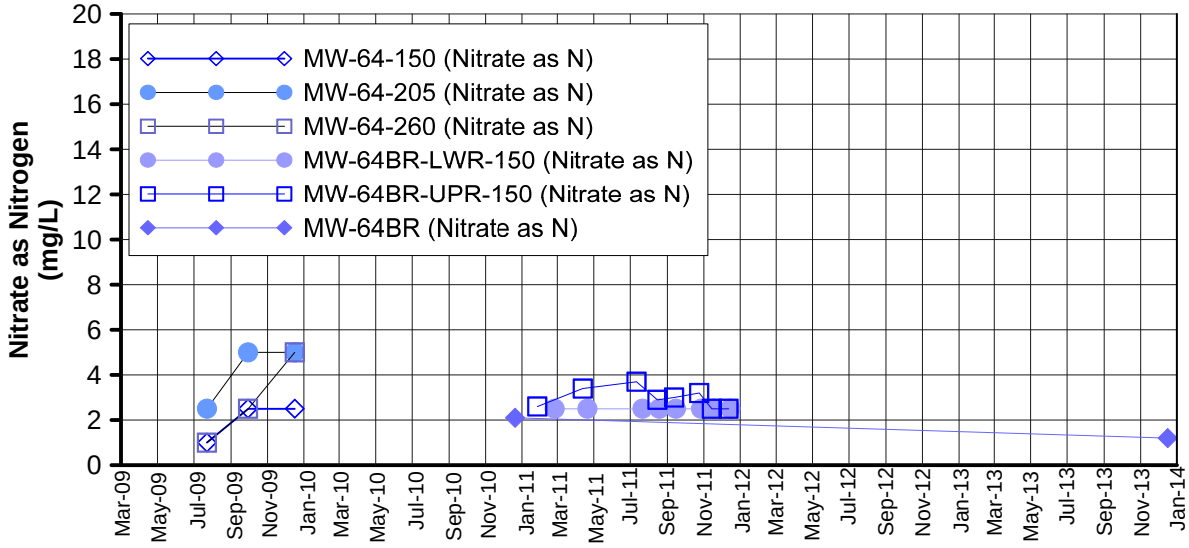
Notes:

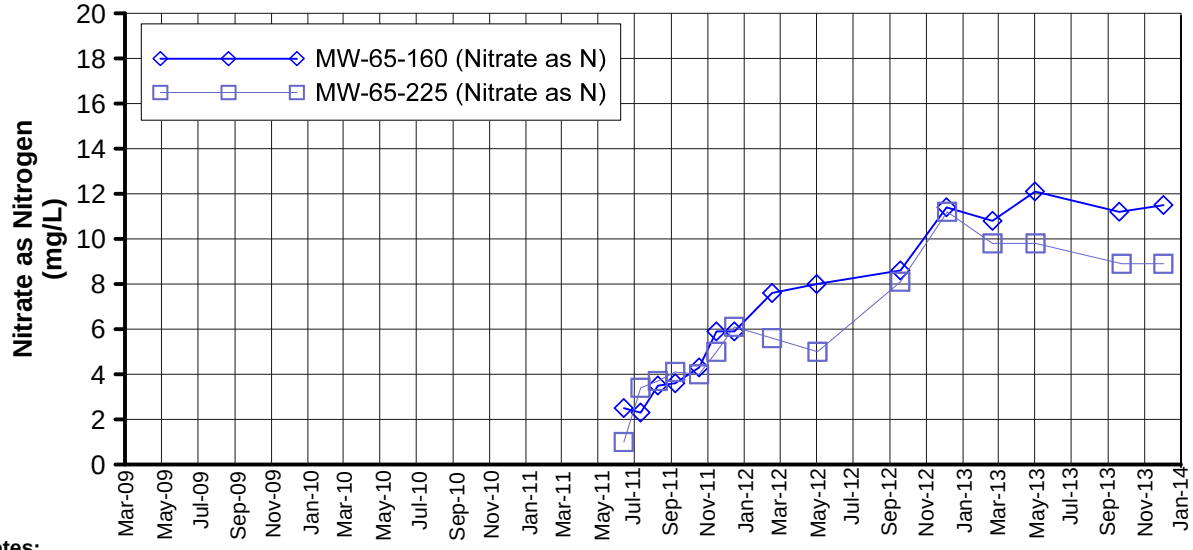
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-48
NITRATE as NITROGEN
IN MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





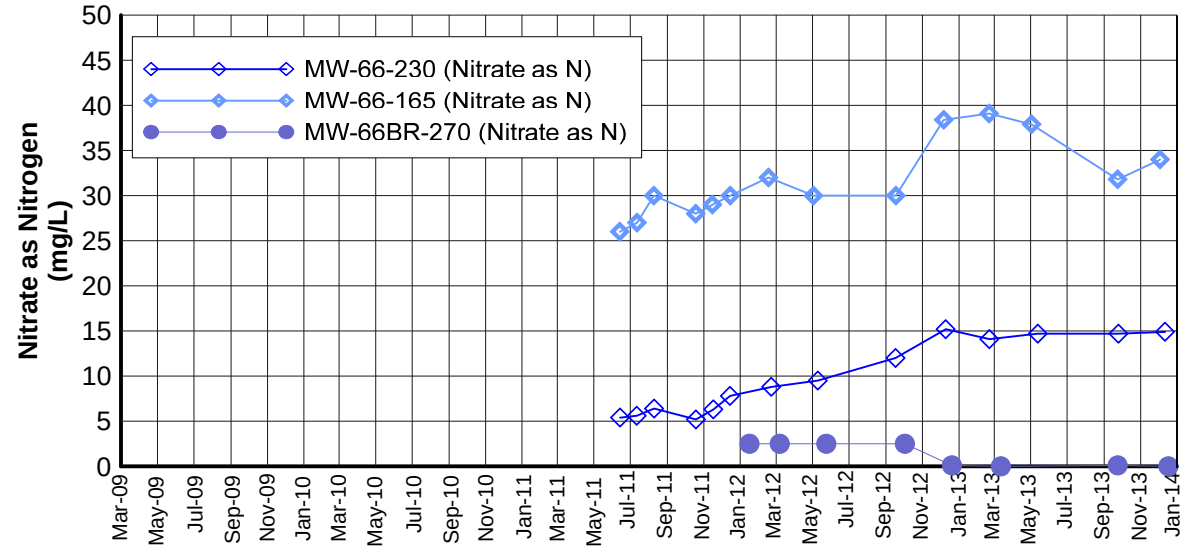


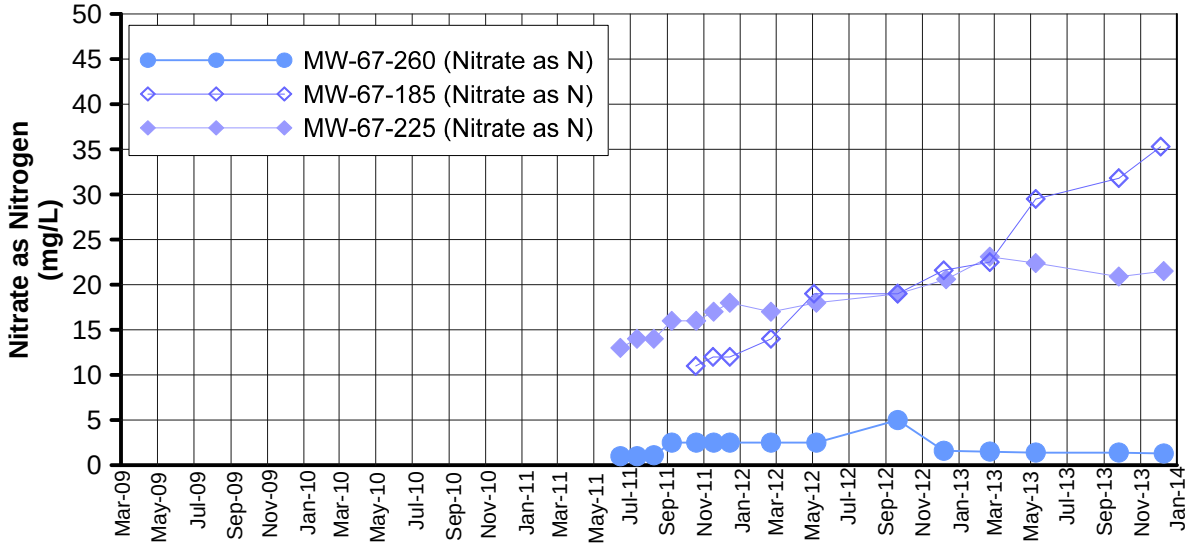
Notes:

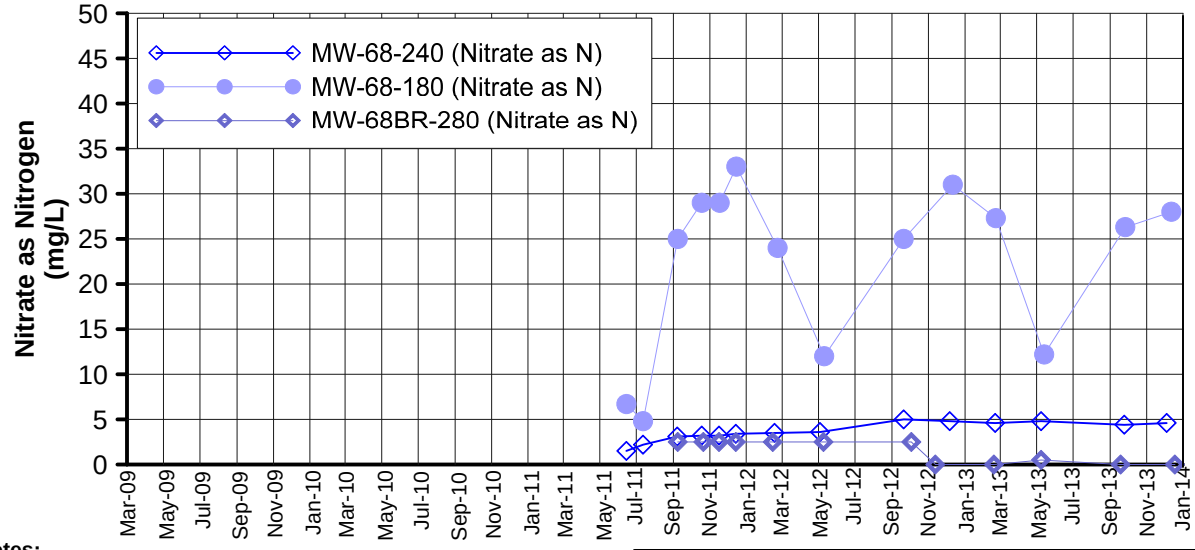
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-49
NITRATE as NITROGEN
IN MW-63-065, MW-64 CLUSTER, AND MW-65 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





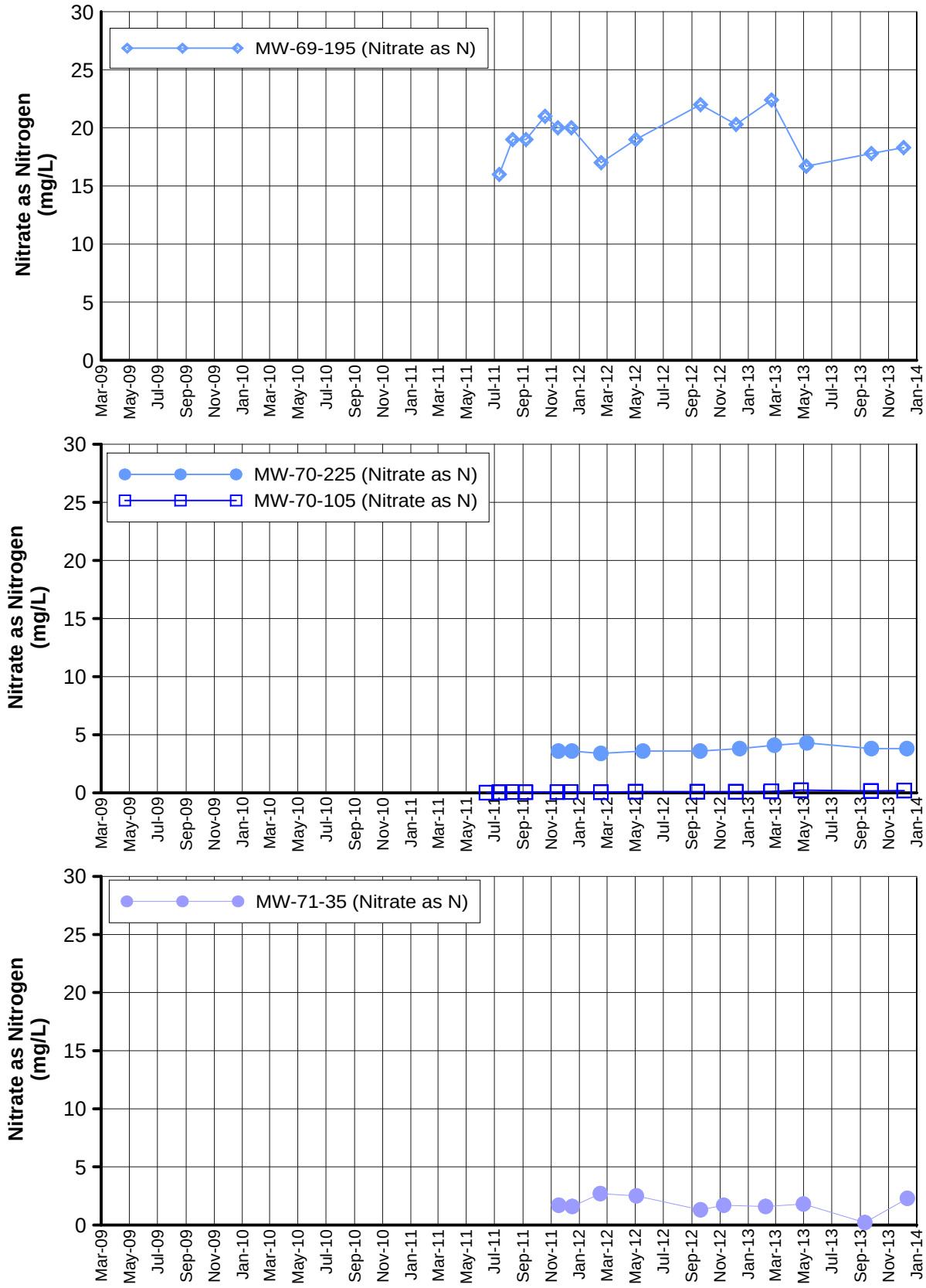


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-50
NITRATE as NITROGEN
IN MW-66, MW-67 AND MW-68 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

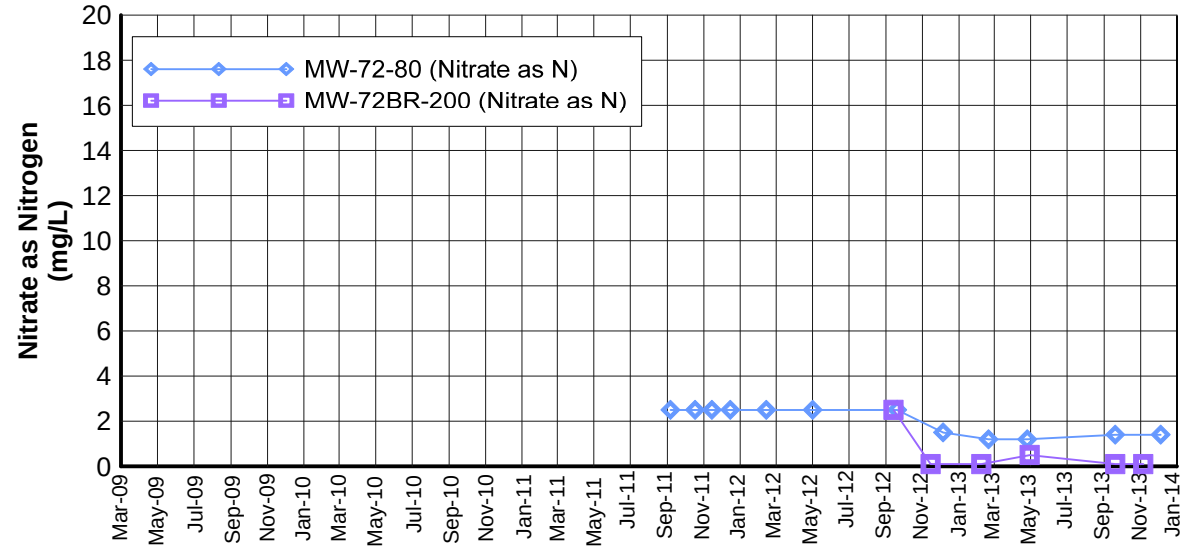


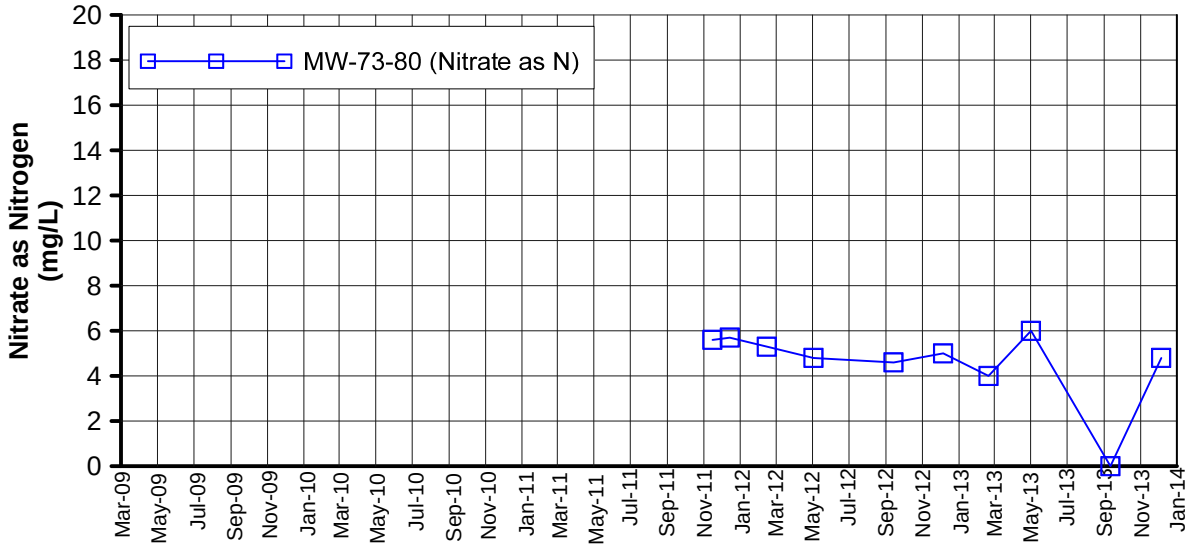
Notes:

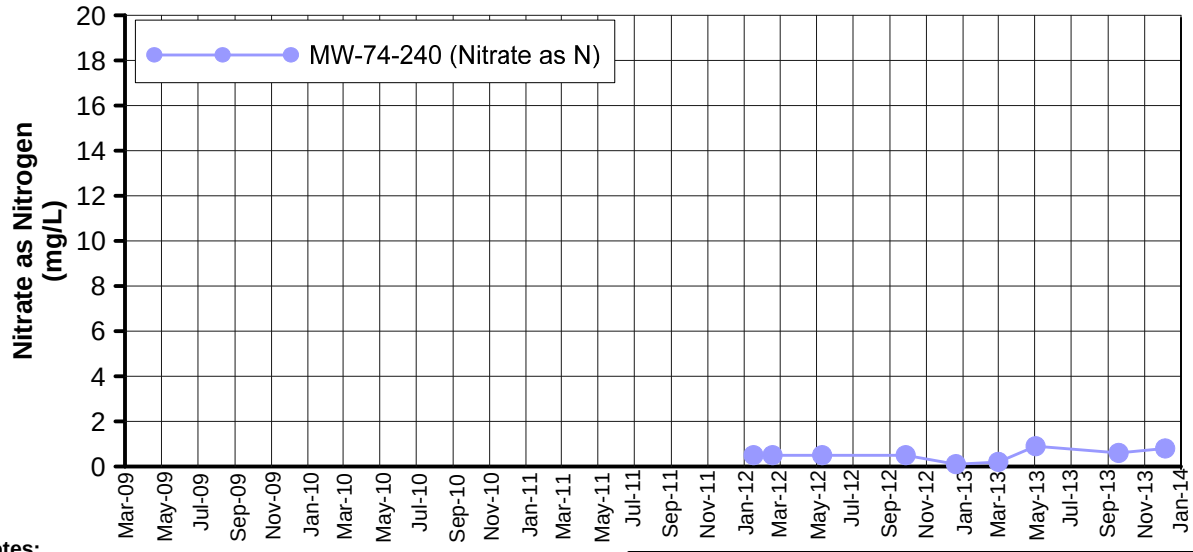
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-51
NITRATE as NITROGEN
IN MW-69-195, MW-70 CLUSTER, AND MW-71-35
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





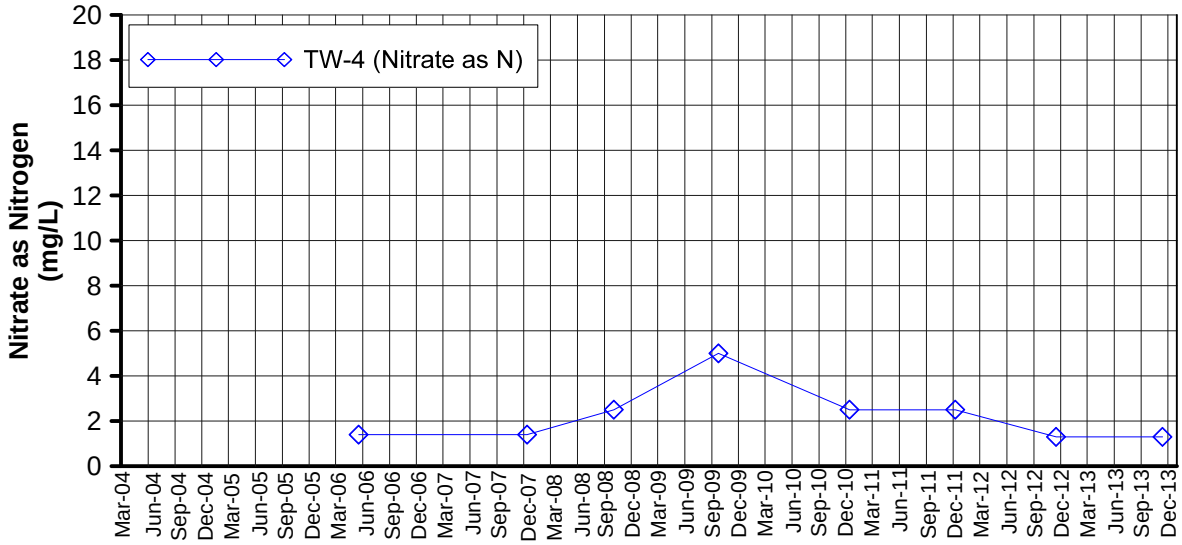


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-52
NITRATE as NITROGEN
IN MW-72 CLUSTER, MW-73-80, AND MW-74-240
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-53
NITRATE as NITROGEN
IN TW-4
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

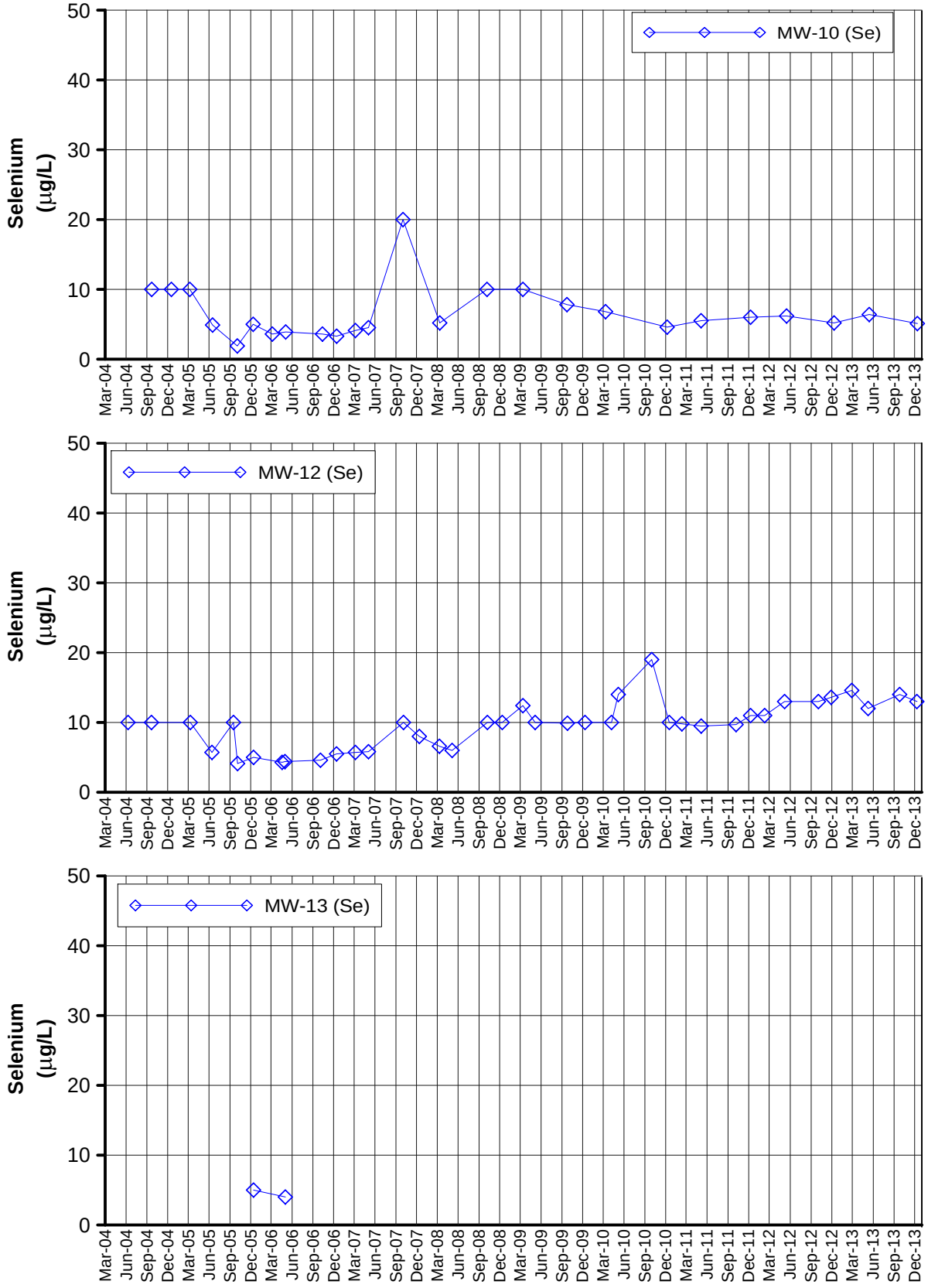


FIGURE C-54
SELENIUM
IN MW-10, MW-12, AND MW-13
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

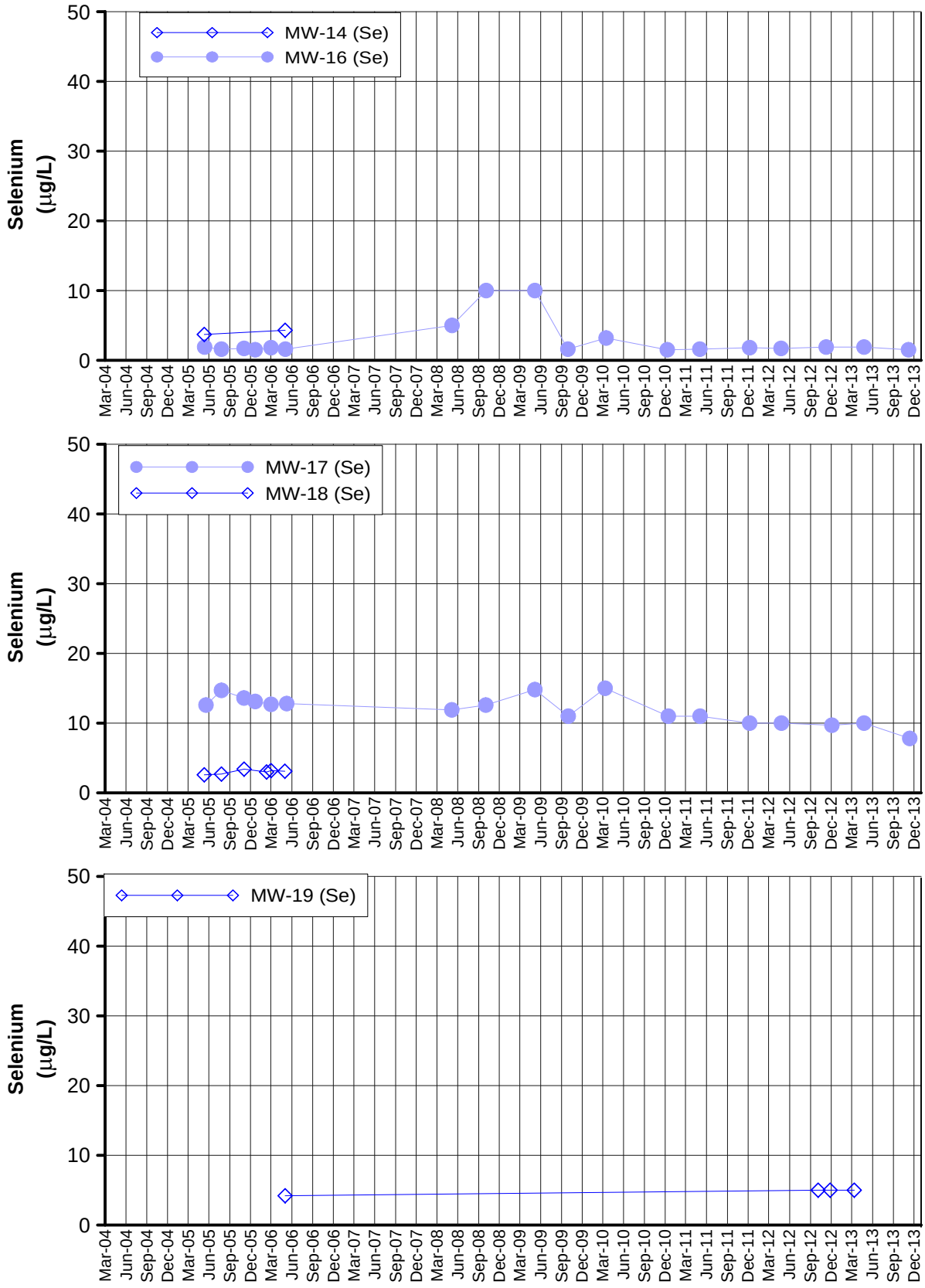


FIGURE C-55
SELENIUM
IN MW-14, MW-18, AND MW-19
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

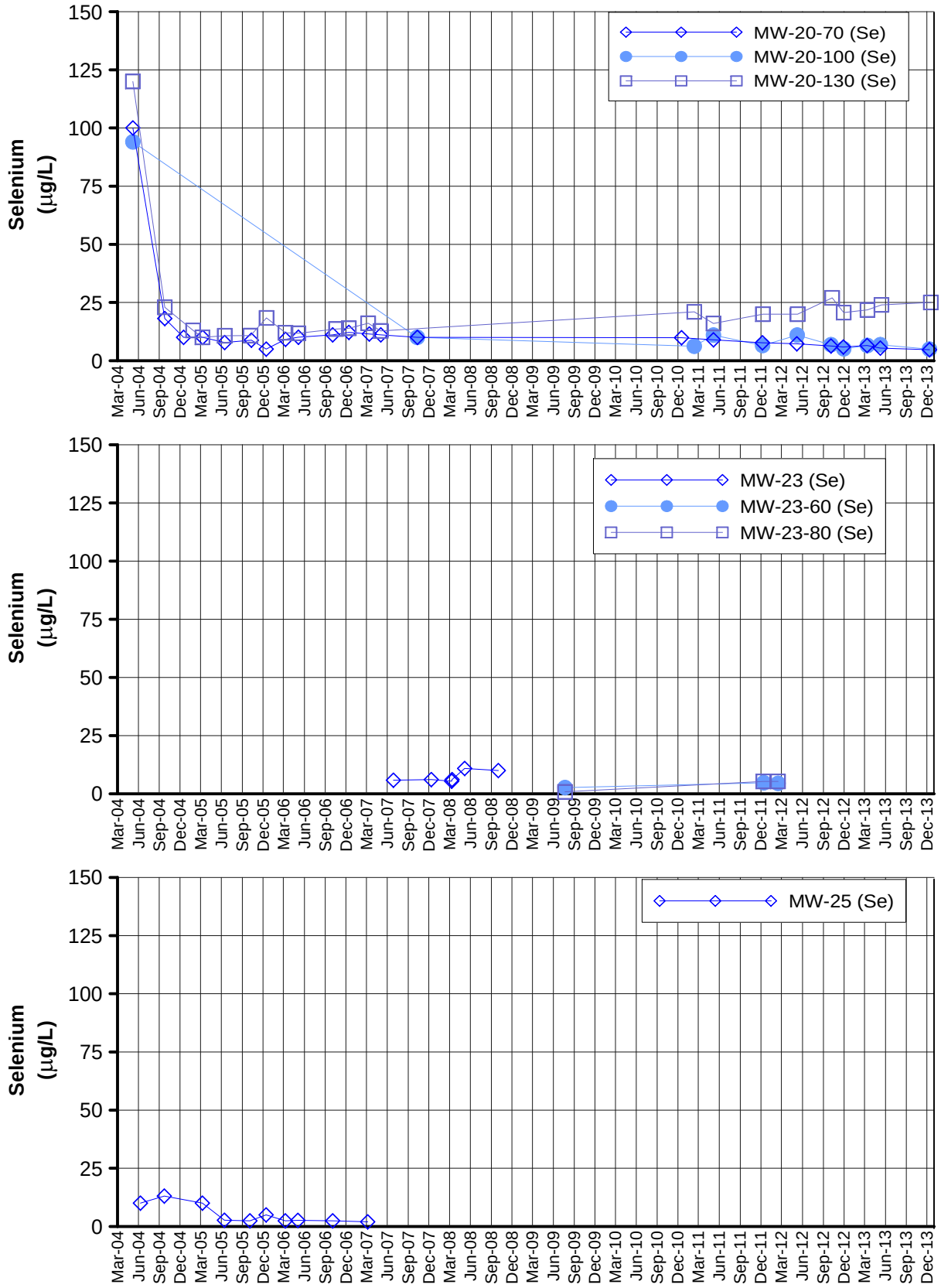


FIGURE C-56
SELENIUM
IN MW-20 CLUSTER, MW-23 CLUSTER, AND MW-25
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

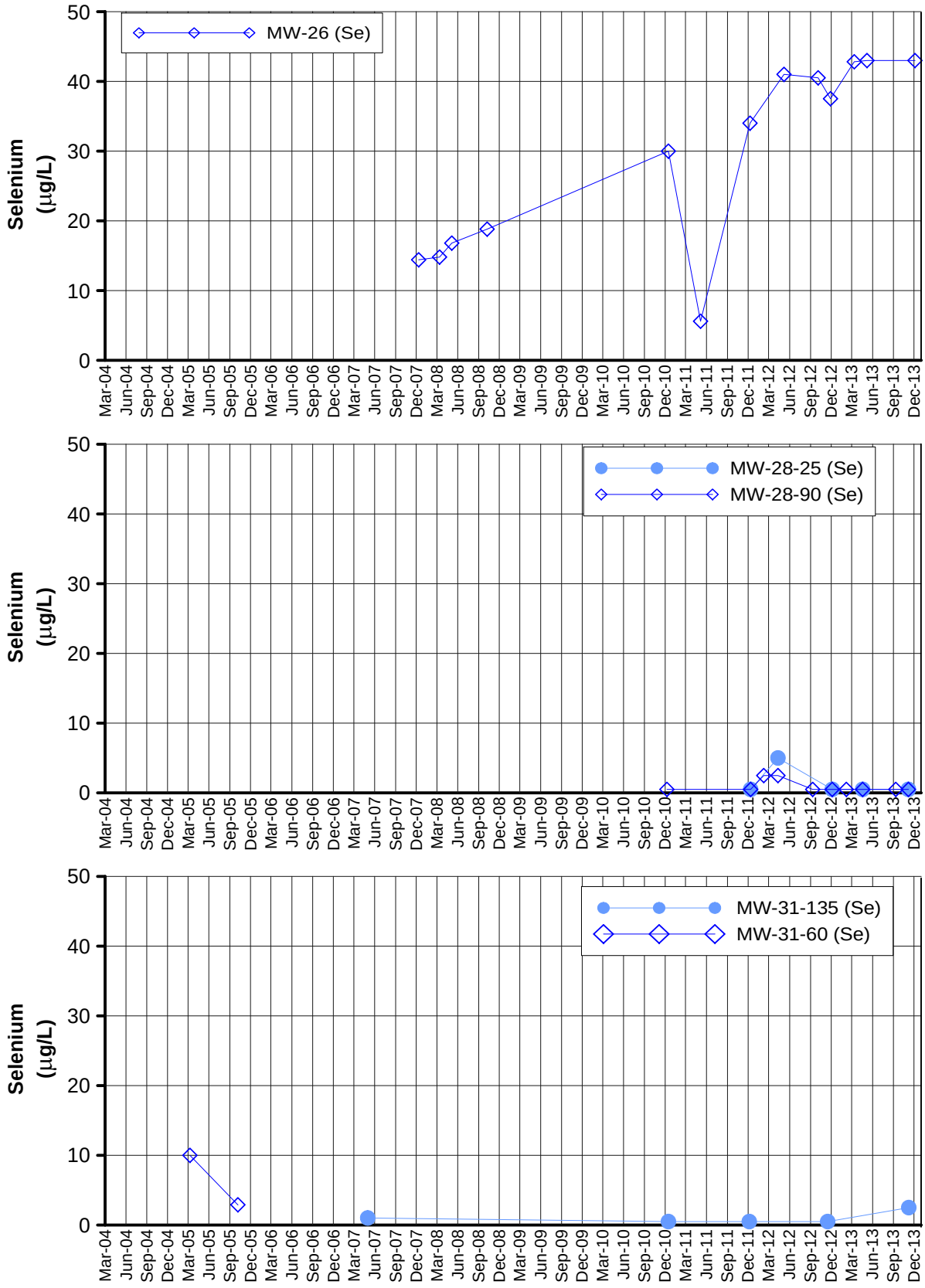


FIGURE C-57
SELENIUM
IN MW-26 AND MW-28 AND MW-31 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

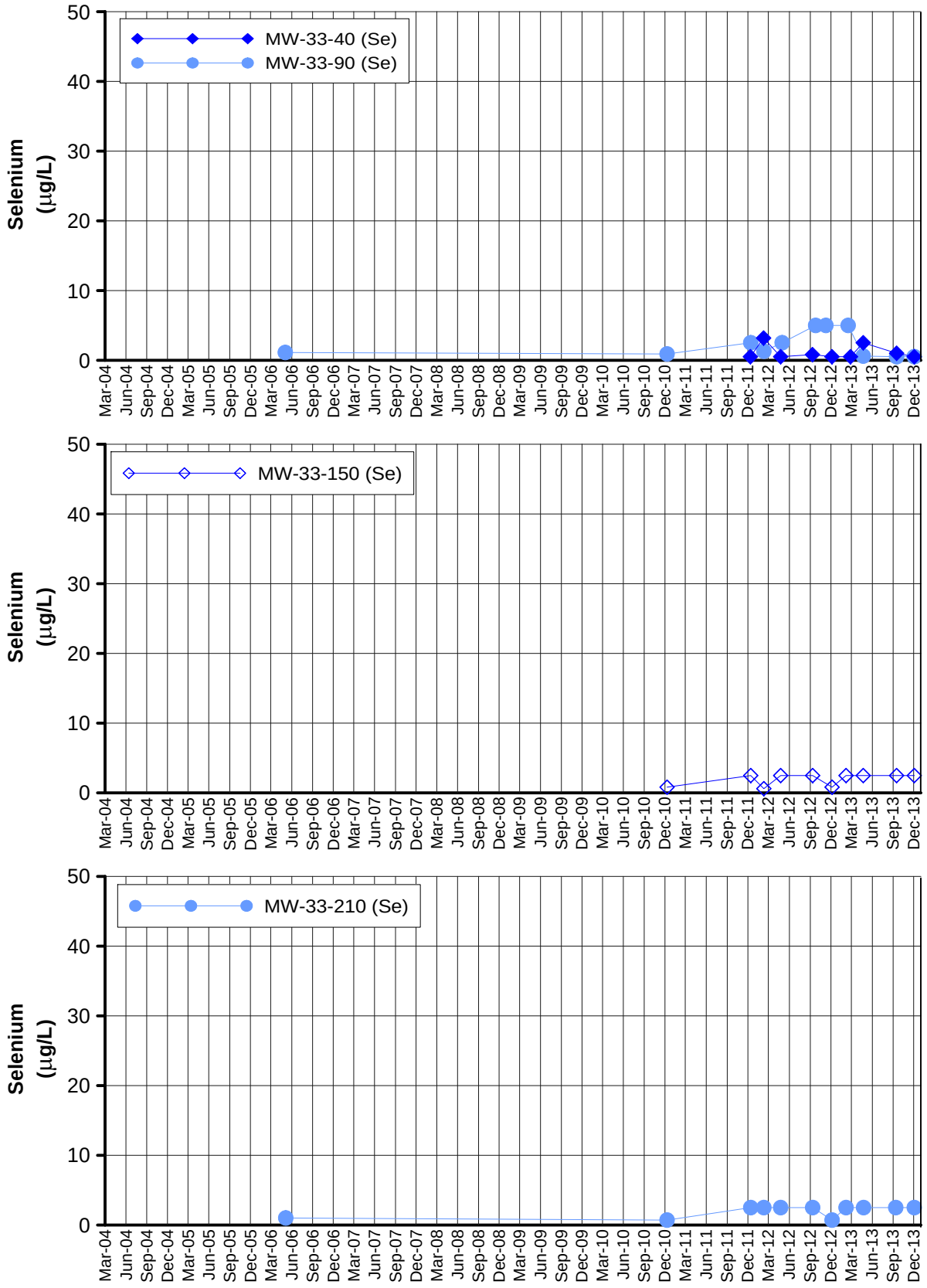


FIGURE C-58
SELENIUM
IN MW-33 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

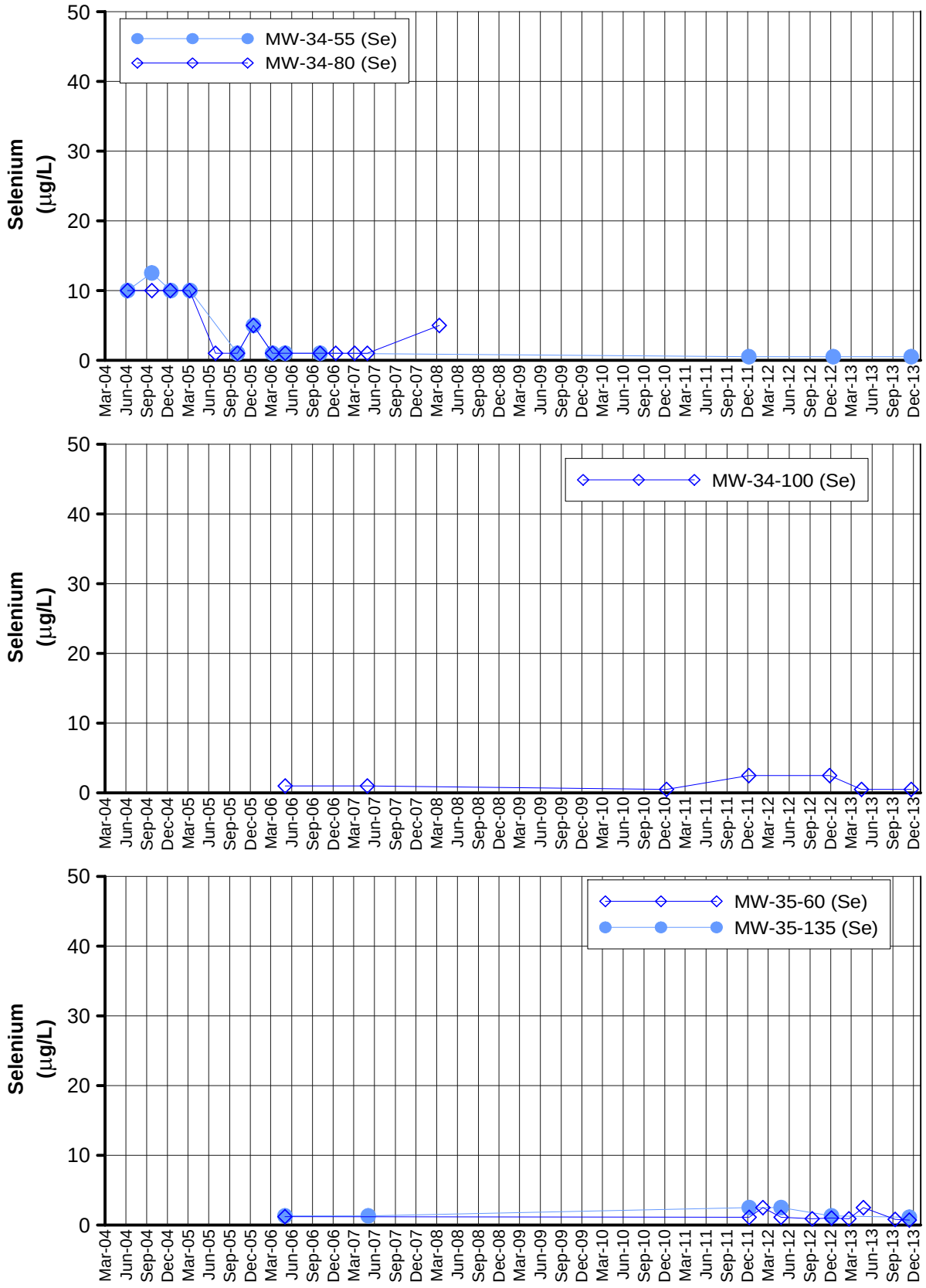


FIGURE C-59
SELENIUM
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

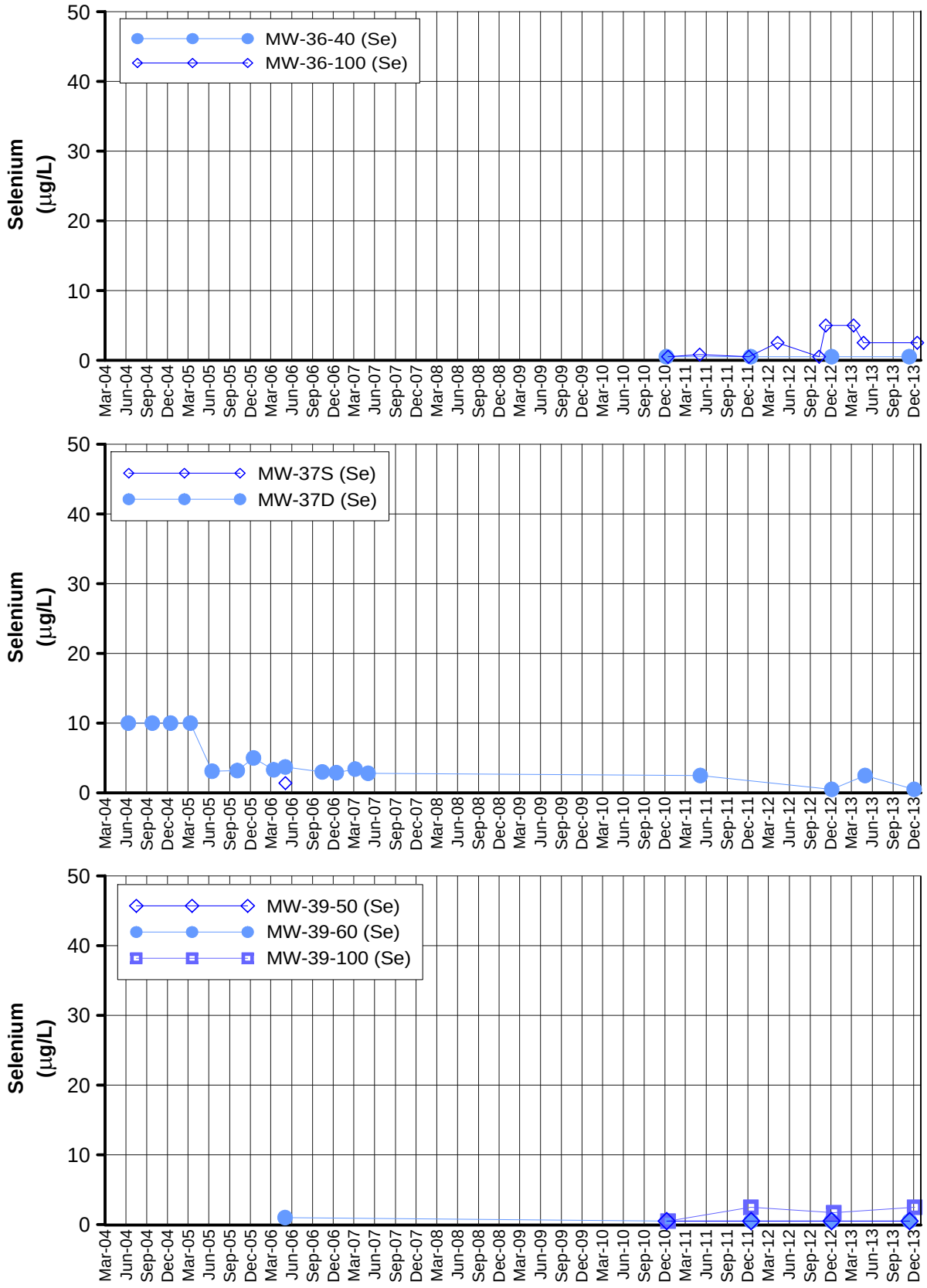


FIGURE C-60
SELENIUM IN MW-36 CLUSTER,
MW-37 CLUSTER, AND MW-39 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

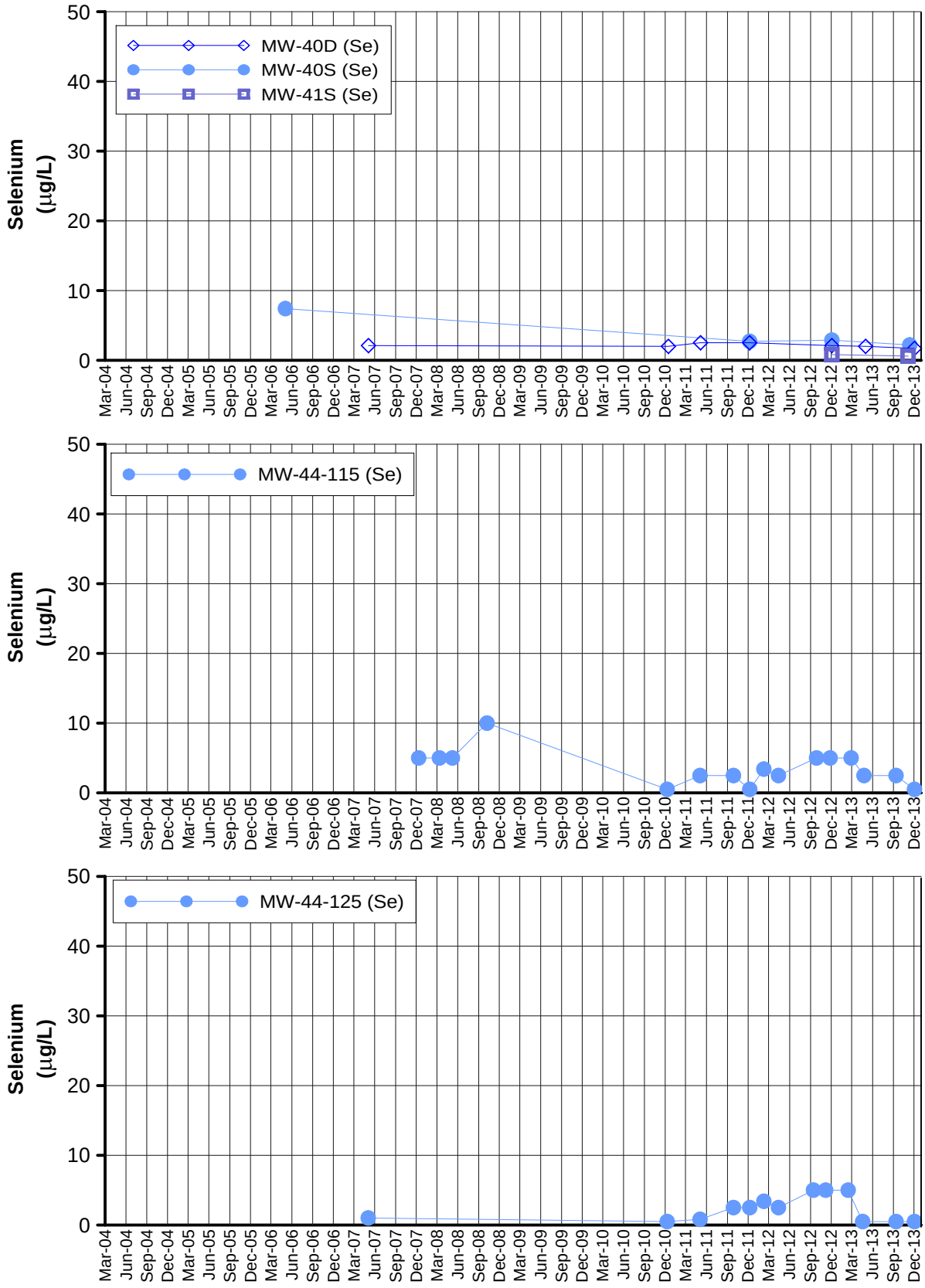


FIGURE C-61
SELENIUM IN MW-40 CLUSTER,
MW-41 CLUSTER, AND MW-44 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

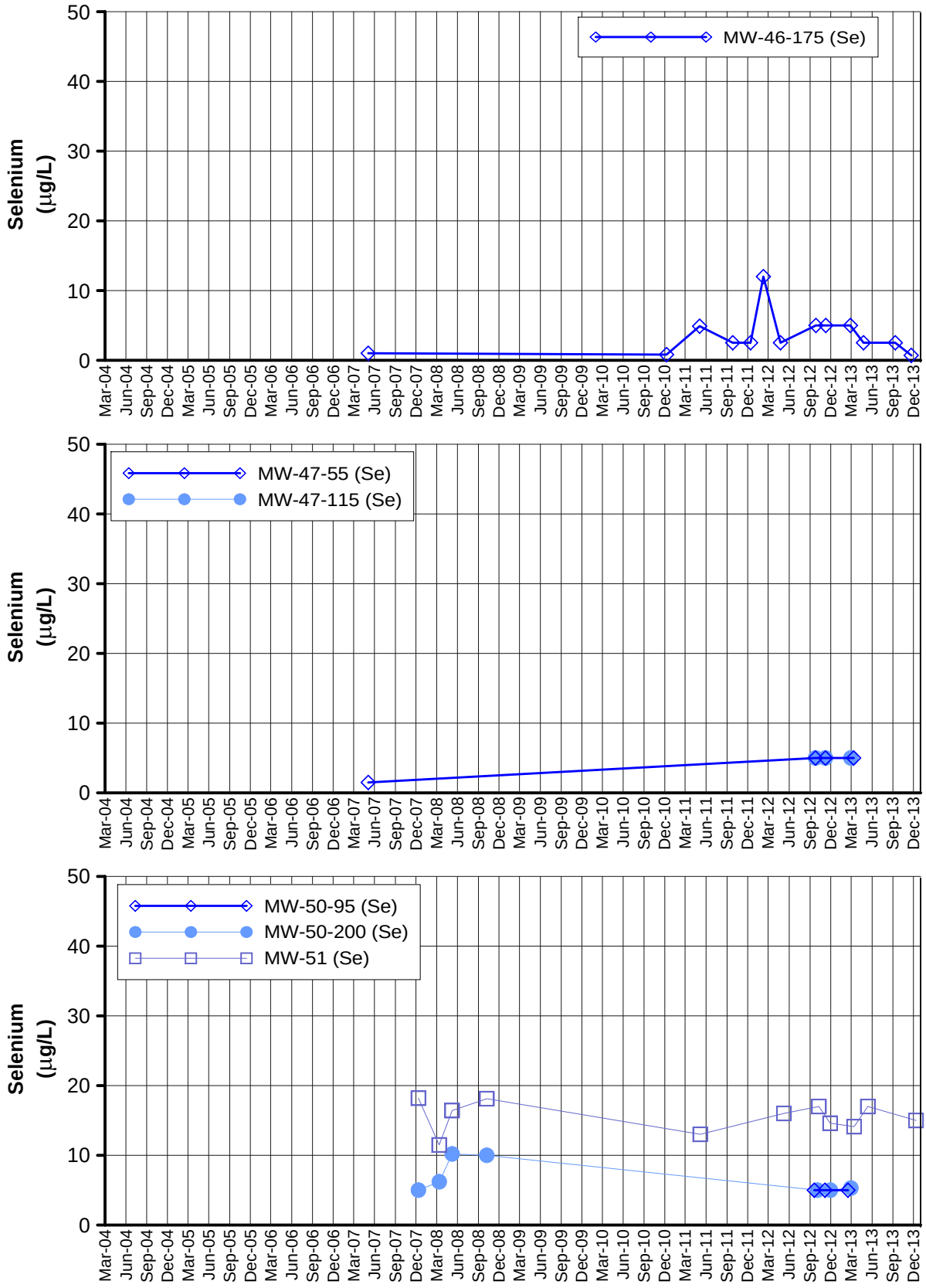


FIGURE C-62
SELENIUM IN MW-46-175,
MW-47 CLUSTER, MW-50 CLUSTER, AND MW-51
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

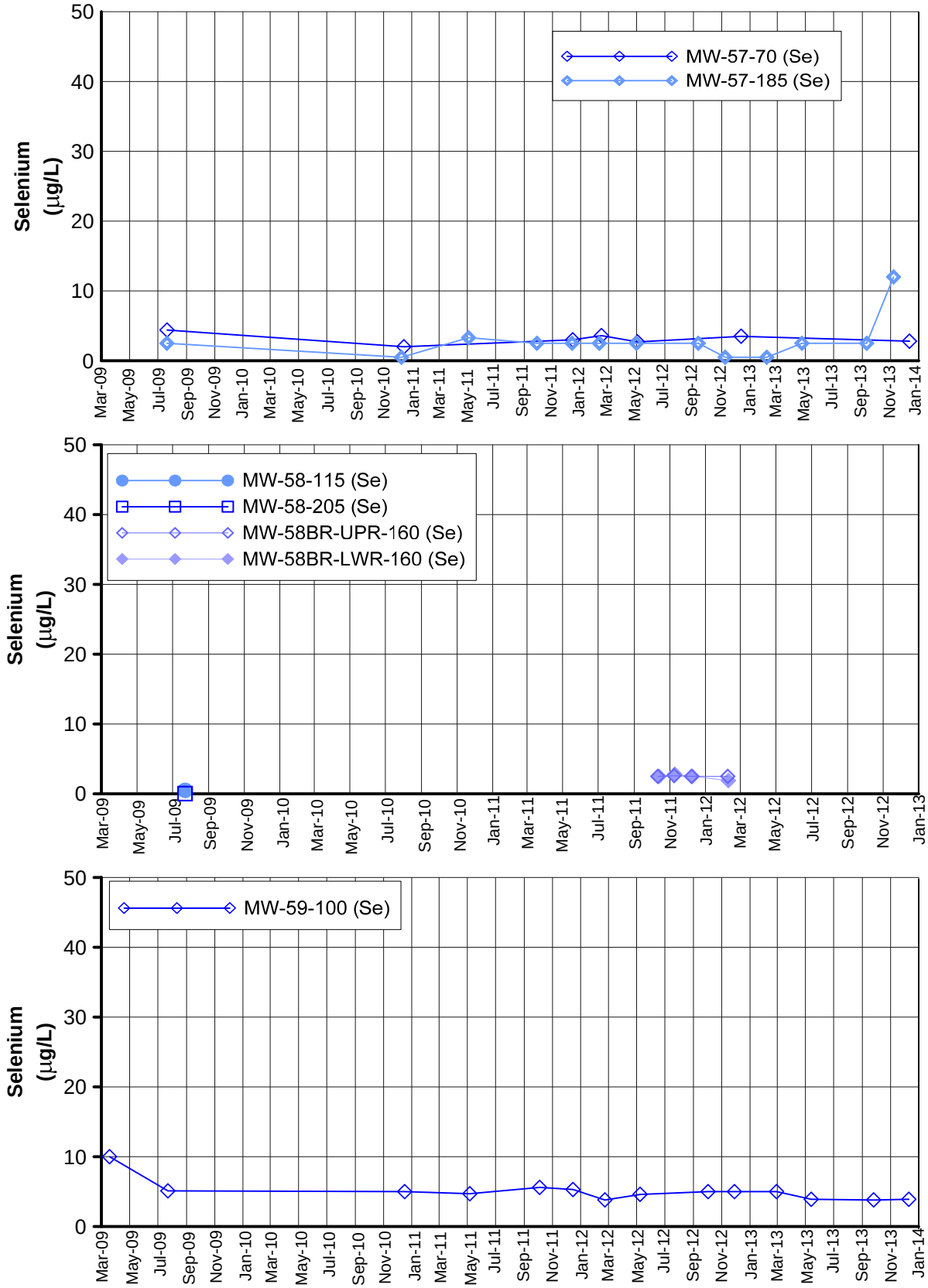


FIGURE C-63
SELENIUM
IN MW-57, MW-58, and MW-59 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

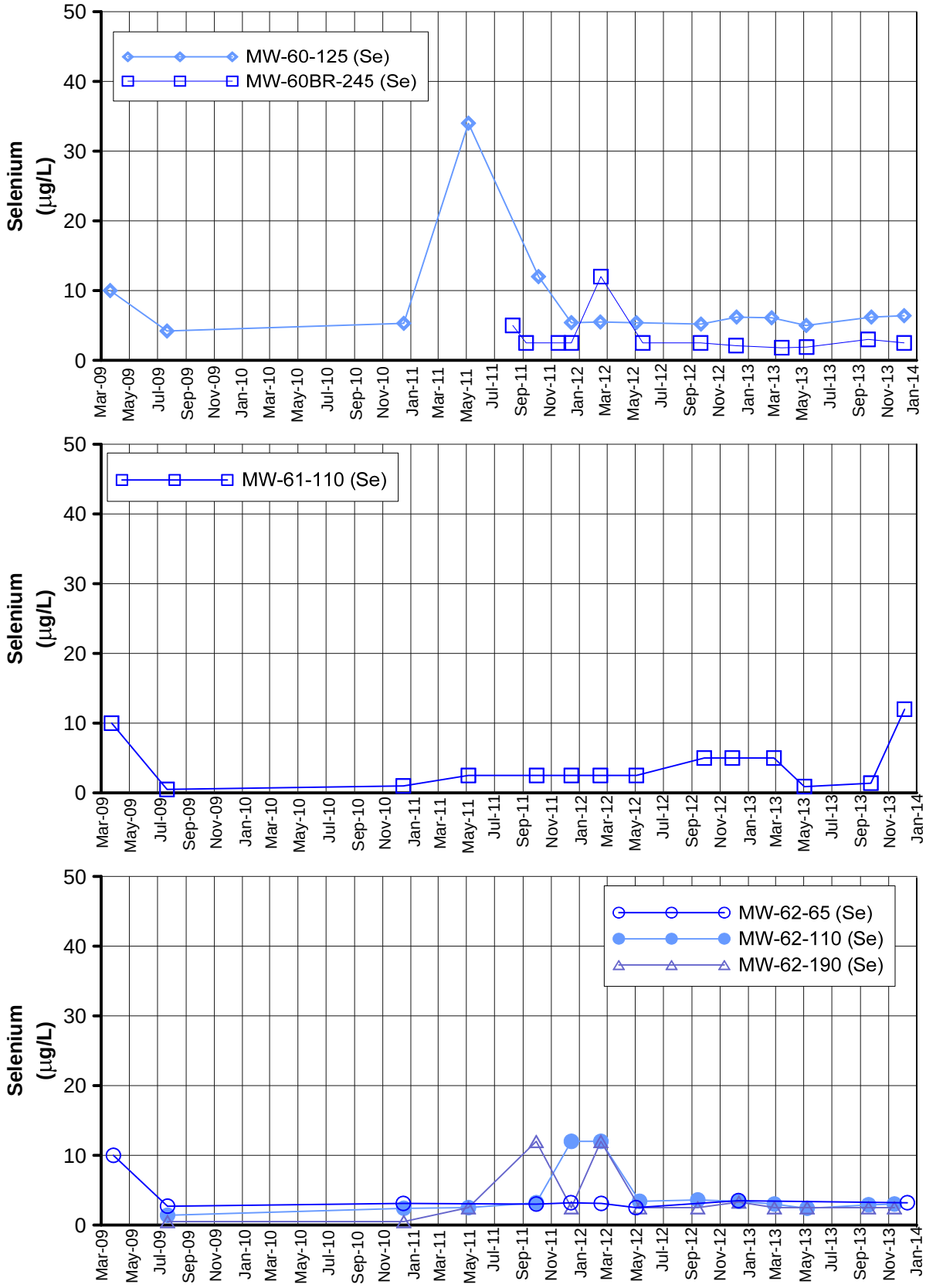


FIGURE C-64
SELENIUM IN THE MW-60 CLUSTER, MW-61-110 AND THE MW-62 CLUSTER
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

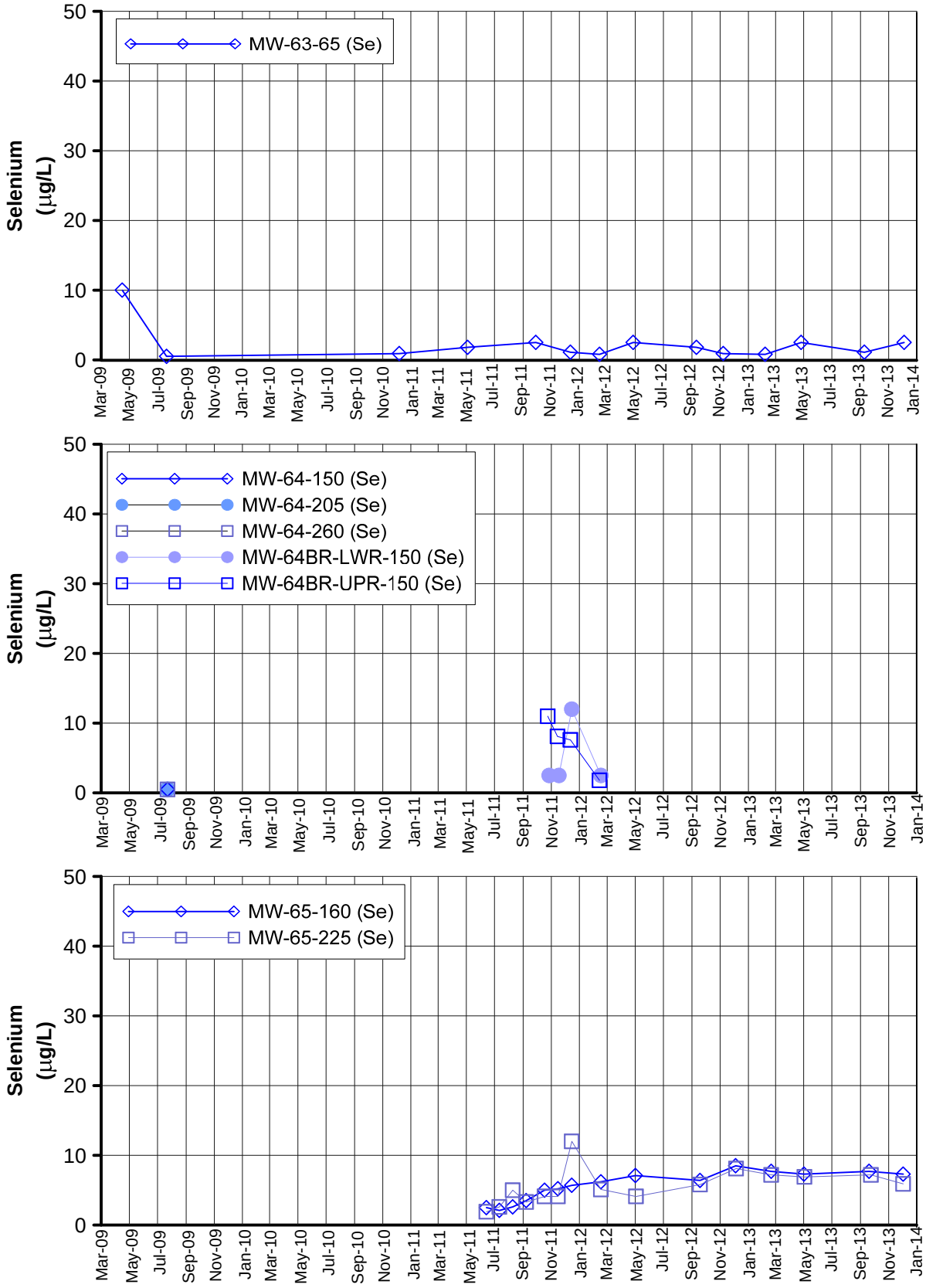


FIGURE C-65
SELENIUM
IN MW-63-065, AND MW-64 AND MW-65 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

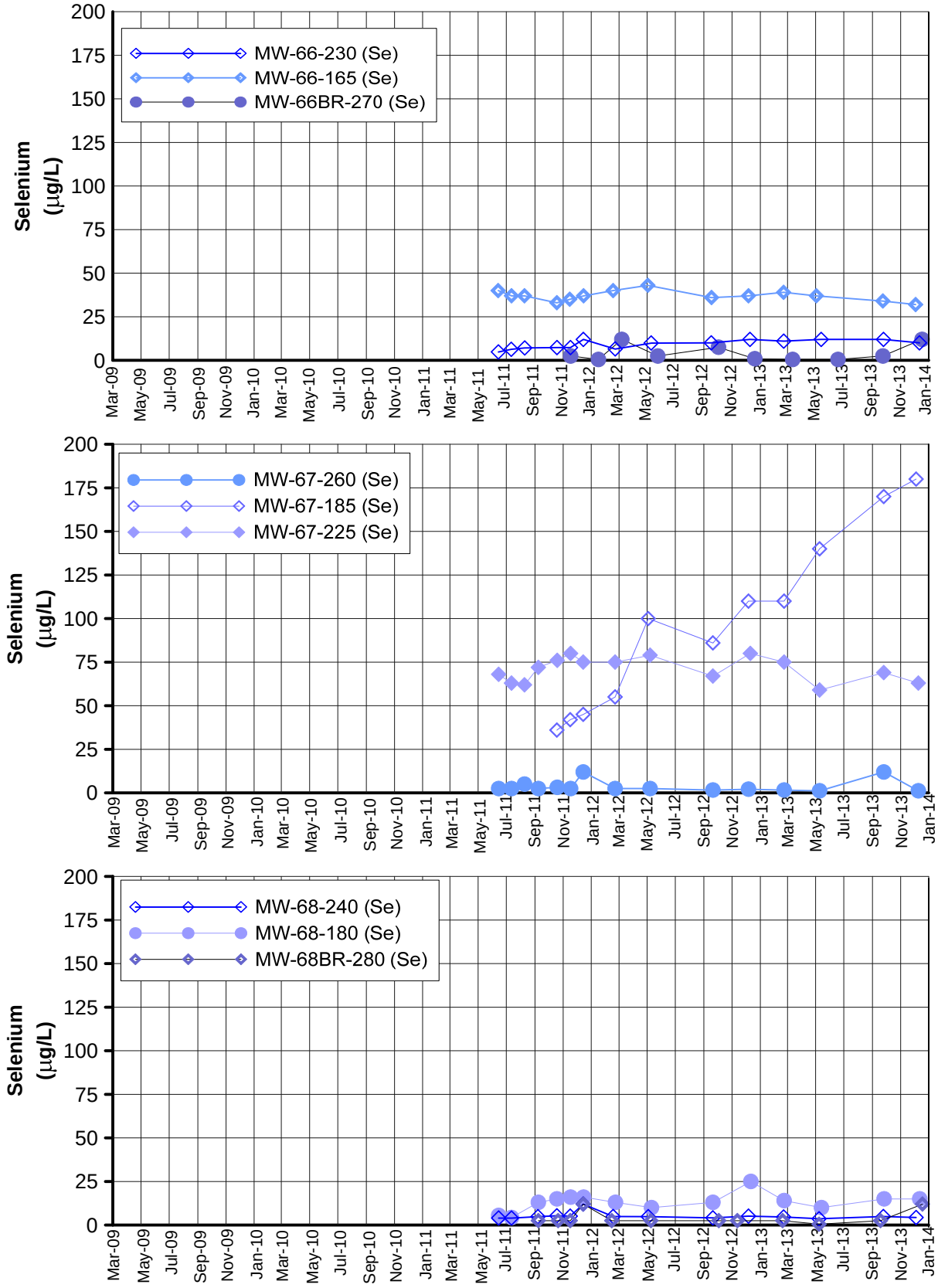


FIGURE C-66
SELENIUM
IN MW-66, MW-67, AND MW-68 CLUSTERS
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

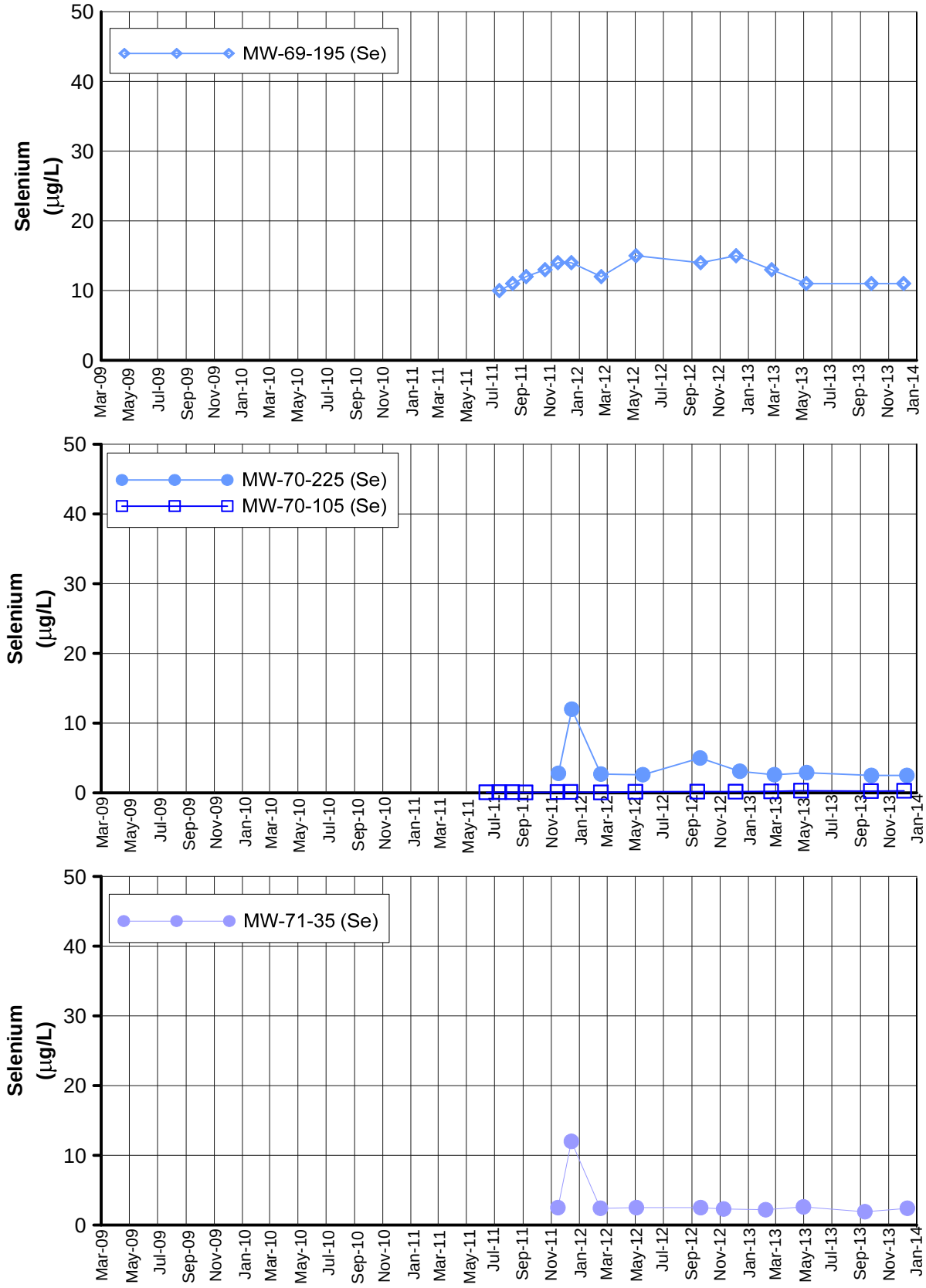


FIGURE C-67
SELENIUM
IN MW-69-195, THE MW-70 CLUSTER, AND MW-71-35
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

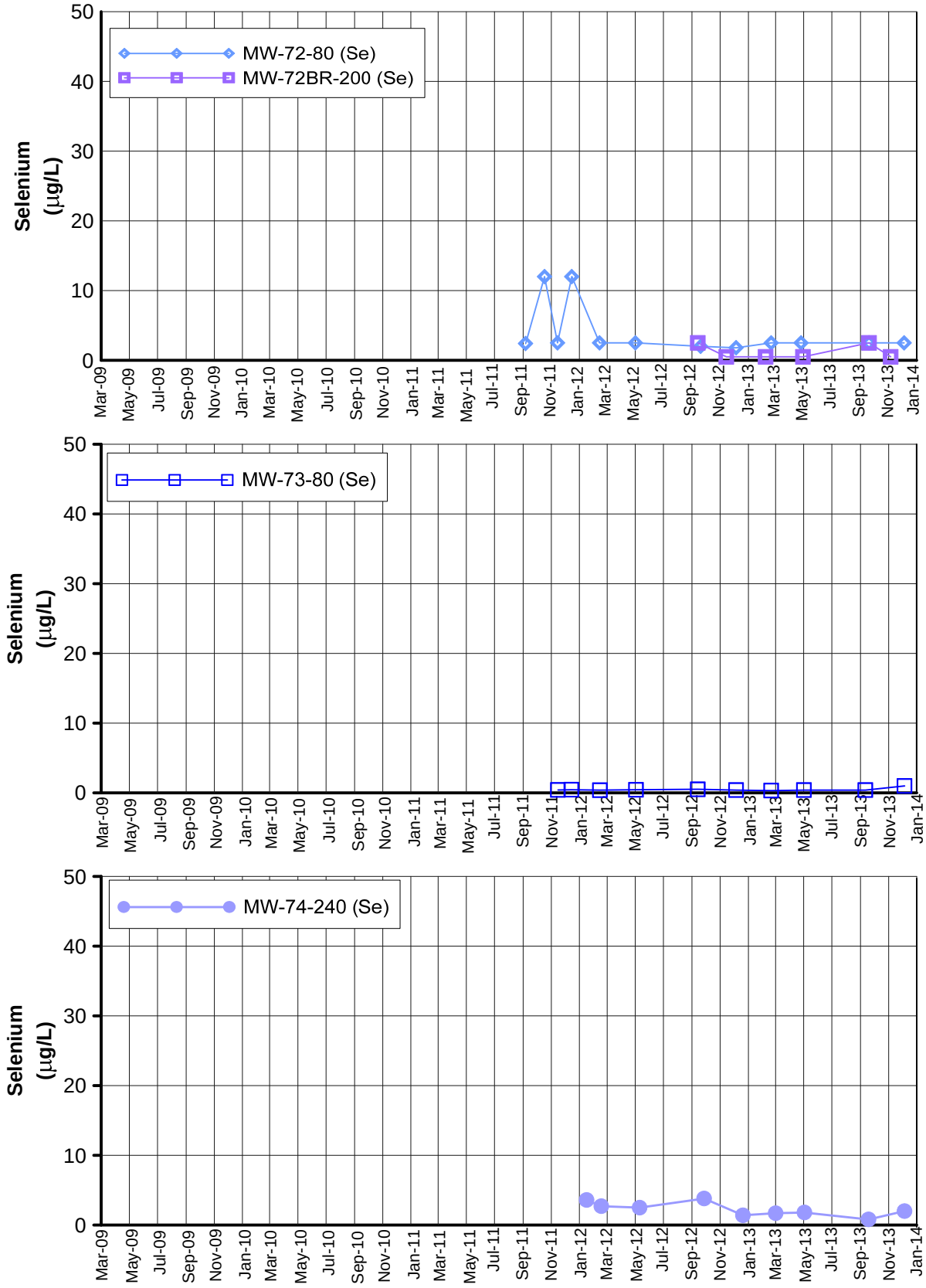


FIGURE C-68
SELENIUM
IN MW-72-80, MW-73-80, AND MW-74-240
FOURTH QUARTER 2013 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

Appendix D
Other Groundwater Monitoring Results

TABLE D-1
In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-9	09-Dec-13	---	ND (0.5)	ND (20)	---	9.84	240	---	31
MW-10	12-Dec-13	4.5	ND (0.5)	ND (20)	---	10.8	270	4.80	-26
MW-12	10-Dec-13	38.0	ND (0.5)	ND (20)	---	12.7	460	---	-18
MW-13	13-Nov-13	1.9	ND (0.5)	ND (20)	---	4.26	140	---	140
MW-14	19-Dec-13	---	ND (0.5)	ND (20)	---	4.24	100	---	5.0
MW-15	11-Nov-13	---	ND (0.5)	ND (20)	---	5.15	120	---	280
MW-16	06-Nov-13	9.1	ND (0.5)	ND (20)	---	3.30	120	---	150
MW-17	11-Nov-13	1.3	ND (0.5)	ND (20)	---	4.80	390	---	260
MW-18	11-Nov-13	---	ND (0.5)	ND (20)	---	4.44	87.0	---	230
MW-19	05-Dec-13	---	ND (0.5)	27.0	---	4.78	170	---	190
MW-20-70	11-Dec-13	---	ND (0.5)	ND (20)	---	8.05	260	---	16
MW-20-100	11-Dec-13	---	ND (0.5)	ND (20)	---	9.50	290	---	23
MW-20-130	17-Dec-13	4.9	ND (0.5)	ND (20)	---	12.4	1100	---	-64
	17-Dec-13 FD	4.9	ND (0.5)	ND (20)	---	12.9	1100	---	FD
MW-21	05-Nov-13	---	ND (0.5)	ND (20)	---	3.55	1600	---	190
MW-22	14-Nov-13	14.0	5900	10000	---	0.0316	2200	---	-36
MW-23-060	11-Nov-13	3.0	ND (0.5)	44.0	ND (0.5)	5.66	650	---	160
MW-23-080	11-Nov-13	3.0	ND (0.5)	ND (20)	ND (0.5)	6.68	840	---	81
MW-24BR	03-Dec-13	---	160	120	---	ND (0.01)	460	---	-230
MW-25	09-Dec-13	1.2	ND (0.5)	ND (20)	---	6.99	140	---	-4
MW-26	04-Dec-13	1.8	ND (0.5)	ND (20)	---	18.0	520	---	45
MW-27-20	04-Nov-13	1.3	95.0	94.0	ND (0.5)	ND (0.01)	210	---	19
MW-27-60	04-Nov-13	6.3	190	260	ND (0.5)	ND (0.01)	180	0.62	-78
MW-27-85	04-Nov-13	1.3	17.0	130	0.946	ND (0.01)	1000	4.10	-16
MW-28-25	05-Nov-13	1.0	1.5	ND (20)	ND (0.5)	ND (0.01)	580	---	200
MW-28-90	05-Nov-13	1.5	85.0	750	ND (0.5)	0.0146	570	2.90	190
MW-29	05-Nov-13	6.4	210	760	3.39	0.0138	270	---	-74
	05-Nov-13 FD	6.1	220	730	3.37	0.02	310	---	FD
MW-30-30	04-Nov-13	0.84	21.0	340	---	0.0174	600	---	-190
MW-30-50	04-Nov-13	2.7	110	39.0	0.846	ND (0.01)	200	---	-120

TABLE D-1
In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-31-60	03-Dec-13	1.2	ND (0.5)	ND (20)	ND (0.5)	3.53	220	---	20
MW-31-135	07-Nov-13	3.4	ND (0.5)	ND (20)	ND (0.5)	0.866	470	---	-110
MW-32-20	16-Dec-13	3.6	310	13000	9.16	0.0427	5400	---	-100
MW-32-35	06-Nov-13	23.0	1100	10000	9.08	0.0482	1600	---	-79
MW-33-40	03-Dec-13	12.0	ND (0.5)	ND (20)	ND (0.5)	0.127	930	12.0	110
MW-33-90	03-Dec-13	1.3	ND (0.5)	ND (20)	ND (0.5)	1.46	720	4.20	120
MW-33-150	03-Dec-13	1.7	ND (0.5)	ND (20)	ND (0.5)	1.48	890	4.90	140
MW-33-210	03-Dec-13	1.1	ND (0.5)	ND (20)	ND (0.5)	1.60	1200	4.70	140
	03-Dec-13 FD	1.2	ND (0.5)	ND (20)	ND (0.5)	1.62	1200	4.90	FD
MW-34-55	20-Nov-13	2.6	67.0	40.0 J	ND (0.5)	ND (0.01)	210	---	-65
MW-34-80	20-Nov-13	1.3	ND (0.5)	63.0	ND (0.5)	ND (0.01)	620	---	14
	20-Nov-13 FD	1.3	ND (0.5)	66.0	ND (0.5)	ND (0.01)	620	---	FD
MW-34-100	20-Nov-13	1.5	ND (0.5)	ND (20)	ND (0.5)	0.422	1200	---	-120
	20-Nov-13 FD	1.4	ND (0.5)	ND (20)	ND (0.5)	0.419	1100	---	FD
	16-Dec-13	2.2	---	---	---	---	---	---	-130
MW-35-60	12-Nov-13	0.91	ND (0.5)	ND (20)	ND (0.5)	2.04	330	---	-11
MW-35-135	12-Nov-13	0.85	ND (0.5)	ND (20)	ND (0.5)	2.67	660	---	58
MW-36-20	11-Nov-13	1.5 J	84.0 J	660 J	1.09	0.0134	1200	---	-150
	11-Nov-13 FD	1.2 J	240 J	1300 J	1.15	0.0142	1300	---	FD
MW-36-40	11-Nov-13	4.7	150	610	0.913	ND (0.01)	190	---	-280
MW-36-50	11-Nov-13	3.6	190	150	ND (0.5)	ND (0.01)	190	---	-57
MW-36-70	11-Nov-13	3.5	120	24.0	ND (0.5)	ND (0.01)	200	---	-17
MW-36-90	11-Nov-13	20.0	2.1	ND (20)	ND (0.5)	ND (0.01)	200	---	-90
MW-36-100	16-Dec-13	7.1	2.9	24.0	ND (0.5)	0.084	720	---	-140
MW-37S	06-Nov-13	1.6	ND (0.5)	ND (20)	---	1.29	260	---	140
MW-37D	02-Dec-13	---	ND (0.5)	33.0	---	0.182	630	---	-180
MW-38S	03-Dec-13	13.0	180	140	---	0.138	200	---	-240
MW-38D	13-Nov-13	6.6	250	ND (20)	---	0.056	710	---	19
MW-39-40	12-Nov-13	17.0	---	---	---	---	---	---	-150
MW-39-50	12-Nov-13	3.5	65.0	ND (20)	ND (0.5)	ND (0.01)	210	---	-34
MW-39-60	12-Nov-13	5.2	27.0	ND (20)	ND (0.5)	ND (0.01)	220	---	30

TABLE D-1
In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-39-70	12-Nov-13	---	ND (0.5)	ND (20)	ND (0.5)	ND (0.01)	250	---	200
MW-39-80	12-Nov-13	---	ND (0.5)	24.0	ND (0.5)	ND (0.01)	550	---	27
MW-39-100	04-Dec-13	2.2	ND (0.5)	ND (20)	ND (0.5)	ND (0.01)	1500	---	110
	04-Dec-13 FD	2.0	ND (0.5)	ND (20)	ND (0.5)	ND (0.01)	1400	---	FD
MW-40S	11-Nov-13	1.5	ND (0.5)	---	---	4.19	---	---	270
MW-40D	02-Dec-13	4.3	ND (0.5)	ND (20)	---	3.10	710	---	240
MW-41S	04-Nov-13	1.7	ND (0.5)	ND (20)	---	1.25	270	---	180
MW-41M	04-Nov-13	1.8	ND (0.5)	ND (20)	---	0.675	530	---	210
MW-41D	04-Nov-13	2.1	58.0	37.0	---	0.549	760	---	250
MW-42-30	05-Nov-13	3.1	---	---	---	0.0125	---	---	-160
MW-42-55	05-Nov-13	11.0	23.0	59.0	0.89	ND (0.01)	220	---	-150
MW-42-65	05-Nov-13	2.2	840	76.0	1.64	ND (0.01)	660	---	-34
MW-43-25	06-Nov-13	19.0	250	3200	3.31	0.0407	270	---	-120
MW-43-75	06-Nov-13	12.0	640	5000	0.859	0.0342	1500	---	-110
MW-43-90	06-Nov-13	3.1	820	2800	0.854	0.0202	1600	---	-80
MW-44-70	02-Dec-13	4.1	91.0	140	ND (0.5)	ND (0.01)	240	---	-97
MW-44-115	02-Dec-13	5.4	ND (0.5)	ND (20)	ND (0.5)	0.22	770	---	-190
MW-44-125	02-Dec-13	3.1	480	700	ND (0.5)	0.249	630	---	-160
	02-Dec-13 FD	3.3	420	590	ND (0.5)	0.249	630	---	FD
MW-45-095a	02-Dec-13	3.2	ND (0.5)	ND (20)	ND (0.5)	0.0362	680	---	-58
MW-46-175	20-Nov-13	---	ND (0.5)	ND (20)	ND (0.5)	1.02	770	---	220
	16-Dec-13	---	---	---	---	---	---	---	-180
MW-46-205	20-Nov-13	---	ND (0.5)	ND (20)	ND (0.5)	1.02	860	---	210
MW-47-55	12-Nov-13	1.2	ND (0.5)	ND (20)	ND (0.5)	1.71	250	---	160
MW-47-115	12-Nov-13	---	ND (0.5) J	ND (20)	ND (0.5)	2.21	710	---	170
MW-48	06-Nov-13	---	ND (0.5)	ND (20)	---	0.0702	550	---	140
MW-49-135	06-Nov-13	1.9	260	510	0.521	0.498	750	---	24
MW-49-275	06-Nov-13	---	170	ND (100)	ND (0.5)	0.88	1300	---	100
MW-49-365	07-Nov-13	---	ND (2.5)	120	0.564	0.0202	1100	---	-150
MW-50-095	06-Nov-13	---	ND (0.5)	ND (20)	ND (0.5)	1.53	260	---	140

TABLE D-1
In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-50-200	17-Dec-13	---	ND (2.5)	ND (20)	ND (0.5)	4.97	940	---	-32
MW-51	11-Dec-13	3.8	ND (0.5)	ND (20)	ND (0.5)	11.1	670	---	13
MW-52S	13-Nov-13	0.23	2100	13000	1.12	0.0381	360	---	-100
MW-52M	13-Nov-13	1.9	34.0	1000	ND (0.5)	ND (0.01)	710	---	-140
	13-Nov-13 FD	1.9	35.0	1000	ND (0.5)	ND (0.01)	700	---	FD
MW-52D	13-Nov-13	3.8	78.0	430	ND (0.5)	ND (0.01)	880	---	-150
MW-53M	13-Nov-13	0.95	250	320	ND (0.5)	ND (0.01)	790	---	-190
MW-53D	13-Nov-13	3.1	1300	260	ND (0.5)	ND (0.01)	1200	---	-180
MW-54-85	21-Nov-13	3.4	831	487	ND (0.1)	0.225	515	---	12
MW-54-140	21-Nov-13	2.1	142	ND (20)	ND (0.1)	0.874	497	---	15
MW-54-195	21-Nov-13	ND (0.2)	539	97.6	ND (0.1)	ND (0.01)	945	---	-110
MW-55-45	21-Nov-13	---	1090	63.0	---	0.0637	112	---	30
MW-55-120	21-Nov-13	---	10.7	ND (20)	---	1.41	307	---	-2
	21-Nov-13 FD	---	10.6	ND (20)	---	1.41	301	---	FD
MW-56S	14-Nov-13	---	1240	8880	0.939	0.0524	1290	---	-110
MW-56M	14-Nov-13	---	669	804	ND (0.1)	0.0117	1460	---	-110
MW-56D	14-Nov-13	---	764 J	3000	0.419	0.0225	1290	---	-130
MW-57-070	12-Dec-13	1.5	ND (0.5)	ND (20)	ND (0.5)	6.83	100	---	-36
MW-57-185	07-Nov-13	14.0	250	ND (20)	ND (0.5)	ND (0.01)	720	---	-300
	07-Nov-13 FD	14.0	220	ND (20)	ND (0.5)	ND (0.01)	710	---	FD
MW-58BR	17-Dec-13	0.97	660	26.0	---	0.299	510	---	-170
MW-59-100	10-Dec-13	2.1	ND (0.5)	ND (20)	ND (0.5)	3.89	640	---	28
MW-60-125	04-Dec-13	1.4	ND (0.5)	ND (20)	ND (0.5)	4.57	470	---	34
MW-60BR-245	04-Dec-13	5.9	ND (0.5)	130	ND (0.5)	0.153	770	---	-220
MW-61-110	05-Dec-13	3.4	58.0	ND (20)	ND (0.5)	0.897	700	---	76
	05-Dec-13 FD	3.6	53.0	ND (20)	ND (0.5)	0.893	720	---	FD
MW-62-065	11-Dec-13	1.2	ND (0.5)	ND (20)	ND (0.5)	3.93	400	---	-6
MW-62-110	13-Nov-13	6.6	59.0	ND (20)	ND (0.5)	3.98	520	---	190
MW-62-190	13-Nov-13	4.6	520	ND (20)	ND (0.5)	0.0106	720	---	0.0
MW-63-065	04-Dec-13	1.5	ND (0.5)	ND (20)	ND (0.5)	1.23	590	---	120
MW-64BR	16-Dec-13	2.9	740	160	---	1.15	580	---	18

TABLE D-1
In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-65-160	02-Dec-13	0.73	ND (0.5)	ND (20)	ND (0.5)	11.5	450	---	240
MW-65-225	02-Dec-13	2.3	ND (0.5)	ND (20)	ND (0.5)	8.89	760	---	-59
MW-66-165	03-Dec-13	1.1	ND (0.5)	ND (20)	ND (0.5)	34.0	480	---	8.0
MW-66-230	12-Dec-13	7.7	ND (0.5)	ND (20)	ND (0.5)	14.9	1100	---	-33
MW-66BR-270	17-Dec-13	ND (0.5)	ND (2.5)	50.0	ND (0.5)	0.0148	280	---	56
MW-67-185	04-Dec-13	1.5	ND (0.5)	ND (20)	ND (0.5)	35.3	590	---	17
MW-67-225	09-Dec-13	2.9	ND (0.5)	ND (20)	ND (0.5)	21.5	1000	---	43
MW-67-260	09-Dec-13	11.0	33.0	ND (20)	ND (0.5)	1.29	790	---	-97
MW-68-180	12-Dec-13	2.5	ND (0.5)	ND (20)	ND (0.5)	27.8	950	---	32
	12-Dec-13 FD	2.4	ND (0.5)	ND (20)	ND (0.5)	28.0	970	---	FD
MW-68-240	04-Dec-13	2.0	ND (0.5)	ND (20)	ND (0.5)	4.61	890	---	-79
MW-68BR-280	18-Dec-13	1.4	74.0	ND (20)	ND (0.5)	ND (0.01)	720	---	-170
MW-69-195	03-Dec-13	2.2	ND (0.5)	ND (20)	ND (0.5)	18.3	630	---	-25
MW-70-105	04-Dec-13	5.1	160	26.0	ND (0.5)	3.91	240	---	11
MW-70BR-225	10-Dec-13	1.8	ND (0.5)	ND (20)	ND (0.5)	3.76	770	---	-9
MW-71-035	11-Dec-13	1.3	9.4	100	ND (0.5)	2.27	570	---	98
MW-72-080	04-Dec-13	10.0	ND (0.5)	ND (20)	ND (0.5)	1.35	710	---	110
MW-72BR-200	05-Nov-13	14.0	ND (0.5)	ND (20)	ND (0.5)	0.105	670	---	19
	05-Nov-13 FD	13.0	ND (0.5)	ND (20)	ND (0.5)	0.106	670	---	FD
MW-73-080	05-Dec-13	1.3	ND (2.5)	ND (20)	ND (0.5)	4.75	430	---	120
MW-74-240	05-Dec-13	14.0	3.0	440	ND (0.5)	0.815	77.0	---	-44
OW-3S	13-Nov-13	---	ND (0.5)	ND (20)	---	3.81	74.0	---	160
OW-3M	13-Nov-13	---	ND (0.5)	ND (20)	---	1.01	300	---	130
OW-3D	05-Nov-13	2.3	ND (0.5)	ND (20)	---	0.724	400	---	49
PE-1	05-Nov-13	---	49.2	ND (20)	---	ND (0.5) J	405 J	---	---
	03-Dec-13	---	56.3	ND (20)	---	0.50 J	408	---	---
PGE-7BR	10-Dec-13	---	8200	230000	---	0.162	520	---	-170
PGE-8	18-Dec-13	---	480	64.0	---	0.0219	1800	---	-300
Park Moabi-3	19-Dec-13	---	ND (0.5)	65.0	ND (0.5)	3.24	61.0	---	-61
Park Moabi-4	19-Dec-13	---	ND (0.5)	120	ND (0.5)	2.28	110	---	-64

TABLE D-1

In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
TW-1	17-Dec-13	---	ND (2.5) J	27.0	---	7.87	760	---	-91
TW-2S	19-Dec-13	---	ND (0.5)	ND (20)	---	2.73	230	---	-40
TW-2D	19-Dec-13	---	ND (0.5)	ND (20)	---	1.08	490	---	-38
TW-3D	05-Nov-13	---	6.2	ND (20)	---	3.61 J	542 J	---	---
	03-Dec-13	---	7.5	ND (20)	---	3.68 J	550	---	---
TW-4	12-Nov-13	---	ND (0.5)	ND (20)	---	1.33	1100	---	130
TW-5	06-Nov-13	---	ND (0.5)	ND (20)	---	1.00	510	---	160

Notes:

(---) = data not collected, available, rejected, or field instrument malfunction.
FD = field duplicate sample.
J = concentration or RL estimated by laboratory or data validation.
mg/L = milligrams per liter.
mV = millivolts.
ND = not detected at listed reporting limit (RL).
ORP = oxidation-reduction potential.
µg/L = micrograms per liter.

ORP is reported to two significant figures.

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.

TABLE D-2
Background Metals, Fourth Quarter 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

		Metals in µg/L																			General Metals in mg/L			
	California MCL:	6	10	200	1,000	4	5	NE	50	1,000 [a]	15	50 [a]	2	NE	100	50	100[a]	2	NE	5,000 [a]	NE	NE	0.3 [a]	NE
Well ID	**Sample Date**	**Antimony**	**Arsenic**	**Aluminum**	**Barium**	**Beryllium**	**Cadmium**	**Cobalt**	**Chromium**	**Copper**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**	**Boron**	**Calcium**	**Iron**	**Magnesium**
MW-16	11/06/2013	ND (0.5)	9.1	ND (50)	27.0	ND (0.5)	ND (0.5)	ND (0.5)	8.3	ND (1.0)	ND (1.0)	ND (0.5)	ND (0.2)	12.0	1.7	1.5	ND (0.5)	ND (0.5)	30.0	ND (10)	0.26	26.0	ND (0.02)	4.8
MW-17	11/11/2013	ND (0.5)	1.3	ND (50)	21.0	ND (0.5)	ND (0.5)	ND (0.5)	11.6	ND (1.0)	ND (1.0)	ND (0.5)	ND (0.2)	17.0	ND (1.0)	7.8	ND (0.5)	ND (0.5)	5.0	ND (10)	0.21	63.0	ND (0.02)	9.2

Notes:
[a] = Secondary USEPA MCL.
FD = field duplicate sample.
MCL = maximum contaminant level
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
NE =not established.
µg/L = micrograms per liter.

The MCL listed are the California primary drinking water standards, except where noted.

All results are dissolved metals from field-filtered samples.

Metals analyzed by USEPA Methods SW6010B or SW6020A or SW7470A.

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-9	89	536.56	12/09/13	10:44 AM	82.11	0.20	454.43
			12/16/13	7:52 AM	80.75	0.20	455.79
MW-10	97	530.65	05/14/13	9:30 AM	74.11	0.20	456.48
			12/12/13	1:44 PM	75.05	0.20	455.54
			12/16/13	7:48 AM	75.38	0.20	455.21
MW-11	86	522.61	12/16/13	7:56 AM	67.27	0.16	455.28
MW-12	50	484.01	02/26/13	1:34 PM	29.53	0.40	454.46
			05/09/13	9:47 AM	25.95	0.44	458.04
			09/25/13	8:08 AM	28.37	0.44	455.63
			12/10/13	10:27 AM	30.55	0.44	453.45
			12/16/13	8:19 AM	29.40	0.44	454.60
MW-13	52	488.64	11/13/13	10:52 PM	34.40	0.12	454.19
			12/16/13	7:34 AM	34.16	0.12	454.43
MW-14	134	570.99	12/16/13	7:44 AM	115.69	0.10	455.24
			12/19/13	10:05 AM	117.00	0.10	453.93
MW-15	203	641.52	11/11/13	12:10 PM	186.03	0.10	455.43
			12/16/13	7:41 AM	186.67	0.10	454.79
MW-16	218	657.31	04/24/13	9:41 AM	200.39	0.10	456.86
			11/06/13	1:48 PM	201.46	0.10	455.79
			12/16/13	8:03 AM	201.72	0.10	455.53
MW-17	154	589.96	04/24/13	10:55 AM	132.76	0.11	457.12
			11/11/13	10:52 AM	134.22	0.11	455.67
			12/16/13	8:08 AM	134.65	0.11	455.24
MW-18	107	545.32	11/11/13	9:58 AM	90.01	0.08	455.25
			12/16/13	7:58 AM	89.35	0.08	455.91
MW-19	66	499.92	03/12/13	8:38 AM	44.61	0.15	455.25
			05/02/13	8:44 AM	43.65	0.15	456.21
			12/05/13	11:23 AM	47.35	0.15	452.52
			12/16/13	7:26 AM	46.30	0.15	453.56
MW-20-70	70	500.15	03/12/13	1:52 PM	46.20	0.21	453.89
			05/09/13	11:40 AM	45.17	0.15	454.91
			12/11/13	7:35 AM	49.22	0.15	450.87
MW-20-100	101	500.58	03/13/13	10:57 AM	45.47	0.22	454.97
			05/09/13	12:01 PM	45.90	0.19	454.53
			12/11/13	8:54 AM	50.21	0.19	450.25
MW-20-130	132	500.66	03/14/13	10:22 AM	47.60	0.80	453.19
			05/14/13	6:25 AM	46.76	0.76	454.01
			12/17/13	8:53 AM	50.50	0.76	450.30
MW-21	58	505.55	02/06/13	8:54 AM	51.69	0.71	453.87
			04/23/13	8:38 AM	49.88	0.69	455.68
			09/09/13	12:37 PM	49.88	0.69	455.68

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-21	58	505.55	11/04/13	3:08 PM	51.57	0.69	453.99
			12/16/13	7:28 AM	51.00	0.69	454.56
MW-22	12	460.72	05/15/13	10:39 AM	5.15	1.51	455.63
			11/14/13	8:07 AM	6.25	1.51	454.52
MW-23-060	60	504.08	02/18/13	12:40 PM	49.82	1.09	463.32
			04/23/13	9:34 AM	48.60	1.06	455.52
			09/17/13	7:50 AM	48.74	1.06	455.37
			11/11/13	2:27 PM	50.43	1.06	453.68
MW-23-080	81	504.13	02/18/13	2:12 PM	52.22	1.10	452.00
			04/23/13	10:30 AM	52.81	1.07	451.43
			09/17/13	8:58 AM	52.80	1.07	451.41
			11/11/13	2:44 PM	51.25	1.07	452.97
MW-24A	127	567.16	12/16/13	7:38 AM	111.86	0.68	455.31
MW-24BR	441	563.95	03/13/13	7:35 AM	108.15	1.03	456.59
			09/09/13	8:55 AM	107.42	1.03	457.33
			12/03/13	8:25 AM	109.49	1.03	455.25
MW-25	107	542.90	12/09/13	3:14 PM	88.39	0.10	454.45
			12/16/13	7:31 AM	88.55	0.10	454.29
MW-26	70	502.22	03/12/13	11:04 AM	47.45	0.26	454.72
			05/07/13	9:02 AM	46.23	0.27	455.94
			12/04/13	10:17 AM	49.10	0.27	453.07
MW-27-20	14	460.56	04/15/13	9:28 AM	3.94	0.06	456.61
			11/04/13	9:49 AM	6.23	0.06	454.32
MW-27-60	59	461.38	02/04/13	10:10 AM	6.95	0.20	454.39
			04/15/13	10:45 AM	5.02	0.06	456.30
			10/02/13	7:03 AM	5.87	0.06	455.41
			11/04/13	10:26 AM	7.32	0.06	453.97
MW-27-85	80	460.99	02/04/13	11:48 AM	6.99	0.72	454.26
			04/03/13	12:43 PM	5.08	0.67	456.16
			04/15/13	12:09 PM	5.12	0.67	456.11
			10/02/13	8:25 AM	5.92	0.67	455.26
			11/04/13	11:55 AM	7.31	0.67	453.87
MW-28-25	21	466.77	04/18/13	6:18 AM	10.89	0.07	455.86
			11/05/13	7:55 AM	12.55	0.07	454.20
MW-28-90	98	467.53	02/05/13	11:53 AM	14.05	0.50	453.60
			04/18/13	7:38 AM	11.92	0.47	455.78
			09/11/13	6:35 AM	12.60	0.47	455.04
			11/05/13	8:16 AM	13.41	0.47	454.23
MW-29	42	485.21	04/18/13	9:14 AM	29.01	0.18	456.18
			11/05/13	10:38 AM	30.30	0.18	454.89
MW-30-30	27	468.12	04/15/13	2:04 PM	12.69	2.50	455.63

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-30-30	27	468.12	11/04/13	2:50 PM	14.17	2.50	454.13
MW-30-50	53	468.81	11/04/13	3:40 PM	15.26	0.08	453.45
MW-31-60	64	496.81	05/07/13	2:07 PM	41.00	0.23	455.76
			12/03/13	3:18 PM	43.15	0.23	453.61
MW-31-135	135	498.11	04/03/13	1:16 PM	42.15	0.67	456.05
			11/07/13	2:50 PM	45.99	0.69	452.18
MW-32-20	20	461.51	12/16/13	1:16 PM	10.00	3.00	451.68
MW-32-35	37	461.63	04/17/13	8:57 AM	5.92	1.08	455.87
			11/06/13	3:03 PM	7.90	1.08	453.86
MW-33-40	42	487.38	02/25/13	8:36 AM	32.81	0.51	454.57
			04/22/13	9:10 AM	30.90	0.52	456.48
			09/16/13	6:35 AM	32.22	0.52	455.16
			12/03/13	7:55 AM	33.71	0.52	453.67
MW-33-90	88	487.55	02/14/13	11:08 AM	33.23	0.69	454.42
			04/22/13	10:58 AM	31.22	0.65	456.42
			09/16/13	7:36 AM	32.32	0.65	455.28
			12/03/13	9:50 AM	33.82	0.65	453.83
MW-33-150	155	487.77	02/05/13	1:55 PM	34.58	1.08	453.74
			04/03/13	1:31 PM	31.92	1.11	456.42
			04/22/13	1:21 PM	31.96	1.11	456.37
			09/16/13	9:15 AM	33.02	1.11	455.26
			12/03/13	11:40 AM	33.41	1.11	454.94
MW-33-210	223	487.25	02/05/13	3:00 PM	34.23	1.20	453.92
			04/23/13	7:48 AM	31.33	1.20	456.83
			09/12/13	12:59 PM	33.15	1.20	455.00
			12/03/13	1:05 PM	34.02	1.20	454.13
MW-34-55	57	460.95	11/20/13	9:18 PM	8.36	0.06	452.49
MW-34-80	84	461.20	02/05/13	9:27 AM	7.41	0.50	453.88
			04/16/13	7:23 AM	4.49	0.48	456.86
			10/02/13	10:46 AM	6.33	0.48	454.96
			11/20/13	9:43 AM	8.80	0.48	452.48
MW-34-100	117	460.96	01/24/13	9:53 AM	7.85	1.15	453.83
			02/26/13	2:02 PM	6.92	1.15	454.68
			04/03/13	12:52 PM	5.30	1.03	456.33
			04/16/13	9:45 AM	5.55	1.03	456.00
			10/02/13	1:22 PM	7.38	1.03	454.13
			11/20/13	12:02 PM	8.87	1.19	452.75
			12/16/13	10:20 AM	10.30	1.19	451.39
MW-35-60	57	484.33	02/19/13	7:57 AM	29.45	0.45	454.86
			04/23/13	12:50 PM	26.91	0.44	457.42
			09/10/13	12:33 PM	29.59	0.44	454.72

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-35-60	57	484.33	11/12/13	1:43 PM	30.98	0.44	453.33
MW-35-135	159	484.24	04/23/13	1:37 PM	27.50	0.67	456.95
			11/12/13	2:15 PM	30.55	0.67	453.83
MW-36-20	20	469.33	11/11/13	12:44 PM	15.48	0.46	453.85
MW-36-40	40	469.59	11/11/13	10:32 AM	15.60	0.10	453.94
MW-36-50	108	469.62	11/11/13	8:55 AM	15.43	0.09	453.99
MW-36-70	70	469.27	11/11/13	12:38 PM	15.51	0.07	453.62
MW-36-90	90	469.64	05/15/13	12:30 PM	15.25	0.08	454.22
			11/11/13	11:05 AM	16.48	0.08	452.99
MW-36-100	108	469.65	03/11/13	9:27 PM	15.40	0.80	454.59
			04/24/13	1:21 PM	14.01	0.58	455.84
			12/16/13	11:50 AM	19.05	0.58	450.82
MW-37D	227	486.19	04/30/13	12:14 PM	30.15	1.05	456.63
			12/02/13	9:55 AM	32.94	1.05	453.84
MW-37S	85	485.97	11/06/13	11:18 AM	32.33	0.32	453.54
MW-39-40	42	468.02	11/12/13	10:03 AM	13.94	0.47	454.08
MW-39-50	55	467.93	11/12/13	12:58 PM	14.18	0.09	453.65
MW-39-60	66	468.00	11/12/13	2:08 PM	14.61	0.11	453.27
MW-39-70	72	468.02	11/12/13	8:44 AM	14.59	0.20	453.33
MW-39-80	83	467.92	11/12/13	11:12 AM	14.65	0.52	453.30
MW-39-100	118	468.12	12/04/13	8:00 AM	16.02	1.17	452.60
MW-40D	266	566.08	05/01/13	1:48 PM	110.08	1.11	456.47
			12/02/13	2:21 PM	112.22	1.11	454.33
MW-40S	134	566.04	11/11/13	8:30 AM	111.53	0.13	454.43
			12/16/13	8:09 AM	110.86	0.13	455.10
MW-41D	312	479.42	04/23/13	10:21 AM	23.49	1.38	457.46
			11/04/13	9:55 AM	25.46	1.38	455.48
MW-41M	190	479.83	11/04/13	11:05 AM	24.12	1.03	456.23
MW-41S	60	480.07	11/04/13	12:02 PM	25.70	0.32	454.31
			12/16/13	7:39 AM	25.43	0.32	454.58
MW-42-30	30	463.74	11/05/13	12:38 PM	10.18	0.33	453.54
MW-42-55	53	463.85	02/04/13	3:05 PM	10.30	0.90	453.71
			04/16/13	1:23 PM	8.02	0.90	456.00
			09/11/13	7:58 AM	9.34	0.90	454.67
			11/05/13	1:25 PM	10.18	0.90	453.83
MW-42-65	80	463.37	02/04/13	2:02 PM	9.81	1.10	453.92
			04/17/13	7:23 AM	7.75	0.57	455.76
			09/11/13	9:08 AM	9.08	0.57	454.39
			11/05/13	1:44 PM	9.93	0.57	453.54
MW-43-25	25	462.54	04/17/13	11:34 AM	7.17	0.08	455.35

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-43-25	25	462.54	11/06/13	7:45 AM	8.27	0.08	454.24
MW-43-75	75	462.71	11/06/13	8:40 AM	8.53	0.90	454.45
MW-43-90	97	462.76	04/17/13	12:15 PM	7.91	1.14	455.42
			11/06/13	7:46 AM	8.73	1.14	454.53
MW-44-70	70	471.90	04/22/13	8:47 AM	15.21	0.15	456.65
			04/22/13	7:45 AM	15.03	0.15	456.83
			12/02/13	9:09 AM	18.67	0.15	453.18
MW-44-115	114	472.01	02/26/13	9:06 AM	18.11	0.80	454.19
			04/24/13	11:45 AM	16.13	0.71	456.16
			09/12/13	7:15 AM	17.91	0.71	454.34
			12/02/13	1:17 PM	19.55	0.71	452.69
MW-44-125	129	472.04	02/13/13	9:15 AM	10.09	0.89	462.38
			04/18/13	11:26 AM	17.35	0.74	455.02
			09/12/13	6:38 AM	17.38	0.74	454.94
			12/02/13	8:28 AM	18.85	0.74	453.47
MW-45-095a	97	470.03	04/03/13	1:03 PM	12.31	0.41	457.83
			12/02/13	2:35 PM	18.29	0.27	451.77
MW-46-175	176	482.16	01/24/13	10:54 AM	29.49	1.09	453.38
			02/25/13	11:13 AM	28.30	1.09	454.58
			04/24/13	8:15 AM	26.31	1.17	456.79
			09/11/13	11:48 AM	28.35	1.17	454.62
			11/20/13	1:54 PM	30.30	1.17	452.66
			12/16/13	1:54 PM	31.27	1.17	451.80
MW-46-205	207	482.23	04/24/13	7:25 AM	26.63	1.30	456.71
			11/20/13	3:03 AM	30.61	1.30	452.70
MW-47-55	55	484.04	03/11/13	7:22 AM	28.35	0.28	455.64
			04/24/13	1:50 PM	26.90	0.30	457.11
			11/12/13	10:34 AM	30.51	0.30	453.49
MW-47-115	115	484.17	02/27/13	11:35 AM	29.60	0.83	454.74
			04/24/13	12:55 PM	27.50	0.88	456.91
			11/12/13	11:27 AM	30.88	0.88	453.49
MW-48	138	486.22	02/05/13	8:27 AM	32.35	1.14	454.23
			04/23/13	7:15 AM	30.75	1.14	455.83
			09/09/13	11:02 AM	30.67	1.14	455.92
			11/04/13	2:15 PM	32.27	1.14	454.31
MW-49-135	135	484.02	11/06/13	10:13 AM	29.70	0.89	454.67
MW-49-275	275	483.95	11/06/13	1:02 PM	30.49	1.52	455.20
MW-49-365	367	484.01	11/07/13	8:20 AM	31.74	2.50	456.93
MW-50-095	95	496.49	02/14/13	8:05 AM	42.37	0.33	454.03
			04/24/13	7:04 AM	40.00	0.33	456.43
			11/06/13	9:30 AM	43.23	0.33	453.17

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-50-200	205	496.35	02/27/13	2:52 PM	42.55	1.30	454.60
			05/14/13	1:31 PM	41.11	1.30	456.05
			09/26/13	8:57 AM	41.70	1.30	455.46
			12/17/13	7:34 AM	44.32	1.30	452.82
MW-51	113	501.56	03/14/13	7:24 AM	46.88	0.73	454.76
			05/13/13	12:20 PM	45.70	0.70	455.91
			12/11/13	10:58 AM	48.40	0.70	453.22
MW-54-85	93	466.10	04/25/13	9:50 AM	8.41	0.66	457.80
			11/21/13	8:01 AM	13.20	0.66	453.01
MW-54-140	138	465.98	04/25/13	11:00 AM	8.71	0.85	457.66
			11/21/13	8:50 AM	12.93	0.85	453.42
MW-54-195	195	466.32	04/25/13	8:03 AM	9.56	1.29	457.89
			11/21/13	9:45 AM	13.78	1.29	453.64
MW-55-45	54	465.66	11/21/13	12:28 PM	11.46	0.10	454.07
MW-55-120	120	465.46	11/21/13	1:05 PM	11.38	0.58	454.10
MW-57-070	70	509.37	02/20/13	8:00 AM	53.75	0.12	455.56
			03/11/13	1:06 PM	53.58	0.12	455.73
			05/06/13	11:42 AM	52.51	0.15	456.80
			09/23/13	12:00 PM	52.65	0.15	456.66
			12/12/13	7:34 AM	54.79	0.15	454.53
MW-57-185	185	508.97	02/06/13	12:20 PM	53.68	1.20	455.84
			04/23/13	11:58 AM	51.90	1.18	457.61
			09/10/13	7:32 AM	52.05	1.18	457.46
			11/07/13	7:56 AM	53.80	1.18	455.70
MW-58BR	---	---	02/28/13	3:00 PM	67.88	0.97	---
			04/30/13	9:40 AM	66.55	0.51	---
			09/19/13	6:22 AM	66.82	0.51	---
			12/17/13	1:20 PM	69.07	0.51	---
MW-59-100	101	541.61	02/27/13	8:11 AM	86.52	0.70	455.10
			05/13/13	11:25 AM	84.91	0.66	456.71
			09/25/13	11:12 AM	85.07	0.66	456.55
			12/10/13	12:07 PM	87.21	0.66	454.41
			12/16/13	8:13 AM	87.39	0.66	454.23
MW-60-125	123	555.47	02/20/13	12:11 PM	100.12	0.60	455.34
			05/06/13	9:13 AM	98.40	0.59	457.06
			09/24/13	8:55 AM	98.82	0.59	456.64
			12/04/13	7:51 AM	101.05	0.59	454.41
MW-60BR-245	244	554.95	03/13/13	2:45 PM	98.65	1.09	456.80
			05/06/13	8:30 AM	98.48	1.14	457.02
			09/16/13	1:23 PM	98.86	1.14	456.64
			12/03/13	2:15 PM	100.84	1.14	454.65

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-61-110	113	544.03	02/25/13	2:58 PM	89.59	1.06	454.52
			05/02/13	1:36 PM	87.20	1.04	456.91
			09/23/13	8:05 AM	87.65	1.04	456.46
			12/05/13	2:20 PM	90.86	1.04	453.24
MW-62-065	67	503.56	02/19/13	2:10 PM	48.63	0.40	454.90
			04/25/13	1:17 PM	47.50	0.40	456.03
			09/23/13	10:48 AM	48.14	0.40	455.39
			12/11/13	12:25 PM	50.66	0.40	452.88
MW-63-065	66	504.47	02/06/13	9:50 AM	50.41	0.47	454.05
			04/25/13	7:46 AM	46.67	0.48	457.79
			09/09/13	1:15 PM	49.71	0.48	454.76
			12/04/13	9:22 AM	51.56	0.48	452.91
MW-64BR	260	575.60	03/01/13	9:25 AM	120.31	0.93	455.90
			05/01/13	7:52 AM	118.61	0.88	457.34
			09/17/13	6:14 AM	120.04	0.88	455.82
MW-65-160	160	596.59	02/19/13	9:36 AM	141.25	0.27	455.28
			05/01/13	12:23 PM	139.80	0.27	456.73
			09/19/13	12:09 PM	139.98	0.27	456.55
			12/02/13	11:54 AM	141.81	0.27	454.73
MW-65-225	225	596.58	02/19/13	1:00 PM	141.11	0.81	455.57
			05/02/13	11:50 AM	139.89	0.79	456.78
			09/23/13	9:17 AM	140.16	0.79	456.51
			12/02/13	12:33 PM	141.89	0.79	454.78
MW-66-165	162	586.16	02/20/13	10:01 AM	131.19	0.28	454.89
			05/02/13	9:54 AM	129.83	0.28	456.25
			09/23/13	1:33 PM	129.91	0.28	456.17
			12/03/13	8:47 AM	131.70	0.28	454.38
MW-66-230	228	586.22	02/21/13	11:07 AM	131.52	1.20	455.08
			05/13/13	7:15 AM	129.94	1.24	456.70
			09/25/13	1:10 PM	130.09	1.24	456.54
			12/12/13	10:30 AM	132.44	1.24	454.18
MW-67-185	187	625.91	02/21/13	9:02 AM	170.95	0.28	454.91
			05/09/13	8:25 AM	169.29	0.30	456.57
			09/25/13	7:10 AM	169.55	0.30	456.31
			12/04/13	2:28 PM	171.55	0.30	454.32
			12/16/13	7:34 AM	176.45	0.30	449.43
MW-67-225	225	625.83	02/21/13	9:56 AM	171.00	0.50	454.76
			05/09/13	6:58 AM	169.35	0.50	456.41
			09/25/13	10:07 AM	169.60	0.50	456.16
			12/09/13	8:11 AM	169.82	0.50	455.94
MW-67-260	260	625.81	02/21/13	8:01 AM	171.21	1.13	454.90
			05/09/13	6:35 AM	169.53	1.19	456.62

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-67-260	260	625.81	09/25/13	6:16 AM	169.86	1.19	456.29
			12/09/13	8:29 AM	171.11	1.19	455.03
MW-68-180	180	621.17	02/21/13	1:28 PM	166.08	0.25	455.04
			05/13/13	8:37 AM	164.49	0.27	456.63
			09/26/13	9:58 AM	164.81	0.27	456.31
			12/12/13	8:04 AM	166.90	0.27	454.23
MW-68-240	240	621.17	02/20/13	1:49 PM	166.28	0.99	455.06
			05/08/13	10:05 AM	164.74	0.99	456.61
			09/24/13	2:23 PM	164.93	0.99	456.42
			12/04/13	1:19 PM	167.91	0.99	453.43
MW-68BR-280	278	620.64	02/18/13	8:36 AM	165.92	1.34	455.33
			05/08/13	7:23 AM	163.66	1.34	457.60
			09/18/13	7:24 AM	163.22	1.34	458.03
			12/18/13	7:40 AM	166.30	1.34	454.95
MW-69-195	196	631.36	02/20/13	10:58 AM	175.61	0.25	455.69
			05/06/13	1:15 PM	174.14	0.25	457.15
			09/24/13	8:01 AM	174.47	0.25	456.82
			12/03/13	12:44 PM	176.47	0.25	454.83
MW-70-105	108	541.47	02/19/13	10:37 AM	85.40	0.17	456.00
			04/25/13	9:36 AM	84.25	0.17	457.14
			09/23/13	6:54 AM	84.25	0.17	457.14
			12/04/13	2:38 PM	84.78	0.17	456.62
MW-70BR-225	229	539.84	02/26/13	9:49 AM	83.81	0.88	456.31
			05/07/13	11:10 AM	82.53	0.88	457.59
			09/24/13	11:50 AM	82.72	0.88	457.40
			12/10/13	8:11 AM	84.80	0.88	455.32
MW-71-035	36	483.69	02/06/13	8:28 AM	29.53	0.53	454.16
			04/29/13	7:31 AM	27.94	0.52	455.75
			09/09/13	11:54 AM	27.91	0.52	455.78
			12/10/13	7:35 AM	28.36	0.52	455.33
MW-72-080	80	513.32	02/19/13	11:52 AM	58.64	1.04	454.76
			04/25/13	11:54 AM	55.75	1.04	457.66
			09/19/13	8:45 AM	57.82	1.04	455.58
			12/04/13	1:15 PM	60.15	1.04	453.24
MW-72BR-200	200	513.79	02/07/13	10:05 AM	58.88	0.97	455.35
			04/29/13	8:52 AM	56.44	0.95	457.74
			09/19/13	8:18 AM	57.95	0.95	456.24
			11/05/13	7:20 AM	60.26	0.95	453.93
MW-73-080	80	505.84	02/18/13	4:16 PM	51.10	0.67	447.22
			04/30/13	1:40 PM	49.52	0.71	456.36
			09/10/13	1:30 PM	51.58	0.71	454.30
			12/04/13	11:10 AM	52.42	0.71	453.46

TABLE D-3

Manual Water Level Measurements, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet amsl)
Monitoring Wells							
MW-74-240	240	672.34	02/25/13	9:07 AM	216.44	0.80	455.95
			04/30/13	7:24 AM	215.05	0.07	457.21
			09/16/13	11:51 AM	215.10	0.07	457.16
			12/03/13	3:09 PM	217.04	0.07	455.23
OW-3D	273	558.63	11/05/13	1:28 PM	103.30	0.51	455.17
OW-3M	200	558.90	11/13/13	8:26 AM	103.57	0.32	455.12
OW-3S	116	558.58	11/13/13	8:53 AM	103.30	0.08	455.23
			12/16/13	8:01 AM	102.62	0.08	455.91
PGE-8	564	596.01	12/18/13	11:35 AM	142.03	1.20	455.57
TW-1	271	620.55	05/14/13	11:53 AM	160.00	0.48	460.46
			12/17/13	10:50 AM	160.00	0.48	460.46
TW-4	255	484.11	11/12/13	8:39 AM	31.12	1.27	454.04
TW-5	155	496.30	11/06/13	7:47 AM	43.01	0.95	453.55

Notes:

(---) = data not collected or available.
amsl = above mean sea level.
BMP = below well measure point.

Well depths rounded off to whole foot.

Salinity used to adjust water level to freshwater equivalent. Salinity values have been averaged in accordance with the Performance Monitoring Program.

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-9	12/09/2013	3,137	29.00	7.49	31	4.26
MW-10	05/14/2013	3,144	29.58	7.37	236	4.71
	12/12/2013	2,931	29.00	7.50	-26	5.40
MW-12	05/09/2013	7,216	28.28	8.16	208	5.44
	09/25/2013	7,140	28.05	8.13	201	4.98
	12/10/2013	7,389	28.00	8.16	-18	5.30
MW-13	11/13/2013	1,598	28.00	7.47	139	5.28
MW-14	12/19/2013	1,987	29.00	7.47	5	24.86
MW-15	11/11/2013	1,696	31.01	7.73	278	8.49
MW-16	04/24/2013	1,122	30.33	7.99	200	8.75
	11/06/2013	1,112	30.17	8.11	146	7.85
MW-17	04/24/2013	1,443	31.15	7.94	217	7.36
	11/11/2013	1,415	29.90	7.98	264	7.30
MW-18	11/11/2013	1,387	28.70	7.62	230	6.30
MW-19	05/02/2013	2,278	28.84	7.39	236	6.83
	12/05/2013	2,279	28.82	7.59	193	8.28
MW-20-70	05/09/2013	2,265	29.07	7.73	242	8.59
	12/11/2013	2,280	29.00	7.64	16	8.18
MW-20-100	05/09/2013	3,006	29.38	7.28	269	4.05
	12/11/2013	2,959	29.00	7.24	23	6.50
MW-20-130	05/14/2013	12,300	29.44	7.37	186	1.50
	12/17/2013	12,300	30.00	7.36	-64	1.34
MW-21	02/07/2013	9,612	27.83	6.91	204	1.74
	04/24/2013	10,681	28.11	7.09	211	1.15
	09/10/2013	10,940	28.53	7.10	119	0.48
	11/05/2013	9,745	27.80	5.69	194	2.30
MW-22	05/15/2013	14,540	24.33	6.87	-91	0.09
	11/14/2013	22,410	26.61	6.59	-36	0.32
MW-23-060	02/18/2013	15,810	28.27	10.01	63	3.90
	04/23/2013	17,630	28.88	9.43	101	6.07
	09/17/2013	16,850	29.01	9.36	120	5.38
	11/11/2013	17,230	28.50	9.28	163	5.48
MW-23-080	02/18/2013	16,000	28.85	10.67	50	1.67
	04/23/2013	18,320	29.21	10.25	63	2.77
	09/17/2013	16,900	29.90	9.92	142	1.23
	11/11/2013	17,245	28.60	10.23	81	0.86
MW-24BR	03/14/2013	14,630	32.11	7.97	-47	0.18
	05/07/2013	14,820	31.87	7.82	-191	0.05

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-24BR	09/10/2013	15,000	32.22	8.06	-181	0.12
	12/03/2013	14,650	31.00	8.00	-232	0.04
MW-25	12/09/2013	1,845	30.00	7.43	-4	7.12
MW-26	05/07/2013	4,303	29.46	7.29	244	7.59
	12/04/2013	4,252	29.00	7.32	45	6.80
MW-27-20	04/15/2013	992	17.57	7.42	-70	0.01
	11/04/2013	909	21.38	7.44	19	0.02
MW-27-60	02/04/2013	979	18.89	7.59	-66	0.10
	04/15/2013	1,023	19.03	7.57	-96	0.00
	10/02/2013	931	18.31	7.40	-86	0.12
	11/04/2013	942	18.81	7.55	-78	0.08
MW-27-85	02/04/2013	10,890	19.88	7.20	50	0.20
	04/15/2013	12,140	19.89	7.38	-42	0.00
	10/02/2013	10,080	19.78	7.23	-38	0.00
	11/04/2013	9,917	19.85	7.33	-16	-0.03
MW-28-25	04/18/2013	981	19.79	7.38	58	0.00
	11/05/2013	929	22.21	7.16	200	0.04
MW-28-90	02/05/2013	7,462	19.36	7.12	-30	0.05
	04/18/2013	7,092	19.21	7.19	-79	0.00
	09/11/2013	7,472	19.20	7.06	-56	0.00
	11/05/2013	919	18.47	7.25	192	1.31
MW-29	04/18/2013	2,141	23.98	7.30	-108	0.31
	11/05/2013	2,020	24.10	7.21	-74	1.06
MW-30-30	04/15/2013	8,919	22.25	7.72	-147	0.00
	11/04/2013	5,376	22.77	7.76	-185	0.26
MW-30-50	11/04/2013	1,095	20.77	7.55	-116	-0.02
MW-31-60	05/07/2013	3,860	28.65	7.47	130	4.66
	12/03/2013	3,300	29.00	7.45	20	5.09
MW-31-135	11/07/2013	13,250	28.92	7.66	-108	0.32
MW-32-20	12/16/2013	22,060	27.00	6.73	-103	0.04
MW-32-35	04/17/2013	14,720	25.07	7.07	-151	0.02
	11/06/2013	14,220	24.81	7.15	-79	0.69
MW-33-40	02/25/2013	6,439	26.41	7.95	47	0.39
	04/22/2013	6,872	28.33	8.09	82	0.91
	09/16/2013	12,390	27.27	7.70	184	0.55
	12/03/2013	10,603	25.60	7.90	107	0.33
MW-33-90	04/22/2013	10,830	26.69	7.33	208	---
	09/16/2013	9,875	26.59	7.35	233	0.00

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-33-90	12/03/2013	10,564	26.35	7.43	115	0.11
MW-33-150	02/05/2013	17,220	27.05	7.35	100	0.33
	04/22/2013	17,500	27.58	7.45	260	0.47
	09/16/2013	16,660	27.47	7.42	155	0.03
	12/03/2013	18,369	26.92	7.52	139	0.20
MW-33-210	02/05/2013	19,360	27.49	7.27	117	0.01
	04/23/2013	21,050	27.45	7.30	200	0.05
	09/12/2013	18,920	27.70	7.33	111	0.00
	12/03/2013	20,181	27.43	7.42	139	0.11
MW-34-55	11/20/2013	956	17.85	7.65	-65	0.07
MW-34-80	02/05/2013	7,244	18.86	7.26	120	0.02
	04/16/2013	8,006	19.01	7.24	-12	0.00
	10/02/2013	7,282	19.01	7.37	-37	0.00
	11/20/2013	7,611	18.70	7.38	14	0.03
MW-34-100	01/24/2013	17,990	20.00	7.92	52	0.22
	02/26/2013	17,660	20.01	7.53	112	0.02
	04/16/2013	16,800	20.44	7.03	144	0.02
	10/02/2013	16,980	20.17	7.59	80	0.06
	11/20/2013	18,195	20.00	7.65	-120	0.03
	12/16/2013	15,546	20.00	7.64	-128	0.20
MW-35-60	02/19/2013	6,656	26.90	7.77	141	1.50
	04/23/2013	6,727	26.92	7.51	262	3.30
	09/10/2013	7,657	26.90	7.24	203	0.79
	11/12/2013	7,305	27.00	7.44	-11	1.00
MW-35-135	04/23/2013	10,870	26.94	7.62	143	0.28
	11/12/2013	10,265	27.00	7.78	58	0.40
MW-36-20	11/11/2013	4,350	22.33	7.70	-152	0.03
MW-36-40	11/11/2013	1,303	20.80	7.78	-280	0.03
MW-36-50	11/11/2013	1,022	20.23	7.34	-57	0.17
MW-36-70	11/11/2013	977	20.48	7.85	-17	0.05
MW-36-90	05/15/2013	1,184	21.75	8.34	205	0.05
	11/11/2013	1,074	21.04	8.27	-90	0.08
MW-36-100	04/24/2013	8,624	21.79	7.17	-9	0.20
	12/16/2013	8,114	22.00	7.22	-142	0.15
MW-37D	04/30/2013	16,120	30.13	7.54	170	0.05
	12/02/2013	14,870	30.00	7.65	-178	0.05
MW-37S	11/06/2013	5,548	28.76	7.74	136	1.38
MW-38D	09/17/2013	21,100	30.77	8.10	-79	0.00

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-38D	11/13/2013	16,899	31.00	8.06	19	0.02
MW-38S	09/24/2013	1,753	29.44	7.57	-167	0.03
	12/03/2013	1,724	30.00	7.88	-243	0.16
MW-39-40	11/12/2013	1,309	22.08	8.04	-152	0.03
MW-39-50	11/12/2013	1,331	22.10	7.81	-34	0.02
MW-39-60	11/12/2013	1,613	22.88	7.86	30	0.02
MW-39-70	11/12/2013	1,986	22.12	7.62	202	0.04
MW-39-80	11/12/2013	6,080	22.89	7.30	27	0.02
MW-39-100	12/04/2013	16,947	23.78	6.70	112	0.18
MW-40D	05/01/2013	16,490	31.46	7.36	245	0.39
	12/02/2013	15,730	31.00	7.35	242	0.47
MW-40S	11/11/2013	2,258	31.06	7.68	274	6.51
MW-41D	04/23/2013	21,864	30.57	7.64	213	0.01
	11/04/2013	22,337	30.52	7.61	248	0.04
MW-41M	11/04/2013	15,784	29.50	7.69	208	0.20
MW-41S	11/04/2013	5,445	28.68	7.89	180	1.12
MW-42-30	11/05/2013	2,701	22.66	7.77	-157	0.17
MW-42-55	02/04/2013	2,533	21.95	7.75	-83	0.43
	04/16/2013	2,498	21.80	7.87	-97	0.06
	09/11/2013	1,827	21.90	8.00	-111	0.00
	11/05/2013	1,492	21.50	7.94	-149	-0.03
MW-42-65	02/04/2013	8,826	22.33	7.12	15	0.19
	04/17/2013	7,673	22.00	7.29	-36	0.01
	09/11/2013	7,643	22.10	7.22	-28	0.00
	11/05/2013	7,104	21.71	7.27	-34	0.04
MW-43-25	04/17/2013	1,331	20.15	7.51	-161	0.06
	11/06/2013	1,296	21.14	7.28	-116	0.00
MW-43-75	11/06/2013	11,090	21.03	7.10	-114	-0.03
MW-43-90	04/17/2013	18,020	21.30	6.93	-80	0.06
	11/06/2013	18,300	21.36	6.91	-80	0.04
MW-44-70	04/22/2013	2,318	19.91	7.50	-86	0.04
	12/02/2013	2,164	19.13	7.66	-97	0.12
MW-44-115	04/24/2013	11,510	21.31	7.90	179	0.04
	09/12/2013	11,000	21.50	7.40	188	0.08
	12/02/2013	11,431	20.88	7.96	-185	0.07
MW-44-125	04/18/2013	10,830	20.97	7.65	-164	0.00
	09/12/2013	10,710	21.30	7.64	-156	0.00
	12/02/2013	12,294	20.59	7.70	-156	0.05

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-45-095a	12/02/2013	9,377	19.21	7.58	-58	0.15
MW-46-175	01/24/2013	18,450	22.90	8.83	18	0.16
	04/24/2013	18,870	23.79	8.12	57	0.00
	09/11/2013	18,330	23.54	8.01	126	0.00
	11/20/2013	19,048	23.00	8.38	224	0.13
	12/16/2013	17,010	23.00	8.29	-184	0.11
MW-46-205	04/24/2013	21,520	24.76	8.17	63	0.00
	11/20/2013	22,761	24.00	8.38	214	0.11
MW-47-55	04/24/2013	4,852	28.33	7.47	222	1.95
	11/12/2013	4,955	27.82	7.57	163	2.17
MW-47-115	04/24/2013	13,277	28.53	7.51	242	0.11
	11/12/2013	14,161	28.00	7.63	169	0.00
MW-48	02/07/2013	17,910	28.73	6.90	203	1.98
	04/25/2013	18,501	32.37	7.24	254	2.66
	09/11/2013	17,870	29.94	7.39	24	3.40
	11/06/2013	18,878	28.82	7.81	139	1.66
MW-49-135	11/06/2013	14,000	24.77	7.59	24	0.02
MW-49-275	11/06/2013	22,990	26.55	7.81	102	0.09
MW-49-365	11/07/2013	21,520	27.48	7.81	-149	-0.01
MW-50-095	04/24/2013	5,284	28.70	7.55	226	1.41
	11/06/2013	5,340	28.67	7.88	144	1.49
MW-50-200	05/14/2013	22,320	30.18	7.61	210	2.63
	09/26/2013	20,770	30.26	7.60	155	2.27
	12/17/2013	21,330	30.00	7.60	-32	2.14
MW-51	05/13/2013	11,300	29.77	7.36	210	1.92
	12/11/2013	11,770	30.00	7.37	13	2.03
MW-52D	05/16/2013	21,840	21.67	8.01	-194	0.07
	11/13/2013	21,510	19.92	7.64	-149	0.02
MW-52M	05/16/2013	15,930	21.41	7.58	-144	0.04
	11/13/2013	15,980	20.08	7.48	-138	0.00
MW-52S	05/16/2013	9,417	20.90	6.94	-122	0.07
	11/13/2013	9,701	20.17	6.84	-103	0.08
MW-53D	05/16/2013	26,050	21.91	8.27	-215	0.12
	11/13/2013	24,240	22.15	8.10	-181	0.01
MW-53M	05/16/2013	19,850	22.47	8.06	-183	0.04
	11/13/2013	20,040	21.06	7.98	-190	0.00
MW-54-85	04/25/2013	10,492	26.83	7.55	-90	0.07
	11/21/2013	9,808	27.00	7.55	12	0.17

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-54-140	04/25/2013	13,681	25.70	7.74	-26	0.16
	11/21/2013	12,289	26.00	7.74	15	0.79
MW-54-195	04/25/2013	20,629	25.48	8.08	56	0.01
	11/21/2013	18,664	26.00	8.11	-109	0.29
MW-55-45	11/21/2013	1,443	28.00	7.75	30	0.13
MW-55-120	11/21/2013	8,297	28.00	7.93	-2	3.73
MW-56D	05/15/2013	21,390	23.01	7.69	-149	0.13
	11/14/2013	20,660	22.87	7.67	-128	0.13
MW-56M	05/15/2013	14,928	21.66	7.11	-117	0.57
	11/14/2013	14,700	22.05	7.26	-105	0.11
MW-56S	05/15/2013	6,376	21.77	6.97	-129	0.03
	11/14/2013	6,400	22.43	7.04	-106	0.00
MW-57-070	02/20/2013	2,260	28.35	7.05	190	3.03
	03/11/2013	2,348	29.04	7.06	153	5.99
	05/06/2013	2,292	29.23	7.10	255	5.35
	09/23/2013	2,262	29.73	7.18	209	5.25
	12/12/2013	2,515	28.00	7.20	-36	4.95
MW-57-185	02/06/2013	19,040	29.66	8.27	168	0.10
	04/23/2013	18,913	29.80	8.95	148	0.14
	09/10/2013	19,040	30.21	7.98	152	0.00
	11/07/2013	20,970	30.38	8.25	-301	0.02
MW-58BR	02/28/2013	8,198	26.65	7.57	5	0.28
	04/30/2013	9,029	29.50	7.54	-61	0.18
	09/19/2013	9,702	28.44	7.55	110	0.18
	12/17/2013	9,179	28.00	7.51	-174	0.29
MW-59-100	05/13/2013	10,980	30.54	6.79	151	6.70
	09/25/2013	11,020	30.04	6.81	323	6.84
	12/10/2013	10,830	30.00	6.89	28	6.89
MW-60-125	02/20/2013	8,620	29.35	7.31	137	3.19
	05/06/2013	9,374	29.46	7.37	209	3.54
	09/24/2013	9,438	29.76	7.33	108	3.30
	12/04/2013	9,068	28.00	7.34	34	4.04
MW-60BR-245	03/14/2013	17,680	29.87	8.04	124	0.68
	05/07/2013	18,070	29.50	8.16	-306	0.08
	09/17/2013	17,170	29.68	8.25	-139	0.29
	12/04/2013	17,660	29.00	8.06	-218	0.06
MW-61-110	05/02/2013	17,110	29.74	7.39	76	0.25
	09/23/2013	16,140	29.00	7.38	60	0.26

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-61-110	12/05/2013	16,919	28.42	7.43	76	0.37
MW-62-065	02/19/2013	6,457	28.19	7.79	61	2.90
	04/25/2013	6,750	28.92	7.36	131	3.60
	09/23/2013	6,499	29.84	7.37	180	3.19
	12/11/2013	6,798	28.00	7.35	-6	3.70
MW-62-110	02/26/2013	9,494	27.30	7.84	-51	---
	05/08/2013	9,359	27.77	7.08	167	0.11
	09/18/2013	9,130	28.11	7.34	218	0.13
	11/13/2013	6,823	28.00	7.54	187	0.18
MW-62-190	02/26/2013	19,362	27.46	7.96	-14	0.20
	05/08/2013	18,870	27.79	7.54	-30	0.04
	09/18/2013	18,160	28.18	7.56	-3	0.07
	11/13/2013	13,619	28.00	7.65	0	0.24
MW-63-065	02/06/2013	7,295	26.03	6.95	194	1.45
	04/25/2013	7,518	25.81	7.09	138	1.33
	09/09/2013	7,227	26.37	7.16	112	2.86
	12/04/2013	7,539	24.95	7.12	123	2.38
MW-64BR	03/01/2013	13,880	27.18	7.24	-19	1.16
	05/01/2013	14,560	27.68	7.31	48	4.00
	09/17/2013	15,010	36.66	7.35	40	2.56
	12/16/2013	14,290	20.60	7.39	18	2.71
MW-65-160	02/19/2013	4,122	31.01	7.77	116	0.43
	05/01/2013	4,305	31.09	7.31	233	0.68
	09/19/2013	4,103	31.58	7.34	270	0.76
	12/02/2013	4,042	31.00	7.47	243	0.76
MW-65-225	02/19/2013	10,645	30.36	7.62	45	1.14
	05/02/2013	12,120	30.38	7.21	249	1.02
	09/23/2013	10,960	30.60	7.24	145	1.13
	12/02/2013	10,990	30.00	7.21	-59	0.80
MW-66-165	02/20/2013	4,526	30.25	7.15	106	5.24
	05/02/2013	4,889	30.36	7.14	233	5.72
	09/23/2013	4,605	30.53	7.26	195	6.06
	12/03/2013	4,621	30.00	7.15	8	6.16
MW-66-230	02/21/2013	20,230	30.55	7.88	149	0.37
	05/13/2013	20,030	30.70	7.85	219	0.50
	09/25/2013	18,680	30.90	7.85	298	0.37
	12/12/2013	21,350	31.00	7.05	-33	0.86
MW-66BR-270	03/12/2013	17,710	32.99	9.68	-214	0.03
	06/18/2013	18,160	31.45	10.27	-174	0.07

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-66BR-270	09/23/2013	17,920	31.10	9.57	-229	0.02
	12/17/2013	17,599	30.97	9.85	56	0.08
MW-67-185	02/21/2013	4,883	30.05	7.39	139	5.44
	05/09/2013	5,377	31.93	7.19	289	5.47
	09/25/2013	5,344	32.00	7.20	204	5.06
	12/04/2013	5,648	31.00	7.20	17	5.23
MW-67-225	02/21/2013	7,935	30.96	7.35	144	2.11
	05/09/2013	7,815	31.28	7.42	154	1.93
	09/25/2013	7,452	31.14	7.45	310	2.08
	12/09/2013	8,489	31.00	7.44	43	2.07
MW-67-260	02/21/2013	18,710	30.98	8.12	173	0.85
	05/09/2013	18,580	31.00	8.11	120	0.07
	09/25/2013	17,690	30.83	8.14	124	0.02
	12/09/2013	19,780	30.00	8.04	-97	0.12
MW-68-180	02/21/2013	4,095	32.02	7.36	140	5.52
	05/13/2013	3,275	32.55	6.74	64	6.35
	09/26/2013	4,249	32.32	7.24	203	5.98
	12/12/2013	5,085	32.00	7.35	32	6.64
MW-68-240	02/20/2013	16,407	30.79	7.24	141	0.04
	05/08/2013	17,120	30.82	7.32	66	0.05
	09/24/2013	17,080	30.79	7.37	162	0.09
	12/04/2013	16,710	31.00	7.27	-79	0.12
MW-68BR-280	02/18/2013	19,990	26.67	8.51	-36	1.91
	05/08/2013	22,030	29.52	8.54	-62	1.63
	09/18/2013	19,750	31.40	8.43	-79	1.59
	12/18/2013	20,240	26.00	8.61	-168	2.10
MW-69-195	02/20/2013	3,766	30.90	7.13	126	4.04
	05/06/2013	3,855	31.16	6.85	234	4.20
	09/24/2013	3,680	31.01	7.12	124	4.14
	12/03/2013	3,679	31.00	6.94	-25	4.21
MW-70-105	02/19/2013	3,503	29.41	8.36	-134	1.18
	04/25/2013	3,593	29.32	7.80	37	0.99
	09/23/2013	3,648	29.27	7.76	35	0.89
	12/04/2013	3,738	30.40	7.78	11	1.32
MW-70BR-225	02/26/2013	14,733	29.99	7.65	141	0.05
	05/07/2013	14,350	30.07	7.33	166	0.03
	09/24/2013	14,150	30.32	7.37	100	0.06
	12/10/2013	15,070	30.00	7.27	-9	0.03
MW-71-035	02/07/2013	8,362	26.73	7.05	226	5.72

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-71-035	04/30/2013	9,309	28.05	7.26	221	4.19
	09/10/2013	8,585	29.15	7.30	122	5.05
	12/11/2013	7,873	26.00	7.29	98	4.98
MW-72-080	02/19/2013	16,601	26.97	8.21	-46	0.74
	04/25/2013	17,230	27.11	7.71	132	0.89
	09/19/2013	16,410	27.10	7.79	106	1.08
	12/04/2013	16,978	26.62	7.66	111	1.17
MW-72BR-200	02/07/2013	14,450	27.62	8.33	35	0.01
	04/29/2013	17,530	31.32	8.22	86	0.07
	09/19/2013	16,390	27.75	8.17	-11	0.02
	11/05/2013	16,539	27.54	8.25	19	0.05
MW-73-080	02/19/2013	16,990	27.12	8.95	40	4.00
	05/01/2013	11,100	27.24	7.44	271	6.48
	09/11/2013	10,910	26.90	7.23	302	5.87
	12/05/2013	11,252	26.74	7.36	122	6.55
MW-74-240	03/01/2013	1,045	25.68	9.06	-41	0.28
	05/02/2013	981	28.59	8.68	-32	0.12
	09/18/2013	1,007	31.47	8.91	19	0.14
	12/05/2013	966	27.03	8.79	-44	0.23
OW-3D	11/05/2013	9,362	30.72	7.91	49	0.29
OW-3M	11/13/2013	4,457	30.00	7.92	128	0.61
OW-3S	11/13/2013	1,153	29.80	7.71	160	7.17
PGE-7BR	12/10/2013	22,110	31.00	7.12	-170	0.16
PGE-8	12/18/2013	21,170	31.00	8.13	-298	0.26
Park Moabi-3	12/19/2013	1,473	29.00	7.67	-61	4.52
Park Moabi-4	12/19/2013	2,413	29.00	7.53	-64	4.14
TW-1	02/21/2013	7,888	29.84	7.09	155	1.06
	05/14/2013	7,666	30.11	7.11	321	1.00
	09/26/2013	7,459	29.88	7.14	159	0.99
	12/17/2013	7,961	30.00	7.22	-91	1.25
TW-2D	12/19/2013	8,324	25.00	7.32	-38	5.10
TW-2S	12/19/2013	2,501	28.00	7.70	-40	8.10
TW-4	11/12/2013	21,868	29.30	7.62	129	0.00
TW-5	11/06/2013	14,121	29.32	7.77	159	0.30
Shoreline Surface Water Station						
R-19	01/09/2013	884	11.55	8.41	202	11.13
	03/05/2013	894	12.10	8.28	202	11.00
	05/21/2013	867	19.40	8.30	181	9.52

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Shoreline Surface Water Station						
R-19	07/16/2013	792	21.40	8.12	200	8.49
	11/21/2013	919	16.69	8.31	---	9.68
R-28	01/09/2013	884	11.45	8.35	220	10.97
	03/05/2013	894	12.07	8.26	228	10.96
	05/21/2013	866	19.30	8.26	207	9.55
	07/16/2013	794	21.40	8.08	220	8.54
	11/21/2013	920	16.70	8.27	---	9.63
R63	01/08/2013	895	11.72	8.31	178	10.73
	03/04/2013	1,130	12.40	8.25	166	10.86
	05/20/2013	898	19.70	8.27	202	10.24
	07/15/2013	798	21.80	8.11	193	8.95
	11/20/2013	928	17.07	8.33	---	9.68
RRB	01/09/2013	1,019	9.79	8.25	202	10.37
	03/05/2013	895	12.20	8.19	179	10.49
	05/21/2013	866	19.30	8.26	177	9.60
	07/16/2013	800	22.90	8.02	204	8.16
	11/21/2013	1,754	17.87	7.91	---	11.29
Other Surface Water Monitoring Locations						
SW1	01/09/2013	1,089	10.07	7.79	153	8.87
	03/05/2013	947	12.17	7.13	252	6.72
	05/20/2013	978	19.65	7.33	220	5.47
	07/15/2013	809	24.40	7.45	212	5.93
	11/20/2013	1,006	13.90	8.49	178	7.30
SW2	01/09/2013	984	7.66	7.55	170	7.54
	03/05/2013	917	11.85	7.40	238	7.93
	05/20/2013	917	19.29	7.48	260	5.59
	07/15/2013	815	24.00	7.31	198	5.77
	11/20/2013	---	---	7.62	---	---
In-Channel Surface Water Station						
C-BNS-D	01/08/2013	888	12.07	8.26	164	10.57
	03/04/2013	1,128	12.59	8.19	147	10.71
	05/20/2013	879	19.10	8.32	191	9.55
	07/15/2013	795	22.40	8.15	189	7.94
	11/20/2013	913	17.33	8.33	---	9.56
C-CON-D	01/09/2013	879	11.79	8.43	137	11.11
C-CON-S	01/09/2013	879	11.89	8.43	122	11.02
C-CON-D	03/05/2013	890	12.20	8.21	229	10.80
C-CON-S	03/05/2013	890	12.17	8.20	197	11.30

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
In-Channel Surface Water Station						
C-CON-D	05/21/2013	866	19.50	8.28	185	9.47
C-CON-S	05/21/2013	866	19.50	8.29	180	9.41
C-CON-D	07/16/2013	792	22.10	8.19	170	8.09
C-CON-S	07/16/2013	793	22.10	8.12	176	8.14
C-CON-D	11/21/2013	912	16.68	8.32	---	9.66
C-CON-S	11/21/2013	916	16.72	8.14	---	9.71
C-I-3-D	01/08/2013	891	11.78	8.28	193	10.79
C-I-3-S	01/08/2013	890	11.51	8.32	179	10.95
C-I-3-D	03/04/2013	1,129	12.47	8.17	171	10.45
C-I-3-S	03/04/2013	1,128	12.37	8.18	167	10.69
C-I-3-D	05/20/2013	880	18.80	8.22	200	9.69
C-I-3-S	05/20/2013	879	18.60	8.32	204	9.76
C-I-3-D	07/15/2013	794	21.80	8.08	188	8.46
C-I-3-S	07/15/2013	792	21.80	8.12	197	8.51
C-I-3-D	11/20/2013	914	17.04	8.27	---	9.50
C-I-3-S	11/20/2013	913	17.00	8.30	---	9.65
C-MAR-D	01/08/2013	1,007	10.19	7.75	351	9.51
C-MAR-S	01/08/2013	981	10.28	8.04	360	9.83
C-MAR-D	03/04/2013	1,134	13.08	8.03	146	9.88
C-MAR-S	03/04/2013	1,133	14.43	8.11	152	10.39
C-MAR-D	05/20/2013	1,025	22.70	7.55	192	6.17
C-MAR-S	05/20/2013	1,035	23.20	7.59	193	6.60
C-MAR-D	07/15/2013	854	26.50	7.93	205	7.25
C-MAR-S	07/15/2013	856	26.60	7.87	206	7.30
	11/21/2013	962	16.02	7.94	---	8.34
C-NR1-D	01/09/2013	879	11.93	8.40	115	10.78
C-NR1-S	01/09/2013	880	11.91	8.38	112	10.87
C-NR1-D	03/05/2013	892	12.22	8.16	171	10.50
C-NR1-S	03/05/2013	891	12.21	8.16	169	10.90
C-NR1-D	05/21/2013	867	19.60	8.28	175	9.55
C-NR1-S	05/21/2013	866	19.60	8.30	173	9.41
C-NR1-D	07/16/2013	793	24.00	8.11	174	8.04
C-NR1-S	07/16/2013	796	22.90	8.10	185	8.00
C-NR1-D	11/21/2013	912	16.73	8.30	---	9.46
C-NR1-S	11/21/2013	911	16.83	8.31	---	9.50
C-NR3-D	01/09/2013	879	11.96	8.37	132	10.63
C-NR3-S	01/09/2013	880	11.76	8.36	141	10.72
C-NR3-D	03/05/2013	892	12.21	8.14	158	10.40

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
In-Channel Surface Water Station						
C-NR3-S	03/05/2013	891	12.19	8.14	158	10.80
C-NR3-D	05/21/2013	867	19.70	8.28	170	9.23
C-NR3-S	05/21/2013	867	19.80	8.29	172	9.38
C-NR3-D	07/16/2013	795	22.40	8.14	193	8.22
C-NR3-S	07/16/2013	793	22.40	8.15	199	8.02
C-NR3-D	11/21/2013	911	16.78	8.31	---	9.31
C-NR3-S	11/21/2013	911	16.78	8.31	---	9.31
C-NR4-D	01/09/2013	879	12.12	8.31	161	10.44
C-NR4-S	01/09/2013	880	11.97	8.31	168	10.52
C-NR4-D	03/05/2013	891	12.19	8.14	157	10.40
C-NR4-S	03/05/2013	891	12.28	8.13	157	10.80
C-NR4-D	05/21/2013	868	19.80	8.28	177	9.15
C-NR4-S	05/21/2013	867	19.80	8.28	179	9.33
C-NR4-D	07/16/2013	794	22.20	8.16	203	7.90
C-NR4-S	07/16/2013	795	22.20	8.17	208	7.92
C-NR4-D	11/21/2013	911	17.06	8.28	---	8.95
C-NR4-S	11/21/2013	910	16.82	8.29	---	9.29
C-R22A-D	01/08/2013	892	12.17	8.30	167	10.81
C-R22A-S	01/08/2013	892	11.94	8.32	168	10.88
C-R22A-D	03/04/2013	1,127	12.71	8.21	152	11.02
C-R22A-S	03/04/2013	1,129	12.67	8.22	152	11.00
C-R22A-D	05/20/2013	883	19.50	8.32	200	9.70
C-R22A-S	05/20/2013	881	19.40	8.32	200	9.68
C-R22A-D	07/15/2013	795	22.90	8.12	164	8.33
C-R22A-S	07/15/2013	794	22.90	8.18	174	8.37
C-R22A-D	11/20/2013	918	17.39	8.33	---	9.33
C-R22A-S	11/20/2013	918	17.33	8.32	---	9.77
C-R27-D	01/08/2013	889	11.86	8.28	151	10.70
C-R27-S	01/08/2013	889	11.78	8.27	153	10.81
C-R27-D	03/04/2013	1,131	12.76	8.15	144	10.45
C-R27-S	03/04/2013	1,129	12.94	8.18	144	10.61
C-R27-D	05/20/2013	882	19.90	8.32	197	9.67
C-R27-S	05/20/2013	881	19.60	8.32	195	9.63
C-R27-D	07/15/2013	794	22.60	8.15	195	8.16
C-R27-S	07/15/2013	796	22.80	8.16	198	8.15
C-R27-D	11/20/2013	919	17.40	8.32	---	9.49
C-R27-S	11/20/2013	920	17.41	8.32	---	9.45
C-TAZ-D	01/08/2013	4,512	11.37	8.29	250	10.97

TABLE D-4
Field Water Quality Measurements, January 2013 through December 2013
Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
In-Channel Surface Water Station						
C-TAZ-S	01/08/2013	4,504	11.40	8.37	190	10.93
C-TAZ-D	03/04/2013	1,128	12.29	8.02	229	10.86
C-TAZ-S	03/04/2013	1,129	12.22	8.15	214	11.33
C-TAZ-D	05/20/2013	884	18.90	8.24	195	9.62
C-TAZ-S	05/20/2013	882	18.80	8.30	198	9.63
C-TAZ-D	07/15/2013	792	22.50	7.97	190	8.54
C-TAZ-S	07/15/2013	792	22.20	8.57	186	8.62
C-TAZ-D	11/20/2013	886	16.88	8.08	---	9.68
C-TAZ-S	11/20/2013	913	16.90	8.24	---	9.66

Notes:

(---) = data not collected, not available, or rejected.
°C = degree Celsius.
ORP = oxidation reduction potential, results rounded off to whole point.
mV = millivolts.
mg/L = milligrams per liter.
ORP = oxidation reduction potential, results rounded off to whole point.
µS/cm = microSiemens per centimeter.

All field measurements were collected during groundwater and surface water sampling using a YSI multi-parameter water quality meter, or an in situ multi-parameter water quality meter.

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-9	05-Dec-12	---	---	690	---	250	130	---	120	29.0	---	380	---
	09-Dec-13	---	---	590	---	240	130	---	120	30.0	---	440	---
MW-10	10-Dec-12	---	---	600	---	290	150	---	81.0	12.0	---	450	---
	12-Dec-13	---	---	540	---	270	140	---	88.0	13.0	---	500	---
MW-12	26-Feb-13	---	---	1800	---	450	120	---	31.9	6.7	---	1340	---
	26-Feb-13 FD	---	---	1800	---	450	120	---	32.4	6.6	---	1390	---
	10-Dec-13	---	---	1800	---	460	120	---	37.0	6.8	---	1600	---
MW-13	11-Dec-12	---	---	510	---	150	73.0	---	90.0	12.0	---	280	---
	13-Nov-13	---	---	490	---	140	74.0	---	94.0	12.0	---	290	---
MW-14	13-Dec-12	---	---	360	---	100	83.0	---	72.0	11.0	---	220	---
	19-Dec-13	---	---	410	---	100	86.0	---	77.0	11.0	---	270	---
MW-15	11-Nov-13	---	---	370	---	120	82.0	---	88.0	22.0	---	190	---
MW-16	24-Apr-13	---	---	---	---	---	---	---	22.0	4.2	---	---	0.3
	06-Nov-13	---	---	180	---	120	100	---	26.0	4.8	4.3	220	0.26
MW-17	03-Dec-12	---	---	130	---	400	56.0	---	68.0	9.2	7.2	220	0.24
	24-Apr-13	---	---	---	---	---	---	---	62.0	8.6	---	---	0.23
	11-Nov-13	---	---	130	---	390	56.0	---	63.0	9.2	7.6	220	0.21
MW-18	04-Dec-12	---	---	300	---	85.0	84.0	---	72.0	11.0	---	160	---
	11-Nov-13	---	---	300	---	87.0	84.0	---	77.0	12.0	---	170	---
MW-19	12-Mar-13	---	---	500	---	160	94.0	---	103	16.2	---	314	---
	05-Dec-13	---	---	510	---	170	92.0	---	94.0	15.0	---	350	---
MW-20-70	12-Mar-13	---	---	440	---	290	87.0	---	82.8	22.3	---	358	---
	11-Dec-13	-8.1	-63.9	390	ND (0.5)	260	91.0	1200	70.0	17.0	15.0	580	0.51
MW-20-100	13-Mar-13	---	---	560	---	370	120	---	164	27.8	---	388	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-20-100	11-Dec-13	-7.5	-55.9	550	ND (0.5)	290	110	1600	140	23.0	8.2	400	1.0
MW-20-130	14-Mar-13	---	---	3400	---	1100	76.0	---	311	21.7	---	2260	---
	17-Dec-13	-6.4	-57.7	3200	ND (1.0)	1100	80.0	7400	330	22.0	26.0	2300	2.3
	17-Dec-13 FD	-6.5	-59.2	3200	ND (1.0)	1100	78.0	7300	330	21.0	27.0	2400	2.7
MW-21	05-Nov-13	---	---	1900	---	1600	530	---	170	55.0	---	2000	---
MW-22	10-Dec-12	---	---	13000	---	2800	640	---	1100	280	---	7100	---
	14-Nov-13	---	---	8100	---	2200	680	---	890	230	---	5400	---
MW-23-060	11-Nov-13	---	---	5500	---	650	34.0	---	800	7.5	---	2900	---
MW-23-080	11-Nov-13	---	---	5600	---	840	95.0	---	740	4.4	---	3100	---
MW-24BR	03-Dec-13	---	---	4700	---	460	46.0	---	120	3.3	---	3200	---
MW-25	11-Dec-12	-9.1	-67.6	340	ND (0.5)	140	160	970	90.0	19.0	7.9	200	0.38
	09-Dec-13	-9	-68.7	310	ND (0.5)	140	160	980	98.0	20.0	8.2	220	0.43
MW-26	12-Mar-13	---	---	930	---	530	100	---	186	48.7	---	662	---
	04-Dec-13	-8.4	-64.1	890	1.0	520	110	2600	160	41.0	12.0	670	0.93
MW-27-20	03-Dec-12	---	---	76.0	---	210	150	---	76.0	24.0	---	76.0	---
	04-Nov-13	---	---	76.0	---	210	150	---	73.0 J	23.0	---	80.0	---
MW-27-60	03-Dec-12	---	---	87.0	---	170	210	---	51.0	12.0	---	150	---
	04-Nov-13	---	---	83.0	---	180	190	---	69.0	16.0	---	110	---
MW-27-85	03-Dec-12	---	---	3200	---	1100	210	---	250	49.0	---	2300	---
	04-Nov-13	---	---	2800	---	1000	230	---	230	45.0	---	2100	---
MW-28-25	05-Dec-12	---	---	87.0	---	240	200	---	93.0	29.0	---	86.0	---
	05-Nov-13	---	---	1900	---	580	250	---	100	29.0	---	83.0	---
MW-28-90	05-Dec-12	---	---	2100	---	620	230	---	220	41.0	---	1400	---
	05-Nov-13	---	---	1900	---	570	250	---	220	42.0	---	1300	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-29	05-Dec-12	---	---	470 J	---	310 J	570	---	86.0	41.0	---	460	---
	05-Dec-12 FD	---	---	380 J	---	240 J	500	---	95.0	44.0	---	420	---
	05-Nov-13	---	---	240 J	---	270	400	---	99.0	42.0	---	320	---
	05-Nov-13 FD	---	---	300 J	---	310	450	---	100	41.0	---	310	---
MW-30-30	03-Dec-12	---	---	8700	---	3400	1500	---	300	260	---	7000	---
	04-Nov-13	---	---	1200	---	600	470	---	52.0	37.0	---	1100	---
MW-30-50	03-Dec-12	-13	-103	110	---	200	190	---	46.0	13.0	---	170	---
	04-Nov-13	-13	-101	110	---	200	200	---	57.0	15.0	---	160	---
MW-31-60	03-Dec-13	-8.6	-66.4	870	ND (0.5)	220	78.0	1900	140	24.0	6.4	520	0.48
MW-31-135	07-Nov-13	-9.5	-74.5	3600	---	470	34.0	---	350	22.0	---	2300	---
MW-32-20	05-Dec-12	---	---	15000	---	6000	---	---	900	500	---	9800	---
	16-Dec-13	---	---	13000	---	5400	1500	---	970	530	---	11000	---
MW-32-35	05-Dec-12	-11	-89.0	4300	ND (5.0)	1700	630	10000	460	240	31.0	2700	1.3
	06-Nov-13	-11	-87.2	3500	ND (2.5)	1600	580	8300	450	210	23.0	2500	1.2
MW-33-40	05-Dec-12	---	---	2200	---	710	300	---	22.0	29.0	---	1800	---
	05-Dec-12 FD	---	---	2200	---	690	290	---	23.0	31.0	---	1700	---
	03-Dec-13	---	---	2600	---	930	320	---	38.0	47.0	---	2200	---
MW-33-90	14-Feb-13	---	---	3100	---	680	67.0	---	336	32.0	---	2000	---
	14-Feb-13 FD	---	---	3100	---	690	67.0	---	333	32.2	---	1970	---
	03-Dec-13	-9.7	-77	3000	---	720	74.0	---	320	29.0	---	1900	---
MW-33-150	06-Dec-12	-11	-82.1	6400	---	890	48.0	---	470	55.0	---	3400	---
	03-Dec-13	-10	-79.7	5500	---	890	52.0	---	550	52.0	---	3500	---
MW-33-210	06-Dec-12	-11	-84.9	6900	---	1200	54.0	---	510	64.0	---	3900	---
	03-Dec-13	-10	-81.2	6400	---	1200	57.0	---	600	60.0	---	3800	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-33-210	03-Dec-13 FD	-11	-82.6	6300	---	1200	57.0	---	620	61.0	---	4100	---
MW-34-55	12-Dec-12	-13	-105.0	78.0	ND (0.5)	210	140	630	75.0	20.0	3.7	100	0.15
	20-Nov-13	-13	-103	72.0	ND (0.5)	210	150	600	69.0	19.0	4.3	88.0	0.13
MW-34-80	12-Dec-12	-11	-90.2	1800	ND (1.0)	630	250	4300	220	51.0	17.0	1300	1.0
	12-Dec-12 FD	-11	-89.3	1800	---	630	250	---	210	48.0	---	1300	---
	20-Nov-13	-11	-88	1900	ND (1.0)	620	260	4500	210	52.0	14.0	1300	0.96
	20-Nov-13 FD	-11	-88.4	1900	ND (1.0)	620	260	4600	210	56.0	14.0	1200	1.0
MW-34-100	20-Nov-13	-10	-78.9	5300	ND (2.5)	1200	120	10000	140	8.0	35.0	3900	2.6
	20-Nov-13 FD	-9.8	-79.3	5300	ND (2.5)	1100	120	10000	150	8.5	35.0	3900	2.7
MW-35-60	04-Dec-12	-9.8	-77.7	2100	---	330	73.0	---	270	31.0	---	1200	---
	12-Nov-13	-9.2	-71.8	2100	---	330	69.0	---	330	38.0	---	1400	---
MW-35-135	04-Dec-12	-11	-81.9	3100	---	640	47.0	---	240	26.0	---	2000	---
	12-Nov-13	-10	-78.7	3000	---	660	50.0	---	250	27.0	---	2000	---
MW-36-20	04-Dec-12	---	---	890	---	1200	700	---	57.0	45.0	---	1300	---
	04-Dec-12 FD	---	---	900	---	1200	700	---	58.0	46.0	---	1200	---
	11-Nov-13	---	---	860	---	1200	650	---	41.0 J	50.0 J	---	1200 J	---
	11-Nov-13 FD	---	---	840	---	1300	640	---	78.0 J	100 J	---	1700 J	---
MW-36-40	04-Dec-12	---	---	170	---	190	270	---	71.0	15.0	---	210	---
	11-Nov-13	---	---	160	---	190	280	---	66.0	16.0	---	210	---
MW-36-50	04-Dec-12	---	---	130	---	190	200	---	79.0	16.0	---	130	---
	11-Nov-13	---	---	89.0	---	190	190	---	78.0	16.0	---	100	---
MW-36-70	04-Dec-12	---	---	95.0	---	200	180	---	46.0	9.2	---	170	---
	11-Nov-13	---	---	87.0	---	200	160	---	55.0	10.0	---	150	---
MW-36-90	04-Dec-12	-12	-99.7	100	---	210	190	---	6.9	0.69	---	240	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-36-90	11-Nov-13	-12	-98.3	92.0	---	200	190	---	7.0	0.75	---	270	---
MW-36-100	11-Mar-13	---	---	2400	---	750	250	---	211	33.3	---	1640	---
	16-Dec-13	-11	-88.6	2200	---	720	240	---	210	32.0	---	1800	---
MW-37D	04-Dec-12	---	---	5300	---	630	31.0	---	390	22.0	---	3300	---
	02-Dec-13	---	---	5000	---	630	33.0	---	420	22.0	---	3100	---
MW-37S	06-Nov-13	---	---	1500	---	260	53.0	---	170	22.0	---	1000	---
MW-38D	13-Nov-13	---	---	7700	---	710	32.0	---	400	6.5	---	4700	---
MW-38S	03-Dec-13	---	---	270	---	200	190	---	29.0	5.6	---	340	---
MW-39-50	03-Dec-12	---	---	140	---	210	200	---	21.0	7.1	---	250	---
	12-Nov-13	---	---	140	---	210	190	---	34.0	11.0	---	240	---
MW-39-60	03-Dec-12	---	---	190	---	220	220	---	19.0	5.4	---	310	---
	12-Nov-13	---	---	210	---	220	230	---	26.0	7.6	---	290	---
MW-39-70	03-Dec-12	-12	-95.8	440	---	290	270	---	33.0	6.9	---	490	---
	12-Nov-13	-12	-96.3	280	---	250	250	---	23.0	4.5	---	420	---
MW-39-80	03-Dec-12	-12	-94.7	1700	---	610	340	---	160	35.0	---	1300	---
	12-Nov-13	-12	-92.9	1400	---	550	310	---	140	33.0	---	1200	---
MW-39-100	13-Dec-12	-10	-82.9	5100	---	1500	300	---	580	86.0	---	3300	---
	04-Dec-13	-10	-80.7	4800	---	1500	300	---	580	82.0	---	3300	---
	04-Dec-13 FD	-10	-80.9	4800	---	1400	300	---	510	81.0	---	3400	---
MW-40D	03-Dec-12	---	---	5300	---	700	47.0	---	380	37.0	---	3100	---
	02-Dec-13	---	---	5000	---	710	46.0	---	390	40.0	---	3100	---
MW-41D	04-Nov-13	---	---	7400	---	760	41.0	---	420	32.0	---	4400	---
MW-41M	04-Nov-13	---	---	4900	---	530	37.0	---	420	35.0	---	2700	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-41S	03-Dec-12	---	---	1400	---	270	57.0	---	100	13.0	---	840	---
	04-Nov-13	---	---	1400	---	270	57.0	---	120	16.0	---	940	---
MW-42-30	06-Dec-12	-12	-97.8	---	---	---	---	---	---	---	---	---	---
	05-Nov-13	-11	-94.5	---	---	---	---	---	---	---	---	---	---
MW-42-55	06-Dec-12	-12	-99.4	370	---	250	380	---	20.0	6.3	---	510	---
	05-Nov-13	-12	-95.1	160	---	220	310	---	11.0	3.1	---	350	---
MW-42-65	06-Dec-12	-12	-96.5	2400	---	760	350	---	190	49.0	---	1800	---
	05-Nov-13	-12	-95.7	1800	---	660	380	---	160	42.0	---	1500	---
MW-43-25	10-Dec-12	---	---	110	---	280	220	---	85.0	40.0	---	110	---
	06-Nov-13	---	---	100	---	270	220	---	99.0	44.0	---	110	---
MW-43-75	10-Dec-12	---	---	3400	---	1300	490	---	410	58.0	---	2400	---
	06-Nov-13	---	---	2500	---	1500	600	---	470	97.0	---	2000	---
MW-43-90	10-Dec-12	---	---	5600	---	1800	370	---	520	190	---	3100	---
	06-Nov-13	---	---	5200	---	1600	320	---	600	210	---	3300	---
MW-44-70	06-Dec-12	-12	-99.5	360	---	230	300	---	37.0	6.5	---	440	---
	02-Dec-13	-12	-97.6	350	---	240	280	---	41.0	7.0	---	430	---
MW-44-115	26-Feb-13	---	---	3300	---	730	72.0	---	115	7.3	---	2450	---
	02-Dec-13	-10	-81.9	3200	---	770	76.0	---	110	6.3	---	2400	---
MW-44-125	13-Feb-13	---	---	3900	---	640	78.0	---	94.2	5.1	---	2640	---
	13-Feb-13 FD	---	---	3900	---	650	76.0	---	98.1	5.2	---	2950	---
	02-Dec-13	-11	-83.1	3100	---	630	93.0 J	---	110	9.1	---	2500	---
	02-Dec-13 FD	-10	-82.9	3300	---	630	120 J	---	99.0	8.2	---	2300	---
MW-45-095a	13-Dec-12	-11	-89.0	2500	---	690	150	---	160	22.0	---	1800	---
	02-Dec-13	---	---	2400	---	680	160	---	160	22.0	---	1900	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-46-175	25-Feb-13	---	---	6100	---	740	40.0	---	93.8	2.8	---	3870	---
	20-Nov-13	-10	-79.5	5700	---	770	41.0	---	97.0	2.7	---	3900	---
MW-46-205	12-Dec-12	---	---	7400	---	870	45.0	---	110	2.9	---	4800	---
	20-Nov-13	---	---	7200	---	860	41.0	---	100	2.7	---	4900	---
MW-47-55	11-Mar-13	---	---	1300	---	230	65.0	---	181	29.5	---	674	---
	12-Nov-13	-10	-78.1	1400	---	250	60.0	---	190	27.0	---	720	---
MW-47-115	27-Feb-13	---	---	4200	---	700	49.0	---	316	33.3	---	2550	---
	12-Nov-13	-9.1	-70.1	4300	---	710	50.0	---	380	31.0	---	2700	---
MW-48	06-Nov-13	---	---	6000	---	550	28.0	---	380	31.0	---	3600	---
MW-49-135	11-Dec-12	-10	-80.1	4600	---	730	69.0	---	290	29.0	---	2200	---
	06-Nov-13	-10	-78.5	4100	---	750	62.0	---	340	31.0	---	2500	---
MW-49-275	11-Dec-12	-10	-82.1	9200	---	1400	35.0	---	210	5.7	---	5600	---
	06-Nov-13	-11	-80.4	8100	---	1300	34.0	---	260	6.9	---	6000	---
MW-49-365	11-Dec-12	-11	-82.6	14000	---	1200	32.0	---	340	8.9	---	8900	---
	07-Nov-13	-10	-79.4	14000	---	1100	32.0	---	410	9.8	---	7500	---
MW-50-095	14-Feb-13	---	---	1400	---	260	76.0	---	115	13.4	---	987	---
	06-Nov-13	---	---	1400	---	260	58.0	---	130	14.0	---	960	---
MW-50-200	27-Feb-13	---	---	7200	---	980	35.0	---	576	34.8	---	4910	---
	17-Dec-13	---	---	6800	---	940	39.0	---	570	30.0	---	4300	---
MW-51	14-Mar-13	---	---	3400	---	680	92.0	---	256	18.1	---	2180	---
	11-Dec-13	---	---	3100	---	670	96.0	---	250	16.0	---	2300	---
MW-52D	05-Dec-12	---	---	7600	---	870	45.0	---	290	19.0	---	4900	---
	13-Nov-13	---	---	7300	---	880	47.0	---	280	15.0	---	4600	---
MW-52M	05-Dec-12	---	---	5500	---	690	83.0	---	350	45.0	---	3200	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-52M	13-Nov-13	---	---	5100	---	710	81.0	---	390	38.0	---	3300	---
	13-Nov-13 FD	---	---	5000	---	700	81.0	---	400	38.0	---	3700	---
MW-52S	05-Dec-12	---	---	2500	---	360	---	---	330	130	---	1600	---
	13-Nov-13	---	---	2600	---	360	970	---	440	130	---	1700	---
MW-53D	06-Dec-12	---	---	9300	---	1200	37.0	---	320	15.0	---	6000	---
	13-Nov-13	---	---	8800	---	1200	36.0	---	310	14.0	---	6300	---
MW-53M	05-Dec-12	---	---	7300	---	800	41.0	---	380	29.0	---	4500 J	---
	05-Dec-12 FD	---	---	7100	---	820	41.0	---	360	28.0	---	2200 J	---
	13-Nov-13	---	---	6800	---	790	40.0	---	410	25.0	---	4400	---
MW-54-85	12-Dec-12	---	---	3200	---	500	149	---	171	89.2	---	1850	---
	21-Nov-13	---	---	3270	---	515	150	---	163	86.5	---	1790	---
MW-54-140	12-Dec-12	---	---	4070	---	505	99.5	---	147	11.8	---	2650	---
	21-Nov-13	---	---	4710	---	497	101	---	142	11.1	---	2510	---
MW-54-195	12-Dec-12	---	---	6420	---	966	58.1	---	128	4.4	---	4360	---
	21-Nov-13	---	---	7750	---	945	58.7	---	124	4.2	---	4140	---
MW-55-45	12-Dec-12	---	---	324	---	50.0	195	---	41.8	9.3	---	238	---
	21-Nov-13	---	---	347	---	112	181	---	39.6	9.7	---	101	---
MW-55-120	12-Dec-12	---	---	2840	---	307	59.9	---	110	2.0	---	1980	---
	12-Dec-12 FD	---	---	2820	---	317	59.5	---	110	2.1	---	1730	---
	21-Nov-13	---	---	2910	---	307	60.5	---	96.2	2.0	---	1670	---
	21-Nov-13 FD	---	---	3040	---	301	60.7	---	95.7	2.0	---	1680	---
MW-56D	06-Dec-12	---	---	7190	---	1410	134	---	404	86.5	---	4460	---
	14-Nov-13	---	---	5760	---	1290	495	---	385	98.3	---	2780	---
MW-56M	06-Dec-12	---	---	4450	---	1000	509	---	385	111	---	2760	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-56M	14-Nov-13	---	---	8290	---	1460	130	---	379	73.1	---	4080	---
MW-56S	06-Dec-12	---	---	1180	---	593	534	---	131	42.1	---	1010	---
	14-Nov-13	---	---	1820	---	1290	697	---	238	81.1	---	534	---
MW-57-070	13-Dec-12	---	---	510	---	98.0 J	120	---	280	19.0	---	86.0	---
	13-Dec-12 FD	---	---	500	---	120 J	100	---	270	19.0	---	86.0	---
	12-Dec-13	---	---	610	---	100	89.0	---	300	20.0	---	96.0	---
MW-57-185	07-Nov-13	---	---	6100	---	720	53.0 J	---	350	3.3	---	3900	---
	07-Nov-13 FD	---	---	5700	---	710	41.0 J	---	370	3.4	---	4000	---
MW-59-100	27-Feb-13	---	---	3100	---	660	120	---	637	23.4	---	1590	---
	10-Dec-13	---	---	2900	---	640	120	---	690	21.0	---	1500	---
MW-60-125	06-Dec-12	---	---	2800	---	460	46.0	---	410	25.0	---	1400	---
	04-Dec-13	---	---	2700	---	470	47.0	---	550	26.0	---	1500	---
MW-61-110	25-Feb-13	---	---	5300	---	660	53.0	---	629	23.3	---	2850	---
	05-Dec-13	---	---	5300	---	700	45.0	---	720	19.0	---	3100	---
	05-Dec-13 FD	---	---	5100	---	720	47.0	---	730	20.0	---	3200	---
MW-62-065	10-Dec-12	---	---	1900	---	410	110	---	210	24.0	---	1100	---
	11-Dec-13	---	---	1700	---	400	100	---	230	25.0	---	1100	---
MW-62-110	11-Dec-12	---	---	2700	---	540	82.0	---	170	8.2	---	1600	---
	13-Nov-13	---	---	2600	---	520	78.0	---	170	7.8	---	1800	---
MW-62-190	11-Dec-12	---	---	6300	---	730	44.0	---	320	12.0	---	4200	---
	13-Nov-13	---	---	6000	---	720	44.0	---	350	12.0	---	3700	---
MW-63-065	04-Dec-13	---	---	1800	---	590	190	---	200	21.0	---	1400	---
OW-3D	05-Nov-13	---	---	2800	---	400	33.0	---	180	16.0	---	1900	---
OW-3M	13-Nov-13	---	---	1600	---	300	49.0	---	96.0	8.3	---	1100	---

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
OW-3S	13-Nov-13	---	---	350	---	74.0	70.0	---	74.0	11.0	---	200	---
PE-1	04-Dec-12	---	---	1170	---	424	195	2780	114	26.2	---	874	---
	02-Jan-13	---	---	---	---	---	---	2760	---	---	---	---	---
	05-Feb-13	---	---	---	---	---	---	2660	---	---	---	---	---
	05-Mar-13	---	---	---	---	---	---	2820	---	---	---	---	---
	01-Apr-13	---	---	---	---	---	---	2780	---	---	---	---	---
	01-May-13	---	---	---	---	---	---	2760	---	---	---	---	---
	04-Jun-13	---	---	---	---	---	---	2650	---	---	---	---	---
	02-Jul-13	---	---	---	---	---	---	2620	---	---	---	---	---
	06-Aug-13	---	---	---	---	---	---	2700	---	---	---	---	---
	03-Sep-13	---	---	---	---	---	---	2700	---	---	---	---	---
	01-Oct-13	---	---	---	---	---	---	2600	---	---	---	---	---
	05-Nov-13	---	---	1120 J	---	405 J	213 J	2580 J	111	23.1	---	816	---
	03-Dec-13	---	---	1160	---	408	238 J	2560	115	23.5	---	890	---
PGE-7BR	11-Dec-12	---	---	6700	---	690	ND (5.0)	---	330	13.0	---	4200	---
	10-Dec-13	---	---	6900	---	520	6.6	---	480	11.0	---	4400	---
PGE-8	18-Dec-13	---	---	6000	---	1800	52.0	---	760	18.0	---	3800	---
Park Moabi-3	19-Dec-13	---	---	290	---	61.0	95.0	---	72.0	14.0	---	150	---
Park Moabi-4	19-Dec-13	---	---	530	---	110	65.0	---	97.0	18.0	---	280	---
R-28	09-Jan-13	---	---	---	---	---	130	---	---	---	---	---	---
	05-Mar-13	---	---	---	---	---	122	---	---	---	---	---	---
	21-May-13	---	---	---	---	---	127	---	---	---	---	---	---
	16-Jul-13	---	---	---	---	---	124	---	---	---	---	---	---
	21-Nov-13	-13	-103	80.4	ND (0.5)	220	131	564	73.2	26.2	4.4	84.7	0.12

TABLE D-5

Additional Water Quality Characterization, December 2012 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
									Calcium	Magnesium	Potassium	Sodium	Boron
TW-1	11-Dec-12	---	---	1900	---	860	110	---	300	21.0	---	1300	---
	11-Dec-12 FD	---	---	2000	---	870	110	---	300	21.0	---	1300	---
	17-Dec-13	---	---	1900	---	760	110	---	310	21.0	---	1300	---
TW-2D	13-Dec-12	---	---	2600	---	520	160	---	250	37.0	---	1700	---
	19-Dec-13	---	---	2400	---	490	180	---	250	37.0	---	1700	---
TW-2S	13-Dec-12	---	---	540	---	170	82.0	---	85.0	20.0	---	340	---
	19-Dec-13	---	---	850	---	230	140	---	74.0	17.0	---	370	---
TW-3D	04-Dec-12	---	---	2460	---	552	120	5060	264	41.8	---	1570	---
	02-Jan-13	---	---	---	---	---	---	5070	---	---	---	---	---
	05-Feb-13	---	---	---	---	---	---	5120	---	---	---	---	---
	05-Mar-13	---	---	---	---	---	---	5290	---	---	---	---	---
	01-Apr-13	---	---	---	---	---	---	5140	---	---	---	---	---
	01-May-13	---	---	---	---	---	---	4990	---	---	---	---	---
	04-Jun-13	---	---	---	---	---	---	5030	---	---	---	---	---
	02-Jul-13	---	---	---	---	---	---	4920	---	---	---	---	---
	06-Aug-13	---	---	---	---	---	---	4560	---	---	---	---	---
	03-Sep-13	---	---	---	---	---	---	4630	---	---	---	---	---
	01-Oct-13	---	---	---	---	---	---	5010	---	---	---	---	---
	05-Nov-13	---	---	2470 J	---	542 J	133 J	4990 J	210	31.6	---	1430	---
	03-Dec-13	---	---	2470	---	550	148 J	4860	231	32.3	---	1620	---
TW-4	12-Nov-13	---	---	7300	---	1100	44.0	---	450	44.0	---	4700	---
TW-5	06-Nov-13	---	---	4400	---	510	36.0	---	400	24.0	---	2700	---

Notes:

(---) = data not collected or available.
0/00 = differences from global standards in parts per thousand.
FD = field duplicate sample.
J = concentration or reporting limit estimated by laboratory or data validation.
mg/L = milligrams per liter
ND = not detected at the listed reporting limit.

Alkalinity (total) reported as calcium carbonate.

Appendix E
Hydraulic Data for Interim Measures Reporting Period

TABLE E-1

Average Monthly and Quarterly Groundwater Elevations, Fourth Quarter 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	November 2013	December 2013	Quarter Average	Days in Quarter Average
I-3	River Station	453.98	452.81	453.38	61
MW-20-070	Shallow Zone	453.38	452.40	452.88	61
MW-20-100	Middle Zone	452.86	451.87	452.36	61
MW-20-130	Deep Zone	452.37	451.33	451.84	61
MW-22	Shallow Zone	454.42	453.66	454.04	61
MW-25	Shallow Zone	455.17	454.40	454.78	61
MW-26	Shallow Zone	454.82	454.08	454.44	61
MW-27-020	Shallow Zone	454.05	452.84	453.43	61
MW-27-060	Middle Zone	453.97	452.81	453.38	61
MW-27-085	Deep Zone	453.96	452.82	453.38	61
MW-28-025	Shallow Zone	453.94	452.77	453.35	61
MW-28-090	Deep Zone	454.01	452.90	453.45	61
MW-30-050	Middle Zone	453.69	452.60	453.14	61
MW-31-060	Shallow Zone	454.18	453.18	453.67	61
MW-31-135	Deep Zone	453.41	452.54	452.97	61
MW-32-035	Shallow Zone	454.01	452.93	453.46	61
MW-33-040	Shallow Zone	454.46	453.48	453.97	61
MW-33-090	Middle Zone	454.68	453.48	454.07	61
MW-33-150	Deep Zone	454.38	453.37	453.87	61
MW-34-055	Middle Zone	453.94	452.82	453.37	61
MW-34-080	Deep Zone	453.96	452.89	453.42	61
MW-34-100	Deep Zone	453.73	452.71	453.21	61
MW-35-060	Shallow Zone	454.54	453.47	454.00	61
MW-35-135	Deep Zone	455.15	454.20	454.67	61
MW-36-020	Shallow Zone	453.98	452.87	453.42	61
MW-36-040	Shallow Zone	453.82	452.70	453.25	61
MW-36-050	Middle Zone	453.74	452.65	453.19	61
MW-36-070	Middle Zone	453.76	452.64	453.19	61
MW-36-090	Deep Zone	453.04	451.96	452.49	61
MW-36-100	Deep Zone	453.25	452.10	452.66	61
MW-39-040	Shallow Zone	453.77	452.68	453.22	61
MW-39-050	Middle Zone	453.60	452.52	453.05	61
MW-39-060	Middle Zone	453.45	452.37	452.90	61
MW-39-070	Middle Zone	453.10	452.05	452.56	61
MW-39-080	Deep Zone	453.22	452.20	452.70	61
MW-39-100	Deep Zone	453.64	452.43	453.02	61
MW-42-030	Shallow Zone	453.69	452.59	453.13	61
MW-42-065	Middle Zone	453.79	452.70	453.23	61
MW-43-025	Shallow Zone	453.94	452.76	453.34	61
MW-43-090	Deep Zone	454.20	453.06	453.62	61
MW-44-070	Middle Zone	453.89	452.76	453.32	61
MW-44-115	Deep Zone	453.52	452.48	452.99	61
MW-44-125	Deep Zone	454.07	452.83	453.44	61
MW-45-095a	Deep Zone	452.82	451.59	452.20	61
MW-46-175	Deep Zone	454.18	453.16	453.80	48
MW-47-055	Shallow Zone	454.65	453.62	454.12	61
MW-47-115	Deep Zone	454.74	453.76	454.24	61
MW-49-135	Deep Zone	454.69	453.67	454.17	61

TABLE E-1

Average Monthly and Quarterly Groundwater Elevations, Fourth Quarter 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	November 2013	December 2013	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	454.45	453.51	453.98	61
MW-51	Middle Zone	454.74	453.98	454.36	61
MW-54-085	Deep Zone	454.36	453.32	453.83	61
MW-54-140	Deep Zone	INC	453.94	INC	12
MW-54-195	Deep Zone	455.11	454.22	454.66	61
MW-55-045	Middle Zone	455.55	454.96	455.25	61
MW-55-120	Deep Zone	455.59	455.03	455.30	61
PT2D	Deep Zone	452.83	451.76	452.29	61
PT5D	Deep Zone	453.36	452.28	452.81	61
PT6D	Deep Zone	453.39	452.31	452.84	61
RRB	River Station	454.62	INC	INC	20

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.

TABLE E-2

Average, Minimum, and Maximum Groundwater Elevations, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Minimum[a] (ft amsl)	Maximum[a] (ft amsl)	Average[a] (ft amsl)	Number of Days Reporting Data
I-3	River Station	451.44	458.07	455.17	365
MW-20-070	Shallow Zone	451.93	455.72	453.91	365
MW-20-100	Middle Zone	451.44	455.85	453.42	365
MW-20-130	Deep Zone	450.96	456.04	452.99	365
MW-22	Shallow Zone	453.27	456.73	454.81	336
MW-25	Shallow Zone	453.75	456.43	455.40	325
MW-26	Shallow Zone	453.47	456.05	455.11	351
MW-27-020	Shallow Zone	452.06	457.70	455.03	365
MW-27-060	Middle Zone	451.87	457.65	455.00	365
MW-27-085	Deep Zone	451.89	457.53	454.97	365
MW-28-025	Shallow Zone	451.80	457.61	455.00	365
MW-28-090	Deep Zone	451.89	457.51	455.06	365
MW-30-050	Middle Zone	451.82	456.87	454.62	365
MW-31-060	Shallow Zone	452.77	456.28	454.78	365
MW-31-135	Deep Zone	452.03	456.18	454.12	365
MW-32-035	Shallow Zone	452.36	457.07	454.76	338
MW-33-040	Shallow Zone	452.89	457.00	455.08	365
MW-33-090	Middle Zone	452.87	457.00	455.18	365
MW-33-150	Deep Zone	452.77	457.04	455.15	357
MW-34-055	Middle Zone	451.76	457.60	455.00	365
MW-34-080	Deep Zone	451.84	457.53	455.00	365
MW-34-100	Deep Zone	451.71	457.23	454.81	356
MW-35-060	Shallow Zone	452.84	457.69	455.46	365
MW-35-135	Deep Zone	453.80	457.39	455.76	365
MW-36-020	Shallow Zone	452.12	456.34	454.56	298
MW-36-040	Shallow Zone	451.86	457.16	454.78	365
MW-36-050	Middle Zone	451.78	457.14	454.70	365
MW-36-070	Middle Zone	451.76	457.10	454.70	365
MW-36-090	Deep Zone	451.22	456.38	453.86	365
MW-36-100	Deep Zone	451.41	456.82	454.12	365
MW-39-040	Shallow Zone	451.94	456.85	454.64	365
MW-39-050	Middle Zone	451.79	456.58	454.45	365
MW-39-060	Middle Zone	451.68	456.34	454.28	365
MW-39-070	Middle Zone	451.48	456.20	453.83	365
MW-39-080	Deep Zone	451.62	456.33	453.96	365
MW-39-100	Deep Zone	451.82	456.80	454.33	365
MW-42-030	Shallow Zone	451.96	456.72	454.55	365
MW-42-065	Middle Zone	452.04	456.83	454.59	331
MW-43-025	Shallow Zone	451.82	457.74	455.01	365
MW-43-090	Deep Zone	452.08	458.09	455.35	365
MW-44-070	Middle Zone	451.79	457.38	454.90	365
MW-44-115	Deep Zone	451.69	456.60	454.42	365
MW-44-125	Deep Zone	451.98	457.01	454.91	365
MW-45-095a	Deep Zone	450.69	458.29	453.76	365
MW-46-175	Deep Zone	452.51	456.89	455.03	352
MW-47-055	Shallow Zone	453.20	457.09	455.34	365
MW-47-115	Deep Zone	453.30	456.97	455.34	365
MW-49-135	Deep Zone	452.98	457.53	455.49	365

TABLE E-2

Average, Minimum, and Maximum Groundwater Elevations, January 2013 through December 2013

Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Minimum[a] (ft amsl)	Maximum[a] (ft amsl)	Average[a] (ft amsl)	Number of Days Reporting Data
MW-50-095	Middle Zone	453.12	456.35	454.98	365
MW-51	Middle Zone	453.44	456.06	455.04	360
MW-54-085	Deep Zone	452.36	457.98	455.34	331
MW-54-140	Deep Zone	453.46	457.86	455.83	315
MW-54-195	Deep Zone	453.62	457.93	455.77	307
MW-55-045	Middle Zone	454.79	457.12	456.01	337
MW-55-120	Deep Zone	454.89	457.20	456.06	328
PT2D	Deep Zone	451.16	456.28	453.59	365
PT5D	Deep Zone	451.62	456.46	454.13	358
PT6D	Deep Zone	451.67	456.62	454.17	365
RRB	River Station	453.24	458.51	455.78	325

Notes:

[a] minimium, maximum and average of daily groundwater elevation averages.

Averages include data collected from 1/1/2013 through 12/31/2013.

ft amsl = feet above mean sea level.
INC = Data incomplete, less than 75% of data available over reporting period due to rejection or field equipment malfunction.

Appendix F
Groundwater Monitoring Data for Groundwater Monitoring Plan and Performance Monitoring Program

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-70	10-Mar-05	1940	-7.1	-59.0	740	378	9.98	ND (1.0)	81.7	198	55.4	9.89	431	0.412
	15-Jun-05	1980	-7.0	-60.0	749	388	9.79	ND (1.0)	73.8	189	55.4	10.5	433	0.414
	15-Jun-05 FD	2050	-8.3	-57.0	760	392	9.81	ND (1.0)	71.3	204	60.7	11.4	468	0.445
	11-Oct-05	1950	-7.2	-57.0	737	359	9.48	0.641	69.9	198	49.9	14.6	323	0.402
	15-Dec-05	1830	-7.1	-49.0	645	326	9.90	ND (1.0)	77.8	138	42.3	14.5	267	0.441
	10-Mar-06	1940	-7.2	-54.0	679	358	10.5	ND (0.5)	82.2	161	48.6	9.22	424	0.427
	05-May-06	1750	-8.2	-55.9	696	376	9.86	0.574	74.5	162	49.2	9.55	461	0.476
	03-Oct-06	1890	-8.1	-60.4	677	357	13.0	ND (5.0)	85.0	158	47.6	9.82	472	0.535
	03-Oct-06 FD	1840	-8.1	-60.5	669	352	12.9	ND (5.0)	80.0	154	45.9	9.51	466	0.515
	13-Dec-06	1910	-7.6	-61.2	678	352	12.7	0.699	77.5	149	44.3	9.09	458	0.459
	14-Mar-07	1740	-8.5	-64.3	689	358	13.7	0.641	80.0	139	42.2	8.83	451	0.503
	03-May-07	1750	-8.4	-66.7	697	344	25.1	ND (1.0)	77.5	139	41.2	8.65	390	0.477
	11-Oct-07	1820	-8.2	-63.9	699	367	15.6	ND (1.0)	80.0	130	39.1	11.0	600	0.54
	12-Mar-08	1790	-7.6	-65.2	695	360	22.1	ND (1.0)	77.0	139	41.2	10.7	403	0.51
	07-Oct-08	1900	-8.5	-64.4	650	360	15.0	0.61	83.0	136	37.9	10.5	400	0.608
	12-Mar-09	1900	-7.74	-60.8	670	330	17.0	ND (1.0)	79.0	128	40.2	9.95	496	0.549
	25-Sep-09	1700	-8.7	-66.4	700	310	16.0	ND (2.5)	74.0	130	33.0	9.70	390	0.42
	16-Dec-10	1700	-7.5	-62.3	680	320	16.0	0.51	79.0	130	33.0	12.0	400	0.51
	07-Dec-11	1400	-7.9	-61.9	540	330	11.0	ND (0.5)	71.0	100	25.0	---	380	---
	04-Oct-12	---	---	---	430	290	8.40	---	---	76.2	22.9	---	346	---
	27-Nov-12	1400	-7.8	-62.6	450	290	10.6 *	ND (0.5)	89.0	79.2	22.2	8.07	350	0.484
	12-Mar-13	---	---	---	440	290	8.60 *	---	87.0	82.8	22.3	---	358	---
	11-Dec-13	1200	-8.12	-63.9	390	260	8.05 *	ND (0.5)	91.0	70.0	17.0	15.0	580	0.51
MW-20-100	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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-100	11-Oct-05	2400	-5.3	-48.0	887	484	8.87	0.731	82.3	170	23.7	15.2	500	0.718
	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 a	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	---
	11-Dec-13	1600	-7.46	-55.9	550	290	9.50 *	ND (0.5)	110	140	23.0	8.20	400	1.00
MW-20-130	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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-130	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
	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 [a]	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	---
	17-Dec-13	7400	-6.4	-57.7	3200	1100	12.4 *	ND (1.0)	80.0	330	22.0	26.0	2300	2.30
	17-Dec-13 FD	7300	-6.52	-59.2	3200	1100	12.9 *	ND (1.0)	78.0	330	21.0	27.0	2400	2.70
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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-25	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
	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
	09-Dec-13	980	-9.02	-68.7	310	140	6.99 *	ND (0.5)	160	98.0	20.0	8.20	220	0.43
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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-26	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
	02-Oct-07	2180	-8.6	-66.3	945	391	7.84	ND (1.0)	100	170	42.0	15.0	620	0.66
	12-Mar-08	2500	-8.1	-67.2	908	398	10.7 J	ND (1.0)	103	176	44.1 J	16.2 J	498	0.589
	12-Mar-08 FD	2420	-8.9	-68.2	905	398	7.61 J	ND (1.0)	102	160	32.8 J	12.7 J	462	0.601
	08-Oct-08	2400	-8.7	-66.5	930	440	10.0	ND (1.0)	110	183	45.8	14.6	555	0.591
	10-Mar-09	2300	-8.41	-65.3	870	440 J	9.80	1.40	100	172	47.9	14.8	585	0.604
	10-Mar-09 FD	2300	-8.68	-65.8	860	440 J	9.70	1.50	100	174	46.2	15.6	631	0.65
	22-Sep-09	2200	-9.04	-68.3	870	450	10.0	ND (1.0)	100	170	39.0	14.0	550	0.59
	15-Dec-10	---	---	---	900	480	12.0	---	100	180	40.0	---	560	---
	09-Dec-11	2300	-8.1	-65.2	930	530	14.0	1.20	94.0	210	47.0	15.0	690	0.89
	04-Oct-12	---	---	---	920	520	14.0	---	---	178	46.2	---	637	---
	27-Nov-12	---	---	---	930	520	15.6 *	---	100	168	45.0	---	564	---
	12-Mar-13	---	---	---	930	530	9.51 *	---	100	186	48.7	---	662	---
	04-Dec-13	2600	-8.41	-64.1	890	520	18.0 *	1.00	110	160	41.0	12.0	670	0.93
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)

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-27-20	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	---
	04-Nov-13	---	---	---	76.0	210	ND (0.01) *	---	150	73.0 J	23.0	---	80.0	---
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	---
	05-Nov-13	---	---	---	1900	580	ND (0.01) *	---	250	100	29.0	---	83.0	---
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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-30-30	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	---
	04-Nov-13	---	---	---	1200	600	0.0174 *	---	470	52.0	37.0	---	1100	---
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
	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	---
	04-Nov-13	---	-12.6	-101.0	110	200	ND (0.01) *	---	200	57.0	15.0	---	160	---
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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-31-60	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
	03-Dec-13	1900	-8.56	-66.4	870	220	3.53 *	ND (0.5)	78.0	140	24.0	6.40	520	0.48
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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-32-20	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	---
	16-Dec-13	---	---	---	13000	5400	0.0427 *	---	1500	970	530	---	11000	---
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
	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
	06-Nov-13	8300	-11	-87.2	3500	1600	0.0482 *	ND (2.5)	580	450	210	23.0	2500	1.20
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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-34-55	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
	20-Nov-13	600	-13.1	-103.0	72.0	210	ND (0.01) *	ND (0.5)	150	69.0	19.0	4.30	88.0	0.13
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
	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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-34-80	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	---
	20-Nov-13	4500	-11.4	-88.0	1900	620	ND (0.01) *	ND (1.0)	260	210	52.0	14.0	1300	0.96
	20-Nov-13 FD	4600	-11.2	-88.4	1900	620	ND (0.01) *	ND (1.0)	260	210	56.0	14.0	1200	1.00
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
	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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L) Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-34-100	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
	20-Nov-13	10000	-10.2	-78.9	5300	1200	0.422 *	ND (2.5)	120	140	8.00	35.0	3900	2.60
	20-Nov-13 FD	10000	-9.81	-79.3	5300	1100	0.419 *	ND (2.5)	120	150	8.50	35.0	3900	2.70
Surface Water Stations														
R-27	07-Mar-05	669	-12.3	-102.0	92.7	244	ND (0.5)	ND (0.5)	136	82.8	31.3	4.72	108	ND (0.2)
	14-Jun-05	686	-11.4	-92.0	90.9	266	ND (0.5)	ND (0.5)	127	81.9	29.8	6.04	98.9	ND (0.2)
	05-Oct-05	678	-11.6	-94.0	85.1	255	ND (0.5)	ND (0.5)	130	101	36.2	6.56	91.2	ND (0.2)
	16-Dec-05	718	-11.7	-87.0	87.9	253	ND (0.5)	ND (0.5)	126	85.5	29.5	5.99	75.6	ND (0.2)
	06-Mar-06	656	-11.8	-92.1	90.6	268	ND (0.5)	ND (0.5)	144	83.5	29.4	5.44 J	101	ND (0.2)
	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

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
										Calcium	Magnesium	Potassium	Sodium	Boron
Surface Water Stations														
R-27	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
	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)

TABLE F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2013

Fourth Quarter 2013 and Annual 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 (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
										Calcium	Magnesium	Potassium	Sodium	Boron
Surface Water Stations														
R-28	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)
	21-Nov-13	564	-12.8	-103.0	80.4	220	0.293 *	ND (0.5)	131	73.2	26.2	4.44	84.7	0.121

Notes:

(---) = data not collected or available.
0/00 = differences from global standards in parts per thousand.
FD = field duplicate sample.
J = concentration or reporting limit estimated by laboratory or data validation.
mg/L = milligrams per liter.
ND =parameter not detected at the listed reporting limit.

Alkalinity (total) reported as calcium carbonate.

* Nitrate as nitrogen was not requested. Nitrate/nitrite as nitrogen is shown.

[a] Data collected February 2011 due to field logistical issues.

Appendix G
Interim Measure Extraction System Operations Log, November 2013 through December 2013

APPENDIX G

Interim Measures Extraction System Operations Log, Fourth Quarter 2013, PG&E Topock Performance Monitoring Program, Needles, California

During Fourth Quarter 2013 (November and December), extraction wells TW-3D and PE-1 operated at a target pump rate of at 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S ran for a short period of time on December 19, 2013 for the fourth quarter GMP sampling event. The operational run time for the Interim Measure groundwater extraction system (combined or individual pumping) was approximately 98.2 percent during Fourth Quarter 2013.

The Interim Measure Number 3 (IM-3) facility treated approximately 11,585,427 gallons of extracted groundwater during Fourth Quarter 2013. The IM-3 facility also treated approximately 1,935 gallons of water generated from the groundwater monitoring program and 11,700 gallons of water from IM-3 well backwashing. Four 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 1.8 percent of downtime during Fourth 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.

G.1 November 2013

- **November 4, 2013 (planned):** The extraction well system was offline from 10:46 a.m. to 12:56 p.m. to change microfilter modules. Extraction system downtime was 2 hours, 10 minutes.
- **November 5, 2013 (unplanned):** The extraction well system was offline from 2:14 a.m. to 3:10 a.m. due to a high-level alarm in the raw water tank (T-100). Extraction system downtime was 56 minutes.
- **November 5, 2013 (unplanned):** The extraction well system was offline from 3:36 p.m. to 3:44 p.m. due to a loss of power from the City of Needles. Extraction system downtime was 8 minutes.
- **November 6, 2013 (unplanned):** The extraction well system was offline from 10:12 to 10:56 a.m. for maintenance on the microfilters. Extraction system downtime was 44 minutes.
- **November 6, 2013 (unplanned):** The extraction well system was offline from 1:16 p.m. to 1:18 p.m., from 1:26 p.m. to 1:30 p.m., from 1:32 p.m. to 1:34 p.m., from 1:50 p.m. to 1:52 p.m., and from 1:56 p.m. to 1:58 p.m. to test critical alarms and leak detection system. Extraction system downtime was 12 minutes.
- **November 7, 2013 (unplanned):** The extraction well system was offline from 10:02 a.m. to 11:12 a.m. to repair a leak in the extraction pipeline. Extraction system downtime was 1 hour, 10 minutes.
- **November 20, 2013 (unplanned):** The extraction well system was offline from 1:20 a.m. to 3:42 a.m. due to a rupture in a microfilter hose. Extraction system downtime was 2 hours, 22 minutes.
- **November 20, 2013 (unplanned):** The extraction well system was offline from 9:54 a.m. to 1:34 p.m. for plant maintenance, including changing the microfilter membranes and microfilter strainer cleaning. Extraction system downtime was 3 hours, 40 minutes.
- **November 21, 2013 (unplanned):** The extraction well system was offline from 8:04 p.m. to 8:14 p.m. to switch to generator power due to storms in the area. Extraction system downtime was 10 minutes.
- **November 22, 2013 (unplanned):** The extraction well system was offline from 2:00 a.m. to 2:08 a.m. to return to City of Needles' power. Extraction system downtime was 8 minutes.

- **November 25, 2014 (planned):** The extraction well system was offline from 1:20 p.m. to 2:04 p.m. to prepare for maintenance of the injection pipeline. Extraction system downtime was 44 minutes.
- **November 26, 2014 (planned):** The extraction well system was offline from 6:48 a.m. to 1:50 p.m. for maintenance of the injection pipeline. Extraction system downtime was 7 hours, 2 minutes.
- **November 27, 2013 (unplanned):** The extraction well system was offline and the treatment plant was in recirculation mode from 12:50 p.m. to 7:12 p.m. due to off-spec chromium concentrations within the plant. Extraction system downtime was 6 hours, 22 minutes.

G.2 December 2013

- **December 2, 2013 (unplanned):** The extraction well system was offline from 9:44 a.m. to 10:18 a.m. due to polymer flocking problems in the clarifier. Extraction system downtime was 34 minutes.
- **December 6, 2013 (planned):** The extraction well system was offline from 12:06 p.m. to 12:08 p.m. and 12:16 p.m. to 12:18 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 4 minutes.
- **December 19, 2013 (unplanned):** The extraction well system was offline from 11:40 a.m. to 11:42 a.m. due to a loss of power from the City of Needles. Extraction system downtime was 2 minutes.

Appendix H
Groundwater Analytical Results for Field Trial of Alternative Sampling Approaches

Groundwater Analytical Results for Field Trial of Alternative Sampling Approaches

PREPARED FOR: Pacific Gas and Electric Company

PREPARED BY: CH2M HILL

DATE: March 2014

This memorandum presents the results of a field trial of alternative groundwater sampling approaches at the Pacific Gas and Electric Company (PG&E) Topock site in Needles, California (site). The field-trial results presented herein were proposed in a July 24, 2012 technical memorandum, *Topock – Proposed Technical Trial for Alternative Sampling Approaches at Selected Monitoring Wells* (Work Plan) (CH2M HILL, 2012a). Modifications to the Work Plan, including changing some of the monitoring wells included in the study, were requested by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) (Chris Guerre, email dated August 13, 2012) and were incorporated into the field trial.

The trial tested two alternative sampling approaches: HydraSleeve™ (HS) and micropurge (MP) (minimal drawdown purging or low flow purging). These alternative sampling methods offer significant advantages in terms of reducing investigation-derived waste and in reducing the overall sampling footprint in terms of time in the field and energy use.

Groundwater sample results from the alternative sampling methods were compared to results from the minimum three-casing-volume purge method (three-volume purge) currently used for Topock groundwater sample collection to evaluate whether either (or both) of the two alternative sampling techniques could produce data of sufficient quality for compliance and/or process control monitoring of the final groundwater remedy. The first step was to prepare maps presenting data for selected analytes from each sampling method grouped by aquifer depth to evaluate potential changes to the chromium or contaminants of potential concern (COPCs) distribution using the alternative methods. Second, linear regression plots of the chromium data were prepared to determine whether the three sample collection methods produced comparable results regardless of well location, well construction, or depth.

As summarized below, the trial identified both MP and HS sampling as viable alternative groundwater sampling approaches. Because there was generally slightly less variability in the MP data than HS data, it is recommended that, beginning in 2014, MP sampling techniques be implemented for sample collection at selected monitoring wells.

Background

The groundwater monitoring programs at Topock collectively require over 350 well purges per year using the currently accepted sampling approach for site wells:[1] a minimum three-casing-volume purge followed by sample collection after stabilization of groundwater indicator quality parameters. This sampling approach results in a large amount of purge water compared to the other two sampling approaches included in the alternative sampling methods trial. As more wells are added to the monitoring program during the final remedy, the volume of purge water is anticipated to increase. Current estimates are that about 100,000 gallons per year of purge water would be produced once the final remedy is in place, if the current three-volume-purge method is continued. The use of alternative purging methods offers an opportunity to

[1] There are a few wells in the site groundwater sampling program that do not yield adequate volume for a three volume purge prior to sample collection. A modified low-yield sampling protocol is used for sample collection at these wells. None of the low-yield wells were included in the technical trial of alternative sampling approaches.

reduce purge water volume, impact or footprint for remedy monitoring at well locations, and emissions or on-site vehicle travel from purge water handling.

Details on the two alternative sampling approaches were presented in the Work Plan and are briefly summarized below:

- The HS sampling system (http://www.hydrasleeve.com/index.php), manufactured by GeoInsight, allows for collection of a representative sample for most physical and chemical parameters without purging the well. The chief advantages of HS is that it is an inexpensive, disposable sampler that allows for rapid installation and depth-discrete (no mixing) sample collection, does not generate purge water, and provides water samples for all analytical parameters (organics, metals, and general chemistry analytes) necessary for the site.
- The MP sampling approach involves removing a small volume of water at a low flow rate from a discrete portion of the screened interval of a well without mixing water in the well and causing minimal stress (drawdown) in the aquifer. Purging is considered complete when field parameters stabilize. There is extensive precedent for this approach of purging at many other sites. The MP sampling approach typically uses traditional well purging equipment (that is, 12-volt electric, submersible, peristaltic, or bladder pumps) at purge rates from 0.1 to 0.5 liter per minute to achieve this objective.

Wells Selected for Technical Trial

The 18 monitoring wells used in the trial are listed in Table H-1. These wells were sampled during each of the three quarterly sampling events, as shown in Table H-1 and on Figures H-1 through H-3. Sample collection for the trial began in Third Quarter 2012 and continued through First Quarter 2013. Wells were selected to provide a diverse sampling set, considering the following factors:

- **Location within the site, such as floodplain or upland**. Upland wells are generally screened in alluvial sediments or, in some cases, bedrock and often contain a higher salinity than other site wells. Floodplain wells are screened in either fluvial or alluvial sediments and generally have lower salinity than other site wells.
- **Aquifer depth zone.** Included wells are screened across various depth intervals, including the shallow, mid-depth, deep portion of the alluvial aquifer and bedrock aquifer zones.
- **Previous hexavalent chromium (Cr[VI]) concentration.** Cr(VI) concentrations in monitoring wells used for the trial ranged from nondetect to 12,100 micrograms per liter (µg/L).
- **Purge Volume and Purge Rate.** Wells included in the project include a range of purge volumes (dependent on casing diameter and water column depth) and a range of purge rates.

Field Sample Collection Methods

The HS and MP sampling methods were used in combination with the traditional three-volume-purge during this trial. Three individual sample sets were collected at each monitoring well during three sampling "events" in the study. One groundwater sample set was collected using each method in the following sequence:

- Remove dedicated pump and pressure transducer (if present).
- Deploy HS sampler and pressure transducer (if present) in well casing at least 1 week prior to removal for sample collection.
- Remove pressure transducer (if present) and HS sampler, and collect HS groundwater samples.
- Install pump following HS removal.
- Purge and sample using MP sample method.

- Purge and sample using standard three-volume-purge method.

Sample Collection and Laboratory Analysis

There are no sample volume constraints with the three-volume-purge or MP methods, but there are volume constraints with HS sampling. To obtain a total sample volume of approximately 1.5 liters per well, two 36-inch-long, 2-inch-diameter (1-liter-volume) HS samplers were used at each well during each sampling event. After the two HS samplers were retrieved, the samplers were poured into a 2-liter container for homogenization. Homogenization of the two HS samples was conducted to remove any depth-specific affects from having HS samplers deployed over a 72-inch portion of the screen interval. A peristaltic pump was used to pump groundwater from the container and provide filtering while filling sample bottles.

Sample bottles were filled for the analytes listed below in the following order:

1. Cr(VI)
2. Dissolved metals (chromium, molybdenum, selenium, arsenic, manganese, calcium, magnesium, sodium, and iron)
3. Alkalinity and anions (chloride, sulfate, and nitrate)

Samples from each of the three methods were sent to the same laboratories used for the normal three-volume-purge samples. Data validation and management were conducted in accordance with the *Quality Assurance Project Plan*, *Addendum to the PG&E Program Quality Assurance Project Plan for the Topock Groundwater Monitoring and Investigation Projects* (CH2M HILL, 2008, 2012b).

Field Trial Results

Table H-2 includes the complete laboratory analytical data for the sampling study. Results from the two-alternative sampling methods and comparison to the three-volume-purge results are discussed below. Attachment H1 provides time series scatter plots for each analyte and sampling method.

Hexavalent Chromium Maps

Figures H-1 through H-3 present the Cr(VI) sample results for monitoring wells in each zone of the Alluvial Aquifer: shallow (including shallow bedrock well MW-61-110), mid-depth, and deep for each sampling method from the third and fourth quarters of 2012 and the first quarter of 2013, respectively. The top line of each data box presents the current standard of three-volume-purge results, the middle line present MP results, and the bottom line presents HS results. Bar charts comparing the Cr(VI) sample results for each of the trial sample methods and each of the monitoring wells in the study are included in Attachment H2.

Key findings for shallow zone monitoring are summarized below:

- As shown on Figure H-1, generally comparable results were reported for all three methods at four of the six shallow alluvial wells in the study: MW-12, MW-20-70, MW-26, and MW-59-100.
- At interior well MW-19 (near Route 66), a Cr(VI) concentration approximately 50 percent lower than three volumes was reported for MP samples during all three sampling events. HS samples were similarly lower than three-volume-purge samples in Fourth Quarter 2012 and First Quarter 2013.
- Cr(VI) concentrations at sentry floodplain monitoring well MW-47-55 were generally comparable between three-volume-purge and MP methods, but were approximately 20 µg/L greater in the HS samples compared to the three-volume-purge and MP results in the Third Quarter 2012 and First Quarter 2013 monitoring events.
- Sample results for shallow East Ravine bedrock well MW-61-110 were generally comparable between three-volume-purge and MP samples during the Third and Fourth Quarter 2012 sampling events. However, MP results for First Quarter 2013 were approximately 500 µg/L less than the three-volume-purge samples (120 µg/L compared to 637 µg/L).

- Bedrock well MW-61-110 sample results were significantly different (less than) between the HS samples and three-volume-purge samples in all three sample events. Additional assessment of alternative sampling methods in short-screen bedrock wells will be necessary before recommending alternative sampling approaches for these wells.

Key findings for mid-depth zone monitoring are summarized below:

- As shown on Figure H-2, results for mid-depth monitoring wells generally had comparable results for all three methods at the four wells in the study: MW-20-100, MW-33-90, MW-50-95, and MW-51.
- More variability was reported for the MW-33-90 MP and HS samples compared to three-volume-purge samples than other mid-depth wells. During Third Quarter 2012, the MP result for MW-33-90 was anomalously low (4 µg/L) compared to three-volume and HS samples. Nevertheless, Cr(VI) concentrations at MW-33-90 did not exceed 17 µg/L in three-volume-purge samples during the three sampling events. This level is about half of the background study upper tolerance limit of 32 µg/L. Therefore, the use of sample results for any of the three sampling methods during the study would have no significant effect on project decision-making.

Key findings for deep zone monitoring are summarized below:

- As shown on Figure H-3, generally comparable results were reported for all three methods at the seven deep wells in the study with the exception of MW-36-100 where MP and HS sample results fluctuated above and below the three volume purge results.
- In Third Quarter 2012, results for deep floodplain well MW-46-175 were less than 32 µg/L in both the HS and MP samples and the three-volume purge sample result was 46.7 µg/L. Using HS or MP data would have resulted in a slight westward (retreat) shift of the 32 µg/L Cr(VI) contour outline.

Figures H-1 through H-3 confirm that the differences of sample results between the methods do not change plume definition to a significant degree. Cr(VI) sample results were generally comparable for the majority of the monitoring wells included during the study for all three sampling methods. Other than MW-47-55, where a slight expansion of the 32 µg/L Cr(VI) outline would be made using HS or MP data, no significant changes to the 32 µg/L Cr(VI) outline would be needed if the Cr(VI) results for alternative purge methods were used to develop the 32 µg/L Cr(VI) outline.

Molybdenum, Nitrate, and Selenium Maps

Figures H-4A through H-6C present the sample results for non-chromium COPCs, which include molybdenum, nitrate, and selenium (complete results are shown in Table H-2). Similar to the Cr(VI) maps, data are posted for monitoring wells completed in each depth zone of the Alluvial Aquifer (and bedrock for shallow well MW-61-110) for each sampling event in the study. The top line of each data box presents the current standard of three-volume-purge results, the middle line present MP results, and the bottom line presents HS results. COPC results were generally similar among the three sample methods.

Cr(VI) Linear Regression Plots

Figures H-7A through H-8B present linear regression plots of the Cr(VI) data. These plots were prepared to evaluate the comparability of the three sample collection methods regardless of well location, well construction, or depth. The data are plotted with the three-casing volume purge result on the horizontal axis and the alternative sample method result on the vertical axis. Each plot has a solid linear regression line that represents the line of best fit around the data points. In addition, an orange 1:1 line is provided to illustrate the slope of the ideal regression line if results for both methods were identical. A 95-percent confidence interval is shown as dashed blue lines on either side of the solid green linear regression line. The correlation coefficient (r^2) is a measure of how closely the results from the two sampling methods match one another. If there was perfect correlation (i.e. no difference between any of the results), r^2 would equal 1. R-squared (r^2) results are close to 1 for all plots indicating that the Cr(VI) sample results were generally

comparable for the three methods, even with the inclusion of the anomalous results discussed in the map review of the data above.

Key observations from these figures are summarized below:

- Cr(VI) results for HS samples are plotted with the three-volume-purge data on Figure H-7A. An r^2 value of 0.89 indicates that the Cr(VI) sample results for both HS and three-volume purge were generally comparable. The orange 1:1 line is almost the same as the green linear regression line, indicating that there was no systematic bias between either sampling method; that is, there are equal numbers of samples from each sampling method that are above and below the 1:1 line.
- HS Cr(VI) results less than 150 µg/L were also plotted with the three-volume-purge data on Figure H-7B to more clearly illustrate the correlation between lower Cr(VI) concentrations. As shown on Figure H-7B, the green linear regression line is steeper than the orange 1:1 line in this concentration range, indicating that the HS sample results in this range were generally greater than the three-volume-purge samples. A lower r^2 value of 0.70 is a result of more variability within sample results in the 0-150 µg/L range.
- Cr(VI) results for MP were plotted with the three-volume purge data on Figure H-8A. An r^2 value of 0.90 indicates that the Cr(VI) sample results for both MP and three-volume-purge samples were comparable and that there was slightly less variability between MP and three-volume-purge data overall than HS and three-volume-purge results (r^2 value of 0.89). The orange 1:1 line (past about 1,500 µg/L) is greater than the green linear regression line, indicating that the MP sample results were generally a little lower than three-volume-purge results.
- Cr(VI) results less than 150 µg/L for MP were plotted with the three-volume-purge data on Figure H-8B to more clearly illustrate the correlation between Cr(VI) concentrations in this range. As shown on Figure H-8B, the green linear regression line is similar to the orange 1:1 line in this concentration range, indicating that the MP sample results in this concentration range were more comparable to the three-volume-purge results than higher Cr(VI) concentrations. An r^2 value of 0.78 is a result of more variability within sample results in the 0 to 150 µg/L range.

Molybdenum, Nitrate, and Selenium Linear Regression Plots

Cr(VI) is the primary contaminant of concern for the site, and molybdenum, nitrate, and selenium are secondary COPCs; therefore, linear regression plots were also prepared for these COPCs. Similar to the Cr(VI) plots, a green linear regression line and an orange 1:1 line were plotted to compare the sampling methods. Briefly, the following observations are evident:

- Dissolved molybdenum results for HS and MP were plotted with the three-volume-purge data on Figures H-9A and H-9B, respectively.
  - r^2 was 0.61 for HS samples compared to three-volume purge (Figure H-9A); generally higher results were reported for HS samples.
  - r^2 was 0.93 for MP compared to three-volume purge (Figure H-9B); comparable results were reported for both methods.
  - These results indicate that there was significantly less variability in the MP sample results compared to three-volume-purge data than HS data compared to three-volume-purge data.
- Nitrate (as Nitrogen) results for HS and MP were plotted with the three-volume-purge data on Figures H-10A and H-10B, respectively.
  - r^2 was 0.76 for HS compared to three-volume purge (Figure H-10A); comparable results were reported for both methods.
  - r^2 was 0.85 for MP compared to three-volume purge (Figure H-10B); comparable results were reported for both methods.

  - These results indicate that there was also less variability in the MP sample results compared to three-volume-purge data than HS data compared to three-volume-purge data.

- Dissolved selenium results for HS and MP were plotted with the three-volume-purge data on Figures H-11A and H-11B, respectively.
  - r^2 was 0.90 for HS compared to three-volume purge (Figure H-11A).
  - r^2 was 0.90 for MP compared to three-volume purge (Figure H-11B).
  - Both of these methods yielded comparable results to three-volume-purge data with a bias towards greater concentrations for the HS and MP samples.

Conclusions

The MP Cr(VI) sample results are in agreement with the standard three-volume purge for most of the 18 wells in the study (with a bias towards lower concentrations at some wells)Deviations in concentration appear to reflect conditions associated with individual well and sampling events rather than a more general cause associated with a portion of the site, depth interval, or systematic bias in sampling method. Likewise, sample results for the COPCs molybdenum, nitrate (as N), and selenium indicate that most well MP samples are in agreement with the standard three-volume purge, with less variability overall than the Cr(VI) results.

The HS sample results for Cr(VI), molybdenum, nitrate (as N), and selenium also generally show equal numbers of samples with higher or lower concentration from three-volume purge with a little more overall variability. As with MP, certain wells show either consistently greater or consistently lower HS concentrations compared to three-volume-purge samples. Nevertheless, HS results were also generally comparable to the three-volume-purge results.

Recommendations

A revised sampling program that incorporates replacing the currently used three-volume-purge sampling method with MP sampling should be developed for wells completed in alluvial and or fluvial sediments. The results from this study demonstrate that MP and/or HS sampling could be implemented without causing significant changes in interpretation of Cr(VI) plume definition or the COPC distribution. The alternative sampling methods also appear viable for redox sensitive analytes and the dissolved metals and ions included in the study. The generally lower variability between MP and three-volume-purge samples suggests that MP samples would generally be preferable to HS, particularly at sentry or compliance monitoring wells used for Cr(VI) plume definition. HS samples appear to be a viable alternative for collection of plume core Cr(VI) samples, COPCs, and other analytes and would be a more cost-effective and sustainable sampling method for process sample collection during final remedy implementation and future long-term monitoring.

The single bedrock well in the study (MW-61-110) consistently yielded lower sample results for HS and MP samples compared to three-volume-purge samples. Additional study will be necessary to make recommendations for using MP or HS sampling at screened bedrock wells.

References

CH2M HILL. 2008. *PG&E Program Quality Assurance Project Plan, Addendum to the PG&E Program Quality Assurance Project Plan for the Topock Groundwater Monitoring and Investigation Projects*. December.

_____. 2012a. *Technical Memorandum*: *Topock – Proposed Technical Trial for Alternative Sampling Approaches at Selected Monitoring Wells.* July 24.

_____. 2012b. *PG&E Program Quality Assurance Project Plan, Addendum to the PG&E Program Quality Assurance Project Plan for the Topock Groundwater Monitoring and Investigation Projects*. (In Preparation).

Tables

Table 1 Well Selected for Groundwater Sampling Technology Trial

Groundwater Analytical Results for Field Trial of Alternative Sampling Approaches

PG&E Topock Compressor Station, Needles California

Well	[a]Normal Sampling Frequency	Aquifer Zone / Depth	Screen Length (ft btoc)	Water Column Above Screen (ft)	Site Area	Range of Cr(VI) Results 2011 (µg/L)	Range of Lab SC results 2011 (µS/cm)	Current Sampling Technique
MW-12	Quarterly	Shallow	27.5-47.5	-2	Upland	2,000 - 3,000	6,400 - 6,700	3-volume purge
MW-19	Semiannually	Shallow	46-66	0	Route 66	289 - 497	2,000 - 2,200	3-volume purge
MW-20-070	Semiannually	Shallow	50-70	4	Floodplain	3,130 - 3,570	2,600 - 2,700	3-volume purge
MW-20-100	Semiannually	Mid-depth	90-100	43	Floodplain	3,770 - 5,640	2,800 - 3,100	3-volume purge
MW-20-130	Semiannually	Deep	121-131	72	Floodplain	10,900 - 12,100	10,000 - 12,000	3-volume purge
MW-26	Semiannually	Shallow	51.5-71.5	4	Route 66	1,810 - 2,010	4,000-4,000	3-volume purge
MW-33-90	Quarterly	Mid-depth	69-89	35	Floodplain	17 - 25	9,600 - 10,000	3-volume purge
MW-36-100	Semiannually	Deep	88-98	70	Floodplain	56 -73	9,700 - 10,000	3-volume purge
MW-44-115	Quarterly	Deep	105-115	86	Floodplain	150 - 240	9,990 - 11000	3-volume purge
MW-44-125	Quarterly	Deep	116-125	97	Floodplain	ND - 65	9,800 - 12,000	3-volume purge
MW-46-175	Quarterly	Deep	165-175	136	Floodplain	34 - 121	16,000 - 17,000	3-volume purge
MW-47-055	Semiannually	Shallow	45-55	15	Floodplain	19 - 25	4,300 - 4,600	3-volume purge
MW-47-115	Semiannually	Deep	105-115	75	Floodplain	17 - 24	12,000 - 14,000	3-volume purge
MW-50-095	Quarterly	Mid-depth	85-95	43	Upland	14 - 18	5,000 - 5,100	3-volume purge
MW-50-200	Quarterly	Deep	190-200	147	Upland	7,800 - 10,200	17,000 - 19,000	3-volume purge
MW-51	Semiannually	Mid-depth	97-112	50	Route 66	4,730 - 4,810	10,000-10,000	3-volume purge
MW-59-100	Quarterly	Shallow	86-101	0	Upland	4,000 - 5,100	9,000 - 10,000	3-volume purge
MW-61-110	Quarterly	Shallow Bedrock	92-112	4	East Ravine	522 - 684	15,000 - 16,300	3-volume purge

a) The trial period included third quarter 2012, fourth quarter 2012 and first quarter 2013. All proposed wells were sampled during each event.

Abbreviations

ft btoc = feet below top of casing; ND = non-detect; Q = quarterly; SA = semi-annual

HS = Hydrasleeve

Table 2
Groundwater Results
Sampling Methods Technology Field Trial, Third Quarter 2012 - First Quarter 2013
PG&E Topock Compressor Station, Needles, California

Well ID	Sample Date	Sample Method	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, hydroxide mg/L	Alkalinity, total as CaCO3 mg/L	Chloride mg/L	Fluoride mg/L	Nitrate as Nitrogen mg/L	Sulfate mg/L	Specific conductance µS/cm	Arsenic, dissolved µg/L	Calcium, dissolved mg/L	Chromium Hexavalent µg/L	Chromium, dissolved µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Magnesium, dissolved mg/L	Molybdenum, dissolved µg/L	Sodium, dissolved mg/L	Selenium, dissolved µg/L
MW-12	10/02/2012	Hydrasleeve	130	ND (5.00)	ND (5.00)	130	1,800	---	10.0	460	6,800	39.6	34.3	2,770	2,840	ND (20.0)	ND (0.5)	7.37	11.7	1,590	13.4
	10/02/2012	Minimal Drawdown	150	ND (5.00)	ND (5.00)	150	1,600	---	11.0	410	6,200	38.2	31.6	2,500	2,480	ND (20.0)	ND (0.5)	6.77	15.6	1,460	13.2
	10/02/2012	Three Volume	120	ND (5.00)	ND (5.00)	120	1,900	---	10.0	480	7,100	42.4	32.8	2,740	2,970	ND (20.0)	ND (0.5)	6.86	10.3	1,640	13.0
	11/27/2012	Hydrasleeve	150	ND (5.00)	ND (5.00)	150	1,600	---	13.2	450	6,100	37.7	30.1	2,470	2,310	ND (20.0)	ND (0.5)	6.64	15.4	1,250	12.5
	11/27/2012	Minimal Drawdown	130	ND (5.00)	ND (5.00)	130	1,600	---	13.2	460	6,200	38.3	28.7	2,170	2,300	ND (20.0)	0.71	6.35	13.2	1,240	13.4
	11/27/2012	Three Volume	120	ND (5.00)	ND (5.00)	120	1,800	---	13.1	460	6,700	38.5	30.0	2,310	2,630	ND (20.0)	ND (0.5)	6.76	12.7	1,310	13.6
FD	02/26/2013	Hydrasleeve	---	---	---	---	---	---	12.1	---	---	40.5	32.4	2,560	2,520	ND (20.0)	ND (0.5)	6.29	11.8	1,300	11.8
	02/26/2013	Hydrasleeve	---	---	---	---	---	---	12.2	---	---	38.9	31.8	2,560	2,380	ND (20.0)	ND (0.5)	6.40	11.8	1,290	11.3
FD	02/26/2013	Minimal Drawdown	110	ND (5.00)	ND (5.00)	110	1,700	---	12.4	460	6,200	38.8	33.6	2,660	2,480	ND (20.0)	ND (0.5)	6.72	9.4	1,300	11.9
	02/26/2013	Minimal Drawdown	120	ND (5.00)	ND (5.00)	120	1,700	---	12.4	460	6,300	38.2	32.5	2,650	2,450	ND (20.0)	ND (0.5)	6.55	8.8	1,260	11.5
FD	02/26/2013	Three Volume	120	ND (5.00)	ND (5.00)	120	1,800	---	12.7	450	6,500	45.9	32.4	2,570	2,850 J	ND (20.0)	ND (0.5)	6.63	11.2	1,390	14.0
	02/26/2013	Three Volume	120	ND (5.00)	ND (5.00)	120	1,800	---	12.5	450	6,500	46.5	31.9	2,580	2,610 J	ND (20.0)	ND (0.5)	6.74	8.8	1,340	14.6
FD	03/12/2013	Hydrasleeve	110	ND (5.00)	ND (5.00)	110	1,800	---	---	470	6,600	---	---	---	---	---	---	---	---	---	---
	03/12/2013	Hydrasleeve	110	ND (5.00)	ND (5.00)	110	1,800	---	---	470	6,600	---	---	---	---	---	---	---	---	---	---
MW-19	10/03/2012	Hydrasleeve	94.0	ND (5.00)	ND (5.00)	94.0	500	---	4.40	170	2,300	0.9	94.3	316	313	ND (20.0)	ND (0.5)	15.6	7.4	301	ND (5.0)
	10/03/2012	Minimal Drawdown	95.0	ND (5.00)	ND (5.00)	95.0	550	---	4.30	170	2,300	1.0	97.6	140	133	ND (20.0)	ND (0.5)	15.7	5.6	300	ND (5.0)
	10/04/2012	Three Volume	92.0	ND (5.00)	ND (5.00)	92.0	510	---	4.20	170	2,200	0.83	96.4	250	241	ND (20.0)	ND (0.5)	14.6	6.5	304	ND (5.0)
	11/26/2012	Hydrasleeve	97.0	ND (5.00)	ND (5.00)	97.0	500	---	5.00	160	2,200	1.0	101	97.4	103	ND (20.0)	ND (0.5)	17.0	5.7	299	ND (5.0)
	11/26/2012	Minimal Drawdown	97.0	ND (5.00)	ND (5.00)	97.0	500	---	4.92	160	2,100	0.86	97.9	92.3	99.5	ND (20.0)	0.75	16.1	5.1	291	ND (5.0)
	11/26/2012	Three Volume	93.0	ND (5.00)	ND (5.00)	93.0	510	---	4.88	170	2,200	1.0	97.3	209	212	ND (20.0)	ND (0.5)	16.1	6.5	283	ND (5.0)
	03/12/2013	Hydrasleeve	93.0	ND (5.00)	ND (5.00)	93.0	480	---	4.32	160	2,100	0.95	104	132	128	ND (20.0)	ND (0.5)	16.2	4.6	306	ND (5.0)
	03/12/2013	Minimal Drawdown	93.0	ND (5.00)	ND (5.00)	93.0	480	---	4.37	160	2,100	1.1	104	135	141	ND (20.0)	ND (0.5)	16.0	4.6	308	ND (5.0)
	03/12/2013	Three Volume	94.0	ND (5.00)	ND (5.00)	94.0	500	---	13.6	160	2,100	1.0	103	202	197	ND (20.0)	ND (0.5)	16.2	4.9	314	ND (5.0)
MW-20-70	10/04/2012	Hydrasleeve	---	---	---	---	420	---	7.50	280	2,200	0.77	71.1	2,790	2,730	ND (20.0)	ND (0.5)	19.9	46.2	327	6.0
	10/04/2012	Minimal Drawdown	---	---	---	---	430	---	7.70	270	2,200	2.6	72.7	2,760	2,770	ND (20.0)	ND (0.5)	20.9	40.4	342	5.7
	10/04/2012	Three Volume	---	---	---	---	430	---	8.40	290	2,300	2.6	76.2	3,280	3,030	ND (20.0)	ND (0.5)	22.9	39.5	346	6.3
	11/27/2012	Hydrasleeve	94.0	ND (5.00)	ND (5.00)	94.0	430	---	9.57	300	2,200	2.0	72.2	2,770	2,640	ND (20.0)	4.5	19.6	40.7	338	5.0
	11/27/2012	Minimal Drawdown	91.0	ND (5.00)	ND (5.00)	91.0	440	---	9.75	300	2,200	2.2	74.1	2,920	2,770	62.4	2.3	21.6	40.9	338	5.5
	11/27/2012	Three Volume	89.0	ND (5.00)	ND (5.00)	89.0	450	---	10.6	290	2,300	1.9	79.2	3,020	3,110	ND (20.0)	0.55	22.2	38.9	350	5.9
	03/12/2013	Hydrasleeve	100	ND (5.00)	ND (5.00)	100	380	---	7.54	270	2,000	2.7	65.5	2,620	2,480	ND (20.0)	0.52	16.1	54.9	336	5.0
	03/12/2013	Minimal Drawdown	90.0	ND (5.00)	ND (5.00)	90.0	420	---	8.14	280	2,100	2.4	77.3	2,990	2,900	ND (20.0)	ND (0.5)	19.4	45.6	344	5.4
	03/12/2013	Three Volume	87.0	ND (5.00)	ND (5.00)	87.0	440	---	8.60	290	2,200	2.4	82.8	3,160	3,310	ND (20.0)	ND (0.5)	22.3	35.9	358	6.5
MW-20-100	10/04/2012	Hydrasleeve	---	---	---	---	530	---	13.0	380	2,700	2.2	157	4,610	4,540	ND (20.0)	0.72	26.8	5.1	382	6.9
	10/04/2012	Minimal Drawdown	---	---	---	---	530	---	13.0	380	2,700	2.2	152	4,570	4,580	ND (20.0)	ND (0.5)	26.5	4.4	374	6.9
	10/04/2012	Three Volume	---	---	---	---	570	---	12.0	390	2,900	1.7	157	3,700	3,590	ND (20.0)	ND (0.5)	27.8	3.9	400	6.8
	11/29/2012	Hydrasleeve	99.0	ND (5.00)	ND (5.00)	99.0	530	---	14.2	360	2,400	2.1	142	3,630	3,520	ND (20.0)	ND (0.5)	25.2	4.3	350	5.8
	11/29/2012	Minimal Drawdown	100	ND (5.00)	ND (5.00)	100	540	---	14.1	350	2,500	2.2	142	3,270	3,610	ND (20.0)	ND (0.5)	25.2	4.6	374	5.9
	11/29/2012	Three Volume	110	ND (5.00)	ND (5.00)	110	570	---	12.9	350	2,600	2.9	149	2,910	3,090	ND (20.0)	ND (0.5)	30.6	4.3	376	5.1
	03/13/2013	Hydrasleeve	100	ND (5.00)	ND (5.00)	100	510	---	6.34	350	2,500	1.7	150	3,540	4,240	ND (20.0)	ND (0.5)	25.2	4.0	357	ND (5.0)
	03/13/2013	Minimal Drawdown	110	ND (5.00)	ND (5.00)	110	500	---	6.50	360	2,500	2.1	155	3,850	3,650	ND (20.0)	ND (0.5)	25.7	3.8	365	5.6
	03/13/2013	Three Volume	120	ND (5.00)	ND (5.00)	120	560	---	6.27	370	2,600	2.0	164	3,170	3,290	ND (20.0)	ND (0.5)	27.8	3.8	388	6.5
MW-20-130	10/09/2012	Hydrasleeve	86.0	ND (5.00)	ND (5.00)	86.0	2,700	---	15.0	1,100	11,000	4.3	282	6,730	7,400	ND (20.0)	ND (0.5)	23.6	29.0	1,890	41.0
	10/09/2012	Minimal Drawdown	92.0	ND (5.00)	ND (5.00)	92.0	2,400	---	16.0	1,100	9,600	4.3	294	6,750	7,600	ND (20.0)	ND (0.5)	25.8	22.0	1,630	45.0

Table 2
Groundwater Results
Sampling Methods Technology Field Trial, Third Quarter 2012 - First Quarter 2013
PG&E Topock Compressor Station, Needles, California

Well ID		Sample Date	Sample Method	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, hydroxide mg/L	Alkalinity, total as CaCO3 mg/L	Chloride mg/L	Fluoride mg/L	Nitrate as Nitrogen mg/L	Sulfate mg/L	Specific conductance µS/cm	Arsenic, dissolved µg/L	Calcium, dissolved mg/L	Chromium Hexavalent µg/L	Chromium, dissolved µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Magnesium, dissolved mg/L	Molybdenum, dissolved µg/L	Sodium, dissolved mg/L	Selenium, dissolved µg/L
MW-20-130		10/09/2012	Three Volume	79.0	ND (5.00)	ND (5.00)	79.0	3,200	---	12.0	1,100	12,000	5.6	283	9,610	11,000	ND (20.0)	ND (0.5)	19.1	43.0	2,140	27.0
	FD	11/29/2012	Hydrasleeve	---	---	---	---	---	---	17.7	---	---	4.4	293	6,940	6,830	ND (20.0)	ND (0.5)	26.3	23.8	1,940	40.4
		11/29/2012	Hydrasleeve	---	---	---	---	---	---	17.9	---	---	4.2	281	6,920	7,090	ND (20.0)	ND (0.5)	26.2	23.6	1,970	40.0
	FD	11/29/2012	Minimal Drawdown	96.0	ND (5.00)	ND (5.00)	96.0	2,400	---	18.6	1,000	8,400	3.8	315	6,410	6,670	ND (20.0)	2.1	29.2	15.9	1,780	45.1
		11/29/2012	Minimal Drawdown	98.0	ND (5.00)	ND (5.00)	98.0	2,400	---	19.4	1,000	8,500	3.6	280	6,440	6,450	ND (20.0)	2.1	28.7	14.8	1,750	43.0
	FD	11/29/2012	Three Volume	79.0	ND (5.00)	ND (5.00)	79.0	3,400	---	14.1	1,100	11,000	1.3 J	284	9,560	9,270	ND (20.0)	ND (0.5)	24.2	41.3	2,410	20.7
		11/29/2012	Three Volume	80.0	ND (5.00)	ND (5.00)	80.0	3,300	---	14.1	1,100	11,000	5.3 J	286	9,540	9,710	ND (20.0)	ND (0.5)	24.0	40.5	2,310	20.4
	FD	12/12/2012	Hydrasleeve	81.0	ND (5.00)	ND (5.00)	81.0	3,000	---	---	1,100	11,000	---	---	---	---	---	---	---	---	---	---
		12/12/2012	Hydrasleeve	83.0	ND (5.00)	ND (5.00)	83.0	3,000	---	---	1,100	11,000	---	---	---	---	---	---	---	---	---	---
		03/14/2013	Hydrasleeve	100	ND (5.00)	ND (5.00)	100	3,000	---	6.90	1,100	9,400	5.0	315	7,800	7,240	ND (20.0)	1.7	25.0	38.2	2,100	30.0
		03/14/2013	Minimal Drawdown	90.0	ND (5.00)	ND (5.00)	90.0	2,600	---	7.91	1,000	8,300	3.9	331	6,760	6,330	ND (20.0)	ND (0.5)	30.9	15.6	1,760	37.5
		03/14/2013	Three Volume	76.0	ND (5.00)	ND (5.00)	76.0	3,400	---	6.32	1,100	12,000	5.2	311	9,870	9,690	ND (20.0)	ND (0.5)	21.7	35.6	2,260	21.8
MW-26		10/04/2012	Hydrasleeve	---	---	---	---	930	---	15.0	530	4,200	2.2	162	1,780	1,710	ND (20.0)	0.67	42.3	35.4	661	47.9
		10/04/2012	Minimal Drawdown	---	---	---	---	960	---	17.0	550	4,300	1.6	165	1,680	1,760	ND (20.0)	ND (0.5)	43.7	35.9	702	52.2
		10/04/2012	Three Volume	---	---	---	---	920	---	14.0	520	4,100	1.7	178	1,950	1,980	ND (20.0)	ND (0.5)	46.2	26.5	637	40.5
		11/27/2012	Hydrasleeve	100	ND (5.00)	ND (5.00)	100	840	---	14.7	480	3,700	1.6	152	1,940	1,820	ND (20.0)	ND (0.5)	39.1	25.0	575	30.9
		11/27/2012	Minimal Drawdown	110	ND (5.00)	ND (5.00)	110	960	---	18.1	570	4,200	1.9	157	1,600	1,540	ND (20.0)	0.71	41.7	35.5	671	45.0
		11/27/2012	Three Volume	100	ND (5.00)	ND (5.00)	100	930	---	15.6	520	4,000	1.7	168	1,800	1,820	ND (20.0)	ND (0.5)	45.0	28.4	564	37.5
		03/12/2013	Hydrasleeve	100	ND (5.00)	ND (5.00)	100	950	---	19.5	550	4,200	2.0	181	1,740	1,610	ND (20.0)	ND (0.5)	48.4	34.8	705	49.1
		03/12/2013	Minimal Drawdown	100	ND (5.00)	ND (5.00)	100	950	---	19.2	560	4,200	1.8	174	1,680	1,620	ND (20.0)	ND (0.5)	46.8	33.4	683	47.6
		03/12/2013	Three Volume	100	ND (5.00)	ND (5.00)	100	930	---	9.51	530	4,100	1.7	186	1,820	1,710	ND (20.0)	ND (0.5)	48.7	26.8	662	42.8
MW-33-90		09/19/2012	Hydrasleeve	91.0	ND (5.00)	ND (5.00)	91.0	2,800	3.80	ND (2.50)	680	9,700	1.2	273	10.4	12.2	ND (20.0)	1.6	31.5	13.9	1,740	ND (5.0)
		09/19/2012	Minimal Drawdown	79.0	ND (5.00)	ND (5.00)	79.0	2,900	3.80	ND (2.50)	680	9,900	1.1	296	4.2	16.7	148	8.6	32.0	17.5	1,810	ND (5.0)
		09/24/2012	Three Volume	74.0	ND (5.00)	ND (5.00)	74.0	3,000	ND (5.00)	ND (2.50)	700	10,000	1.6	296	16.5	17.2	ND (20.0)	2.2	28.6	17.8	1,810	ND (5.0)
		11/07/2012	Hydrasleeve	86.0	ND (5.00)	ND (5.00)	86.0	3,000	---	0.913	720	11,000	1.3	300	10.4	11.9	ND (20.0)	6.6	31.1	18.2	1,890	ND (5.0)
		11/08/2012	Minimal Drawdown	70.0	ND (5.00)	ND (5.00)	70.0	3,100	---	1.30	720	11,000	1.2	316	14.1	16.4	ND (20.0)	2.9	31.8	17.8	1,880	ND (5.0)
		11/08/2012	Three Volume	71.0	ND (5.00)	ND (5.00)	71.0	3,000	5.50	1.57	710	12,000	1.1	297	16.5	18.2	ND (20.0)	2.1	29.3	19.4	1,900	ND (5.0)
	FD	02/14/2013	Hydrasleeve	---	---	---	---	---	---	1.37	---	---	1.3	314	12.9	14.1	ND (20.0)	4.0	34.1	14.6	1,920	ND (5.0)
		02/14/2013	Hydrasleeve	---	---	---	---	---	---	1.44	---	---	1.4	312	12.9	13.5	ND (20.0)	3.8	34.7	13.8	1,930	ND (5.0)
	FD	02/14/2013	Minimal Drawdown	73.0	ND (5.00)	ND (5.00)	73.0	3,000	---	1.58	690	8,800	1.6	334	15.6	17.3	ND (20.0)	4.2	34.9	15.8	2,010	ND (5.0)
		02/14/2013	Minimal Drawdown	73.0	ND (5.00)	ND (5.00)	73.0	3,000	---	1.62	690	8,600	1.5	313	15.6	17.4	ND (20.0)	4.2	34.7	15.1	1,900	ND (5.0)
	FD	02/14/2013	Three Volume	67.0	ND (5.00)	ND (5.00)	67.0	3,100	5.10	1.72	690	8,800	1.6	333	16.2	18.3	ND (20.0)	2.2	32.2	16.3	1,970	ND (5.0)
		02/14/2013	Three Volume	67.0	ND (5.00)	ND (5.00)	67.0	3,100	5.70	1.62	680	8,700	1.4	336	17.8	17.9	ND (20.0)	2.2	32.0	16.5	2,000	ND (5.0)
	FD	02/25/2013	Hydrasleeve	76.0	ND (5.00)	ND (5.00)	76.0	3,000	---	---	690	9,600	---	---	---	---	---	---	---	---	---	---
		02/25/2013	Hydrasleeve	77.0	ND (5.00)	ND (5.00)	77.0	3,100	---	---	700	9,600	---	---	---	---	---	---	---	---	---	---
MW-36-100		10/10/2012	Hydrasleeve	190	ND (5.00)	ND (5.00)	190	4,200	---	ND (2.50)	930	14,000	7.5	285	0.39	20.0	25.1	96.0	33.3	63.0	2,670	ND (0.5)
		10/10/2012	Minimal Drawdown	250	ND (5.00)	ND (5.00)	250	1,600	---	ND (1.00)	630	6,700	9.8	153	5.9	12.0	34.9	41.0	22.8	41.0	1,220	ND (0.5)
		10/10/2012	Three Volume	250	ND (5.00)	ND (5.00)	250	2,400	---	ND (2.50)	770	9,300	7.7	211	68.5	72.0	24.3	80.0	30.4	35.0	1,630	ND (0.5)
		11/08/2012	Hydrasleeve	190	ND (5.00)	ND (5.00)	190	4,800	---	0.324	1,000	17,000	4.8	299	135	156	ND (20.0)	111	39.4	51.9	2,980	ND (5.0)
		11/08/2012	Minimal Drawdown	250	ND (5.00)	ND (5.00)	250	2,300	---	0.104	780	11,000	6.2	231	76.1	77.8	24.1	61.1	37.1	27.4	1,900	ND (5.0)
		11/08/2012	Three Volume	250	ND (5.00)	ND (5.00)	250	2,500	---	0.0957	810	10,000	6.2	215	62.7	72.8	31.9	85.3	32.2	34.9	1,820	ND (5.0)
		03/11/2013	Hydrasleeve	190	ND (5.00)	ND (5.00)	190	3,700	---	12.0	820	12,000	8.2	218	86.2	90.8	ND (20.0)	88.7	29.9	63.0	2,640	ND (5.0)
		03/11/2013	Minimal Drawdown	240	ND (5.00)	ND (5.00)	240	2,500	---	0.0828	780	8,700	7.7	206	50.2	49.6	ND (20.0)	40.2	32.8	29.6	1,620	ND (5.0)
		03/11/2013	Three Volume	250	ND (5.00)	ND (5.00)	250	2,400	---	0.0789	750	8,600	7.3	211	58.7	58.3	ND (20.0)	59.6	33.3	30.3	1,640	ND (5.0)

Table 2
Groundwater Results
Sampling Methods Technology Field Trial, Third Quarter 2012 - First Quarter 2013
PG&E Topock Compressor Station, Needles, California

Well ID		Sample Date	Sample Method	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, hydroxide mg/L	Alkalinity, total as CaCO3 mg/L	Chloride mg/L	Fluoride mg/L	Nitrate as Nitrogen mg/L	Sulfate mg/L	Specific conductance µS/cm	Arsenic, dissolved µg/L	Calcium, dissolved mg/L	Chromium Hexavalent µg/L	Chromium, dissolved µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Magnesium, dissolved mg/L	Molybdenum, dissolved µg/L	Sodium, dissolved mg/L	Selenium, dissolved µg/L
MW-44-115		09/27/2012	Hydrasleeve	73.0	ND (5.00)	ND (5.00)	73.0	3,500	---	ND (2.50)	750	12,000	4.2	98.2	118	149	ND (20.0)	91.7	5.11	105	2,450	ND (5.0)
		09/27/2012	Minimal Drawdown	75.0	ND (5.00)	ND (5.00)	75.0	3,400	---	ND (2.50)	750	12,000	4.1	96.8	120	130	ND (20.0)	14.1	5.69	89.8	2,440	ND (5.0)
		09/27/2012	Three Volume	78.0	ND (5.00)	ND (5.00)	78.0	3,200	---	ND (2.50)	770	11,000	3.6	105	88.2	98.2	ND (20.0)	5.0	7.01	77.0	2,270	ND (5.0)
		11/26/2012	Hydrasleeve	73.0	ND (5.00)	ND (5.00)	73.0	3,600	---	0.442	740	11,000	5.8	97.2	120	131	ND (20.0)	33.5	5.51	102	2,410	ND (5.0)
		11/26/2012	Minimal Drawdown	76.0	ND (5.00)	ND (5.00)	76.0	3,400	---	0.329	760	11,000	5.7	104	82.5	96.1	ND (20.0)	7.8	6.63	81.6	2,300	ND (5.0)
		11/26/2012	Three Volume	76.0	ND (5.00)	ND (5.00)	76.0	3,300	---	0.290	760	11,000	5.4	105	73.6	78.1	ND (20.0)	4.6	6.94	73.2	2,260	ND (5.0)
		02/26/2013	Hydrasleeve	69.0	ND (5.00)	ND (5.00)	69.0	3,700	---	0.414	720	12,000	5.2	106	120	118	ND (20.0)	9.2	5.09	91.4	2,420	ND (5.0)
		02/26/2013	Minimal Drawdown	69.0	ND (5.00)	ND (5.00)	69.0	3,400	---	0.378	740	11,000	4.8	108	93.5	98.2	ND (20.0)	7.4	5.82	77.8	2,300	ND (5.0)
		02/26/2013	Three Volume	72.0	ND (5.00)	ND (5.00)	72.0	3,300	---	0.374	730	11,000	5.9	115	75.9	78.9	ND (20.0)	4.2	7.34	69.1	2,450	ND (5.0)
MW-44-125	FD	09/13/2012	Hydrasleeve	---	---	---	---	---	---	---	---	---	3.7	37.3	ND (0.2)	ND (1.0)	135	186	7.27	18.7	435	ND (5.0)
		09/13/2012	Hydrasleeve	---	---	---	---	---	---	---	---	---	4.2	36.7	ND (0.2)	ND (1.0)	115	188	7.10	20.2	433	ND (5.0)
	FD	09/13/2012	Minimal Drawdown	220	ND (5.00)	ND (5.00)	220	2,100	---	ND (1.00)	430	7,700	3.2	72.0	0.26	7.4	240	577	8.03	85.2	1,390	ND (5.0)
		09/13/2012	Minimal Drawdown	230	ND (5.00)	ND (5.00)	230	2,100	---	ND (1.00)	430	7,400	3.9	67.5	ND (0.2)	7.3	267	531	8.27	75.5	1,290	ND (5.0)
	FD	09/13/2012	Three Volume	98.0	ND (5.00)	ND (5.00)	98.0	3,600	---	ND (2.50)	650	12,000	3.7	102	ND (1.0)	4.0	577	682	8.90	134	2,750	ND (5.0)
		09/13/2012	Three Volume	110	ND (5.00)	ND (5.00)	110	3,400	---	ND (2.50)	620	12,000	3.6	104	ND (1.0)	5.3	646	670	9.28	125	2,480	ND (5.0)
	FD	09/20/2012	Hydrasleeve	150	ND (5.00)	ND (5.00)	150	2,400	---	ND (2.50)	500	9,200	---	---	---	---	---	---	---	---	---	---
		09/20/2012	Hydrasleeve	150	ND (5.00)	ND (5.00)	150	2,500	---	ND (2.50)	510	9,100	---	---	---	---	---	---	---	---	---	---
	FD	11/05/2012	Hydrasleeve	---	---	---	---	---	---	0.0383	---	---	4.3	38.8	ND (0.2)	ND (1.0)	75.6	153	7.05	22.5	466	ND (5.0)
		11/05/2012	Hydrasleeve	---	---	---	---	---	---	0.0385	---	---	4.5	39.7	ND (0.2)	ND (1.0)	75.1	147	6.99	24.0	502	ND (5.0)
	FD	11/06/2012	Minimal Drawdown	130	ND (5.00)	ND (5.00)	130	3,500	---	0.165	590	11,000	3.3	82.9	3.8	8.7	88.0	452	6.75	116	2,230	ND (5.0)
		11/06/2012	Minimal Drawdown	120	ND (5.00)	ND (5.00)	120	3,500	---	0.163	590	12,000	3.3	83.2	4.6	8.2	86.0	448	6.84	118	2,200	ND (5.0)
	FD	11/06/2012	Three Volume	130	ND (5.00)	ND (5.00)	130	3,500	---	0.363	610	10,000	3.4	101	ND (1.0)	5.9	287	493	6.46	148	2,470	ND (5.0)
		11/06/2012	Three Volume	100	ND (5.00)	ND (5.00)	100	3,200	---	0.384	590	12,000	3.6	99.3	ND (1.0)	6.4	289	508	6.17	141	2,440	ND (5.0)
	FD	11/26/2012	Hydrasleeve	180	ND (5.00)	ND (5.00)	180	1,700	---	---	430	6,200	---	---	---	---	---	---	---	---	---	---
		11/26/2012	Hydrasleeve	180	ND (5.00)	ND (5.00)	180	1,700	---	---	410	6,200	---	---	---	---	---	---	---	---	---	---
	FD	02/13/2013	Hydrasleeve	---	---	---	---	---	---	0.0105	---	---	4.6	43.3	ND (0.2)	ND (1.0)	ND (20.0)	190	8.04	18.4	513	ND (5.0)
		02/13/2013	Hydrasleeve	---	---	---	---	---	---	ND (0.01)	---	---	4.5	42.5	ND (0.2)	ND (1.0)	ND (20.0)	185	8.06	19.3	499	ND (5.0)
	FD	02/13/2013	Minimal Drawdown	170	ND (5.00)	ND (5.00)	170	2,700	---	0.161	500	8,500	4.5	76.7	2.7	25.2	170	370	6.24	101	1,990	ND (5.0)
		02/13/2013	Minimal Drawdown	170	ND (5.00)	ND (5.00)	170	2,700	---	0.166	490	8,400	4.5	76.8	2.7	25.7	173	368	6.13	102	1,880	ND (5.0)
	FD	02/13/2013	Three Volume	76.0	ND (5.00)	ND (5.00)	76.0	3,900	---	0.441 J	650	12,000	3.9	98.1	3.5	8.4	100	406	5.22	134	2,950	ND (5.0)
		02/13/2013	Three Volume	78.0	ND (5.00)	ND (5.00)	78.0	3,900	---	0.259 J	640	12,000	4.1	94.2	4.2	8.2	87.7	368	5.14	126	2,640	ND (5.0)
	FD	02/26/2013	Hydrasleeve	280	ND (5.00)	ND (5.00)	280	1,200	---	---	330	4,800	---	---	---	---	---	---	---	---	---	---
		02/26/2013	Hydrasleeve	260	ND (5.00)	ND (5.00)	260	1,200	---	---	330	4,800	---	---	---	---	---	---	---	---	---	---
MW-46-175		09/26/2012	Hydrasleeve	44.0	ND (5.00)	ND (5.00)	44.0	5,900	---	ND (2.50)	750	18,000	1.4	99.0	19.2	24.5	ND (20.0)	18.3	2.90	174	3,820	ND (5.0)
		09/26/2012	Minimal Drawdown	43.0	ND (5.00)	ND (5.00)	43.0	5,900	---	ND (2.50)	750	18,000	1.6	97.7	30.6	38.0	ND (20.0)	18.2	2.88	195	3,770	ND (5.0)
		09/26/2012	Three Volume	38.0	ND (5.00)	ND (5.00)	38.0	5,900	---	ND (2.50)	770	18,000	1.2	94.5	46.7	52.6	ND (20.0)	9.9	3.13	158	4,130	ND (5.0)
		11/09/2012	Hydrasleeve	46.0	ND (5.00)	ND (5.00)	46.0	6,100	---	0.851	760	18,000	2.4	88.8	76.8	79.0	34.5	15.7	2.58	188	4,530	ND (5.0)
		11/09/2012	Minimal Drawdown	46.0	ND (5.00)	ND (5.00)	46.0	6,100	---	0.931	750	18,000	2.2	89.1	80.7	82.2	22.6	14.9	2.57	184	4,210	ND (5.0)
		11/09/2012	Three Volume	43.0	ND (5.00)	ND (5.00)	43.0	6,000	---	0.922	760	18,000	2.0	94.6	71.0	73.5	ND (20.0)	9.5	2.53	194	4,490	ND (5.0)
		02/25/2013	Hydrasleeve	46.0	ND (5.00)	ND (5.00)	46.0	6,000	---	0.921	750	17,000	2.7	91.3	48.5	52.2	ND (20.0)	13.4	2.60	195	3,950	ND (5.0)
		02/25/2013	Minimal Drawdown	42.0	ND (5.00)	ND (5.00)	42.0	6,000	---	1.08	760	17,000	2.9	92.8	40.8	45.5	ND (20.0)	14.7	2.70	180	3,980	ND (5.0)
		02/25/2013	Three Volume	40.0	ND (5.00)	ND (5.00)	40.0	6,100	---	1.08	740	18,000	2.4	93.8	50.4	53.7	ND (20.0)	8.9	2.77	179	3,870	ND (5.0)
MW-47-55		09/24/2012	Hydrasleeve	73.0	ND (5.00)	ND (5.00)	73.0	1,300	---	1.60	250	4,700	1.6	179	40.3	46.1	ND (20.0)	1.4	29.1	11.0	714	ND (5.0)

Table 2
Groundwater Results
Sampling Methods Technology Field Trial, Third Quarter 2012 - First Quarter 2013
PG&E Topock Compressor Station, Needles, California

Well ID		Sample Date	Sample Method	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, hydroxide mg/L	Alkalinity, total as CaCO3 mg/L	Chloride mg/L	Fluoride mg/L	Nitrate as Nitrogen mg/L	Sulfate mg/L	Specific conductance µS/cm	Arsenic, dissolved µg/L	Calcium, dissolved mg/L	Chromium Hexavalent µg/L	Chromium, dissolved µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Magnesium, dissolved mg/L	Molybdenum, dissolved µg/L	Sodium, dissolved mg/L	Selenium, dissolved µg/L
MW-47-55		09/24/2012	Minimal Drawdown	64.0	ND (5.00)	ND (5.00)	64.0	1,300	---	1.60	230	4,800	1.5	178	22.3	23.4	ND (20.0)	ND (0.5)	27.7	9.6	708	ND (5.0)
		09/24/2012	Three Volume	63.0	ND (5.00)	ND (5.00)	63.0	1,400	---	1.60	240	4,800	1.4	182	20.7	21.4	ND (20.0)	0.61	28.3	9.3	709	ND (5.0)
		11/06/2012	Hydrasleeve	76.0	ND (5.00)	ND (5.00)	76.0	1,200	---	1.75	230	4,700	1.6	171	34.1	37.8	ND (20.0)	ND (0.5)	27.7	11.5	687	ND (5.0)
		11/07/2012	Minimal Drawdown	69.0	ND (5.00)	ND (5.00)	69.0	1,200	---	1.81	220	4,700	1.4	161	35.6	39.5	ND (20.0)	ND (0.5)	26.7	8.7	641	ND (5.0)
		11/07/2012	Three Volume	67.0	ND (5.00)	ND (5.00)	67.0	1,200	---	2.19	230	5,100	1.1	157	28.8	29.6	ND (20.0)	ND (0.5)	26.0	11.1	638	ND (5.0)
		03/11/2013	Hydrasleeve	71.0	ND (5.00)	ND (5.00)	71.0	1,200	---	1.69	230	4,100	1.4	168	34.2	32.8	ND (20.0)	0.54	26.9	8.2	645	ND (5.0)
		03/11/2013	Minimal Drawdown	66.0	ND (5.00)	ND (5.00)	66.0	1,200	---	1.67	230	4,200	1.2	179	16.8	16.2	27.6	0.69	28.6	8.1	656	ND (5.0)
		03/11/2013	Three Volume	65.0	ND (5.00)	ND (5.00)	65.0	1,300	---	1.62	230	4,300	1.2	181	16.7	16.4	ND (20.0)	ND (0.5)	29.5	8.5	674	ND (5.0)
MW-47-115		09/25/2012	Hydrasleeve	60.0	ND (5.00)	ND (5.00)	60.0	4,400	---	ND (2.50)	710	14,000	2.2	344	18.4	21.1	ND (20.0)	6.7	34.1	21.0	2,520	ND (5.0)
		09/25/2012	Minimal Drawdown	50.0	ND (5.00)	ND (5.00)	50.0	4,400	---	ND (2.50)	710	14,000	1.5	342	16.4	18.8	296	15.0	34.0	21.4	2,490	ND (5.0)
		09/25/2012	Three Volume	49.0	ND (5.00)	ND (5.00)	49.0	4,300	---	ND (2.50)	710	14,000	1.4	331	20.0	23.2	ND (20.0)	2.8	33.2	23.1	2,520	ND (5.0)
		11/07/2012	Hydrasleeve	59.0	ND (5.00)	ND (5.00)	59.0	4,800	---	1.97	760	16,000	1.8	374	16.3	17.8	ND (20.0)	3.3	37.1	23.8	2,970	ND (5.0)
		11/07/2012	Minimal Drawdown	49.0	ND (5.00)	ND (5.00)	49.0	4,800	---	1.95	760	16,000	2.0	368	15.2	17.6	ND (20.0)	1.8	36.9	24.5	2,900	ND (5.0)
		11/07/2012	Three Volume	50.0	ND (5.00)	ND (5.00)	50.0	4,500	---	2.09	740	16,000	1.7	344	17.3	19.2	ND (20.0)	2.4	32.6	24.2	2,760	ND (5.0)
		02/27/2013	Hydrasleeve	52.0	ND (5.00)	ND (5.00)	52.0	4,300	---	1.71	710	13,000	1.8	333	18.3	18.6	ND (20.0)	19.0	34.9	22.2	2,540	ND (5.0)
		02/27/2013	Minimal Drawdown	50.0	ND (5.00)	ND (5.00)	50.0	4,100	---	2.25	680	13,000	1.8	321	21.6	23.1	31.3	1.4	32.7	20.4	2,450	ND (5.0)
		02/27/2013	Three Volume	49.0	ND (5.00)	ND (5.00)	49.0	4,200	---	2.32	700	13,000	2.3	316	21.0	22.8	ND (20.0)	1.6	33.3	17.1	2,550	ND (5.0)
MW-50-095		09/19/2012	Hydrasleeve	57.0	ND (5.00)	ND (5.00)	57.0	1,400	---	1.30	250	5,100	1.8	116	16.2	17.5	ND (20.0)	0.72	15.5	16.3	936	ND (5.0)
		09/19/2012	Minimal Drawdown	54.0	ND (5.00)	ND (5.00)	54.0	1,400	---	1.40	260	5,200	2.3	116	11.7	14.1	35.0	3.0	14.6	17.6	976	ND (5.0)
		09/19/2012	Three Volume	55.0	ND (5.00)	ND (5.00)	55.0	1,400	---	1.40	260	5,300	2.4	125	13.7	14.9	ND (20.0)	ND (0.5)	13.8	16.0	962	ND (5.0)
		11/05/2012	Hydrasleeve	61.0	ND (5.00)	ND (5.00)	61.0	1,500	---	1.56	270	5,600	2.4	115	14.0	13.9	ND (20.0)	1.3	13.2	16.9	894	ND (5.0)
		11/05/2012	Minimal Drawdown	55.0	ND (5.00)	ND (5.00)	55.0	1,500	---	1.56	270	5,500	2.3	114	13.0	13.1	ND (20.0)	0.96	12.8	16.4	891	ND (5.0)
		11/05/2012	Three Volume	55.0	ND (5.00)	ND (5.00)	55.0	1,500	---	1.49	260	5,400	2.3	116	12.9	12.5	ND (20.0)	ND (0.5)	12.8	16.2	902	ND (5.0)
		02/14/2013	Hydrasleeve	55.0	ND (5.00)	ND (5.00)	55.0	1,300	---	1.81	240	4,600	2.2	109	14.6	15.3	ND (20.0)	ND (0.5)	14.3	13.9	883	ND (5.0)
		02/14/2013	Minimal Drawdown	57.0	ND (5.00)	ND (5.00)	57.0	1,400	---	1.67	240	4,500	2.6	106	12.6	14.8	129	7.1	13.4	15.5	941	ND (5.0)
		02/14/2013	Three Volume	76.0	ND (5.00)	ND (5.00)	76.0	1,400	---	1.58	260	4,600	2.7	115	12.4	13.7	ND (20.0)	ND (0.5)	13.4	16.2	987	ND (5.0)
MW-50-200	FD	10/03/2012	Hydrasleeve	---	---	---	---	---	---	---	---	---	3.3	546	9,900	9,840	ND (20.0)	17.1	34.0	42.3	5,590	ND (5.0)
		10/03/2012	Hydrasleeve	---	---	---	---	---	---	---	---	---	3.4	514	9,610	10,000	ND (20.0)	16.5	33.0	44.2	5,900	ND (5.0)
	FD	10/03/2012	Minimal Drawdown	41.0	ND (5.00)	ND (5.00)	41.0	6,800	---	2.90	900	21,000	2.9	485	5,550	6,140	ND (20.0)	39.1	31.5	38.7	5,150	ND (5.0)
		10/03/2012	Minimal Drawdown	41.0	ND (5.00)	ND (5.00)	41.0	6,900	---	2.90	890	21,000	2.5	494	5,850	6,040	ND (20.0)	34.3	31.7	38.9	4,840	ND (5.0)
	FD	10/03/2012	Three Volume	37.0	ND (5.00)	ND (5.00)	37.0	7,300	---	5.20	1,000	22,000	3.4	498	8,000	8,520	ND (20.0)	0.83	32.4	40.2	5,260	ND (5.0)
		10/03/2012	Three Volume	36.0	ND (5.00)	ND (5.00)	36.0	7,300	---	5.20	1,000	22,000	3.8	501	8,290	8,720	ND (20.0)	0.56	34.8	39.3	5,080	ND (5.0)
	FD	10/17/2012	Hydrasleeve	41.0	ND (5.00)	ND (5.00)	41.0	7,300	---	5.50	1,100	21,000	---	---	---	---	---	---	---	---	---	---
		10/17/2012	Hydrasleeve	41.0	ND (5.00)	ND (5.00)	41.0	7,400	---	5.60	1,100	21,000	---	---	---	---	---	---	---	---	---	---
		11/29/2012	Hydrasleeve	47.0	ND (5.00)	ND (5.00)	47.0	7,700	---	7.58	1,100	14,000	3.5	548	9,790	9,210	ND (20.0)	6.9	33.6	38.9	4,970	6.6
		11/29/2012	Minimal Drawdown	45.0	ND (5.00)	ND (5.00)	45.0	7,300	---	5.76	950	20,000	1.8	531	6,480	6,560	178	17.6	33.8	48.2	4,540	5.3
		11/29/2012	Three Volume	38.0	ND (5.00)	ND (5.00)	38.0	7,400	---	5.80	950	20,000	3.8	536	6,680	7,000	ND (20.0)	1.7	36.8	38.3	4,750	ND (5.0)
		02/27/2013	Hydrasleeve	43.0	ND (5.00)	ND (5.00)	43.0	7,700	---	7.80	1,200	22,000	3.0	551	10,600	10,500	ND (20.0)	5.7	33.0	39.0	4,210	ND (5.0)
		02/27/2013	Minimal Drawdown	37.0	ND (5.00)	ND (5.00)	37.0	7,600	---	7.69	1,100	21,000	2.9	548	10,200	9,450	ND (20.0)	1.0	33.9	37.0	4,330	ND (5.0)
		02/27/2013	Three Volume	35.0	ND (5.00)	ND (5.00)	35.0	7,200	---	5.94	980	20,000	4.1	576	7,410	7,510 J	ND (20.0)	ND (0.5)	34.8	38.4	4,910	5.3
MW-51		10/09/2012	Hydrasleeve	90.0	ND (5.00)	ND (5.00)	90.0	3,400	---	9.50	680	12,000	4.2	244	4,960	5,500	ND (20.0)	ND (0.5)	19.3	48.0	2,220	12.0
		10/09/2012	Minimal Drawdown	88.0	ND (5.00)	ND (5.00)	88.0	3,500	---	9.30	670	12,000	4.0	258	5,010	5,500	ND (20.0)	ND (0.5)	19.0	46.0	2,230	11.0
		10/09/2012	Three Volume	98.0	ND (5.00)	ND (5.00)	98.0	3,100	---	10.0	680	11,000	4.3	235	4,630	5,100	ND (20.0)	ND (0.5)	17.1	42.0	2,010	17.0

Table 2
Groundwater Results
Sampling Methods Technology Field Trial, Third Quarter 2012 - First Quarter 2013
PG&E Topock Compressor Station, Needles, California

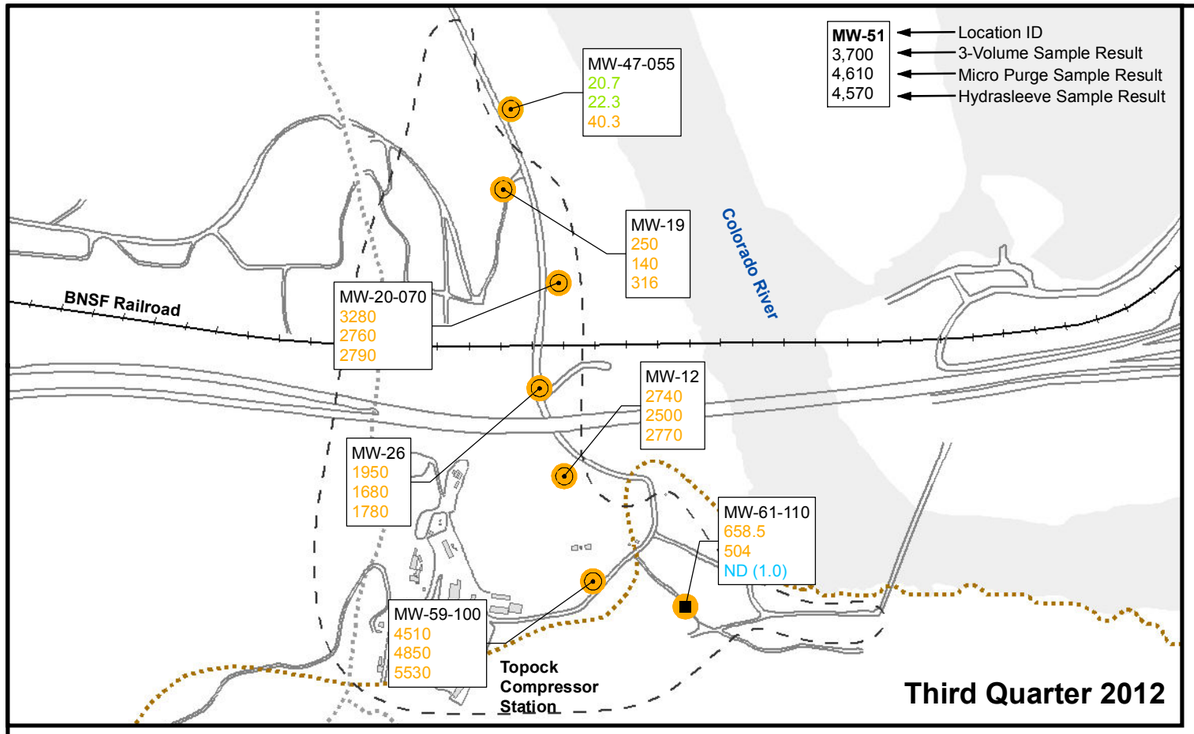
Well ID	Sample Date	Sample Method	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, hydroxide mg/L	Alkalinity, total as CaCO3 mg/L	Chloride mg/L	Fluoride mg/L	Nitrate as Nitrogen mg/L	Sulfate mg/L	Specific conductance µS/cm	Arsenic, dissolved µg/L	Calcium, dissolved mg/L	Chromium Hexavalent µg/L	Chromium, dissolved µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Magnesium, dissolved mg/L	Molybdenum, dissolved µg/L	Sodium, dissolved mg/L	Selenium, dissolved µg/L
MW-51	11/28/2012	Hydrasleeve	89.0	ND (5.00)	ND (5.00)	89.0	3,500	---	11.1	690	11,000	4.2	254	4,950	5,030	ND (20.0)	ND (0.5)	19.6	44.0	2,300	13.4
	11/28/2012	Minimal Drawdown	87.0	ND (5.00)	ND (5.00)	87.0	3,500	---	10.7	670	11,000	3.9	250	4,790	4,860	ND (20.0)	2.1	19.5	44.4	2,390	12.6
	11/28/2012	Three Volume	100	ND (5.00)	ND (5.00)	100	3,200	---	12.4	680	10,000	4.9	235	4,480	4,370	ND (20.0)	ND (0.5)	20.2	40.0	2,140	14.6
	03/14/2013	Hydrasleeve	86.0	ND (5.00)	ND (5.00)	86.0	3,500	---	8.96	680	10,000	4.6	262	4,970	4,710	ND (20.0)	1.1	18.3	46.0	2,200	12.2
	03/14/2013	Minimal Drawdown	86.0	ND (5.00)	ND (5.00)	86.0	3,400	---	9.06	670	10,000	3.6	273	5,020	4,720	ND (20.0)	0.59	18.7	41.7	2,190	11.3
	03/14/2013	Three Volume	92.0	ND (5.00)	ND (5.00)	92.0	3,400	---	9.31	680	11,000	4.1	256	4,740	4,950	ND (20.0)	ND (0.5)	18.1	38.3	2,180	14.1
MW-59-100	10/02/2012	Hydrasleeve	74.0	ND (5.00)	ND (5.00)	74.0	4,900	---	ND (2.50)	800	15,000	1.7	1,090	5,530	5,550	ND (20.0)	2.1	35.2	13.0	2,650	ND (5.0)
	10/02/2012	Minimal Drawdown	81.0	ND (5.00)	ND (5.00)	81.0	4,400	---	2.60	760	14,000	2.0	944	4,850	5,300	ND (20.0)	2.5	33.2	6.1	2,370	ND (5.0)
	10/02/2012	Three Volume	120	ND (5.00)	ND (5.00)	120	2,900	---	3.60	660	9,700	2.9	628	4,510	4,640	ND (20.0)	1.3	22.7	4.9	1,560	ND (5.0)
	11/28/2012	Hydrasleeve	98.0	ND (5.00)	ND (5.00)	98.0	3,600	---	4.56	780	10,000	2.0	906	6,550	6,580	36.1	7.1	32.1	3.9	1,580	5.6
	11/28/2012	Minimal Drawdown	72.0	ND (5.00)	ND (5.00)	72.0	5,100	---	2.81	820	14,000	1.9	1,100	4,500	5,250	ND (20.0)	3.4	37.5	5.4	2,370	ND (5.0)
	11/28/2012	Three Volume	120	ND (5.00)	ND (5.00)	120	3,100	---	4.52	680	9,400	4.4	691	3,980	3,970	ND (20.0)	0.78	26.1	4.3	1,440	ND (5.0)
	02/27/2013	Hydrasleeve	74.0	ND (5.00)	ND (5.00)	74.0	4,700	---	2.85	790	14,000	1.8	917	4,780	4,880	ND (20.0)	1.4	32.3	5.6	2,090	ND (5.0)
	02/27/2013	Minimal Drawdown	100	ND (5.00)	ND (5.00)	100	3,600	---	3.86	710	11,000	1.9	697	3,980	4,150	ND (20.0)	1.8	25.2	4.9	1,640	ND (5.0)
	02/27/2013	Three Volume	120	ND (5.00)	ND (5.00)	120	3,100	---	4.02	660	9,800	2.6	637	3,920	4,030	ND (20.0)	ND (0.5)	23.4	3.8	1,590	ND (5.0)
MW-61-110	09/27/2012	Hydrasleeve	52.0	ND (5.00)	ND (5.00)	52.0	5,200	---	ND (2.50)	670	16,000	4.0	562	ND (1.0)	11.8	42.1	888	21.2	27.9	2,850	ND (5.0)
	09/27/2012	Minimal Drawdown	43.0	ND (5.00)	ND (5.00)	43.0	5,400	---	ND (2.50)	700	17,000	2.6	611	504	534	ND (20.0)	412	21.7	22.0	2,900	ND (5.0)
FD	09/27/2012	Three Volume	46.0	ND (5.00)	ND (5.00)	46.0	5,300	---	ND (2.50)	700	17,000	2.1	624	661	738	ND (20.0)	165	22.9	20.2	2,790	ND (5.0)
	09/27/2012	Three Volume	45.0	ND (5.00)	ND (5.00)	45.0	5,400	---	ND (2.50)	690	17,000	2.0	637	656	714	ND (20.0)	172	23.4	24.1	2,840	ND (5.0)
FD	11/27/2012	Hydrasleeve	---	---	---	---	---	---	0.262	---	---	3.0	634	107	122	ND (20.0)	619	21.2	25.0	3,060 J	ND (5.0)
	11/27/2012	Hydrasleeve	---	---	---	---	---	---	0.267	---	---	2.8	600	110	115	ND (20.0)	625	20.6	25.0	297 J	ND (5.0)
FD	11/27/2012	Minimal Drawdown	42.0	ND (5.00)	ND (5.00)	42.0	5,400	---	0.837	690	15,000	2.9	624	536	497	ND (20.0)	290	22.9	20.7	3,250	ND (5.0)
	11/27/2012	Minimal Drawdown	45.0	ND (5.00)	ND (5.00)	45.0	5,700	---	0.832	700	15,000	3.0	637	536	501	ND (20.0)	271	22.4	20.5	2,960	ND (5.0)
FD	11/27/2012	Three Volume	43.0	ND (5.00)	ND (5.00)	43.0	5,500	---	0.899	700	15,000	3.1	637	678	716	ND (20.0)	179	21.8	20.9	2,860	ND (5.0)
	11/27/2012	Three Volume	46.0	ND (5.00)	ND (5.00)	46.0	5,500	---	0.866	680	15,000	3.2	604	666	709	ND (20.0)	165	21.6	21.9	2,750	ND (5.0)
FD	12/12/2012	Hydrasleeve	48.0	ND (5.00)	ND (5.00)	48.0	5,400	---	---	680	16,000	---	---	---	---	---	---	---	---	---	---
	12/12/2012	Hydrasleeve	48.0	ND (5.00)	ND (5.00)	48.0	5,300	---	---	700	16,000	---	---	---	---	---	---	---	---	---	---
	02/25/2013	Hydrasleeve	46.0	ND (5.00)	ND (5.00)	46.0	5,300	---	0.109	680	15,000	4.5	648	8.5	8.8	ND (20.0)	812	23.2	27.7	2,980	ND (5.0)
	02/25/2013	Minimal Drawdown	58.0	ND (5.00)	ND (5.00)	58.0	4,800	---	0.560	610	14,000	4.4	615	120	144	31.5	833	23.4	21.7	2,700	ND (5.0)
	02/25/2013	Three Volume	53.0	ND (5.00)	ND (5.00)	53.0	5,300	---	0.999	660	15,000	3.4	629	637	682 J	ND (20.0)	133	23.3	24.0	2,850	ND (5.0)

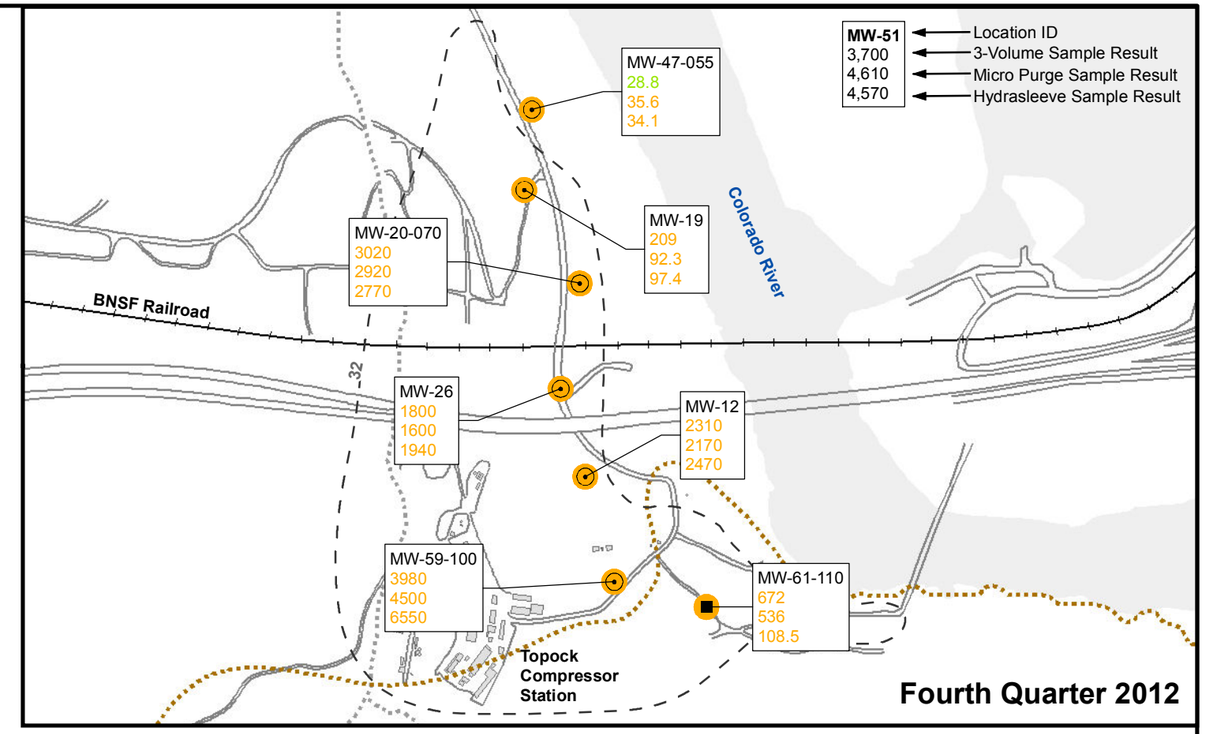
Notes:

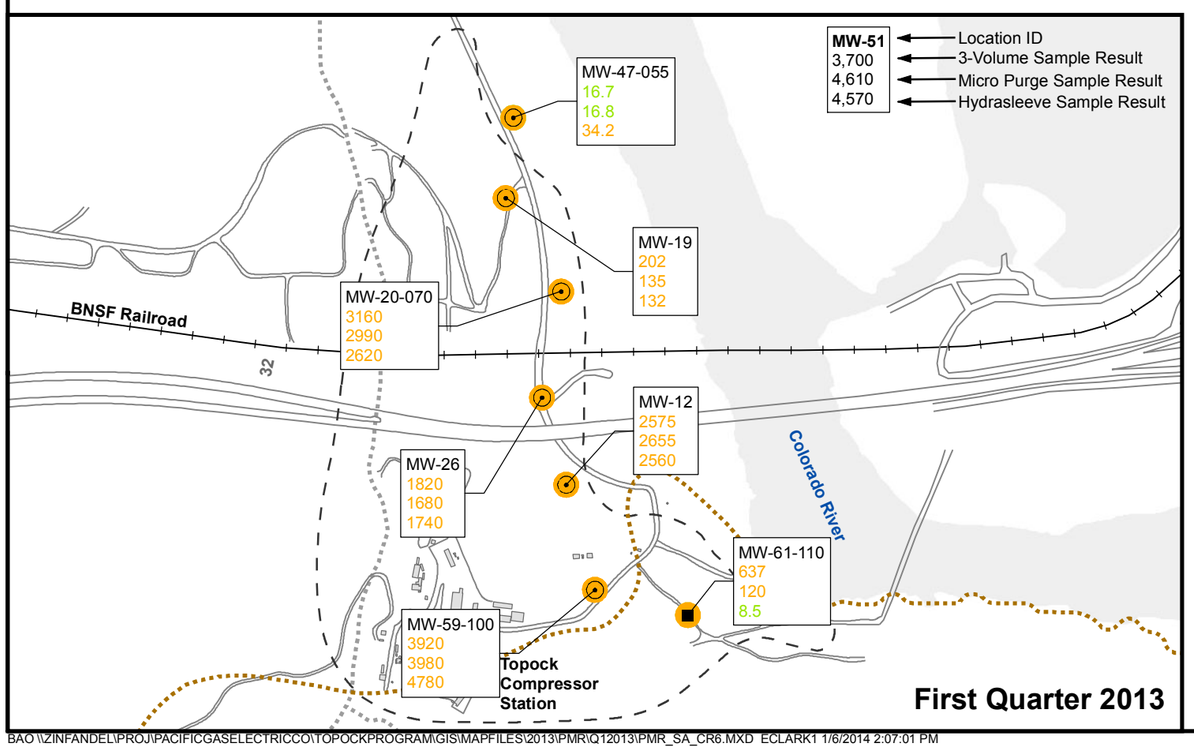
FD = field duplicate sample.
J = concentration or reporting limit estimated by laboratory or data validation.
mg/l = milligrams per liter.
ND = not detected at listed reporting limit.
µg/L = micrograms per liter.
0/00 = differences from global standards in ppt
µS/cm = microsiemens per centimeter

Starting in Fourth Quarter 2012, nitrate samples were analyzed using USEPA method 353.2. 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.

Figures







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock

Hexavalent Chromium [Cr(VI)] Concentrations (3-Volume method)

- Not Detected at Analytical Reporting Limit
- Concentration Between Reporting Limit and 32 µg/L
- Concentration >32 µg/L

- 32 - Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L

Approximate bedrock contact

Cr(VI) Sample Method Results

Not detected at analytical reporting limit
Concentration between reporting limit and 32 µg/L
Concentration >32 µg/L

MW-51 ← Location ID
3,700 ← 3-Volume Sample Result
4,610 ← Micro Purge Sample Result
4,570 ← Hydrasleeve Sample Result

N

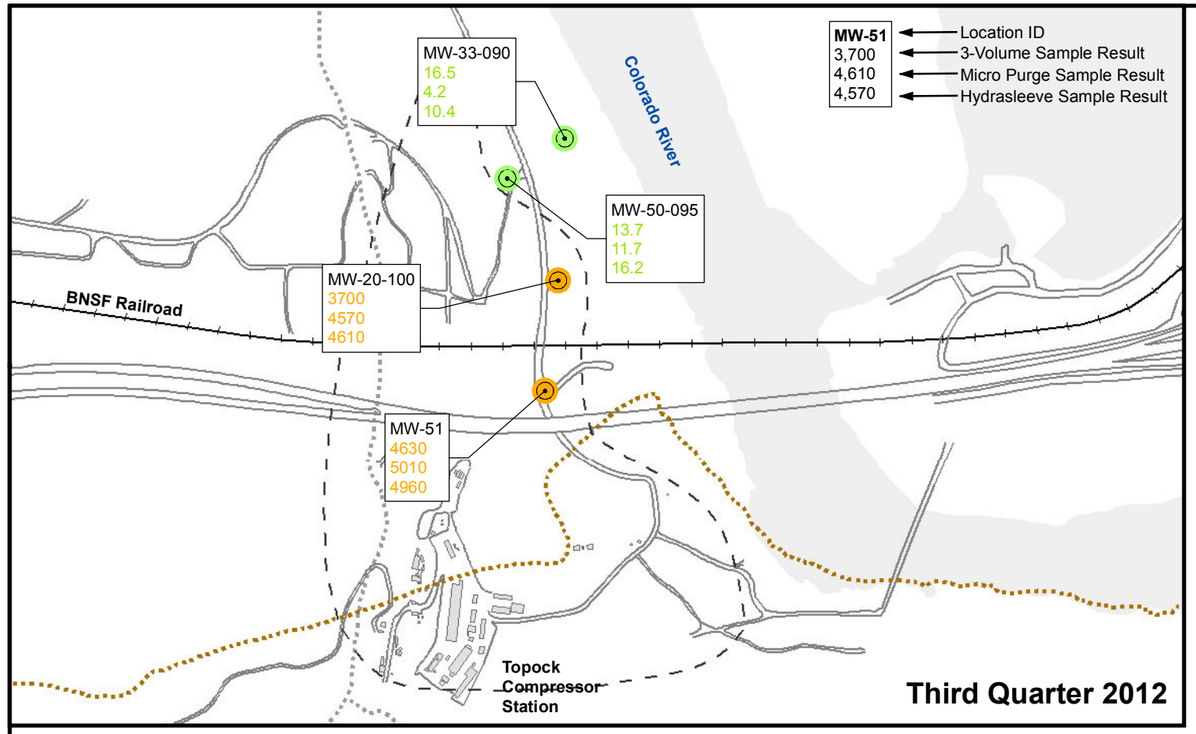
0 400 800 1,600 Feet

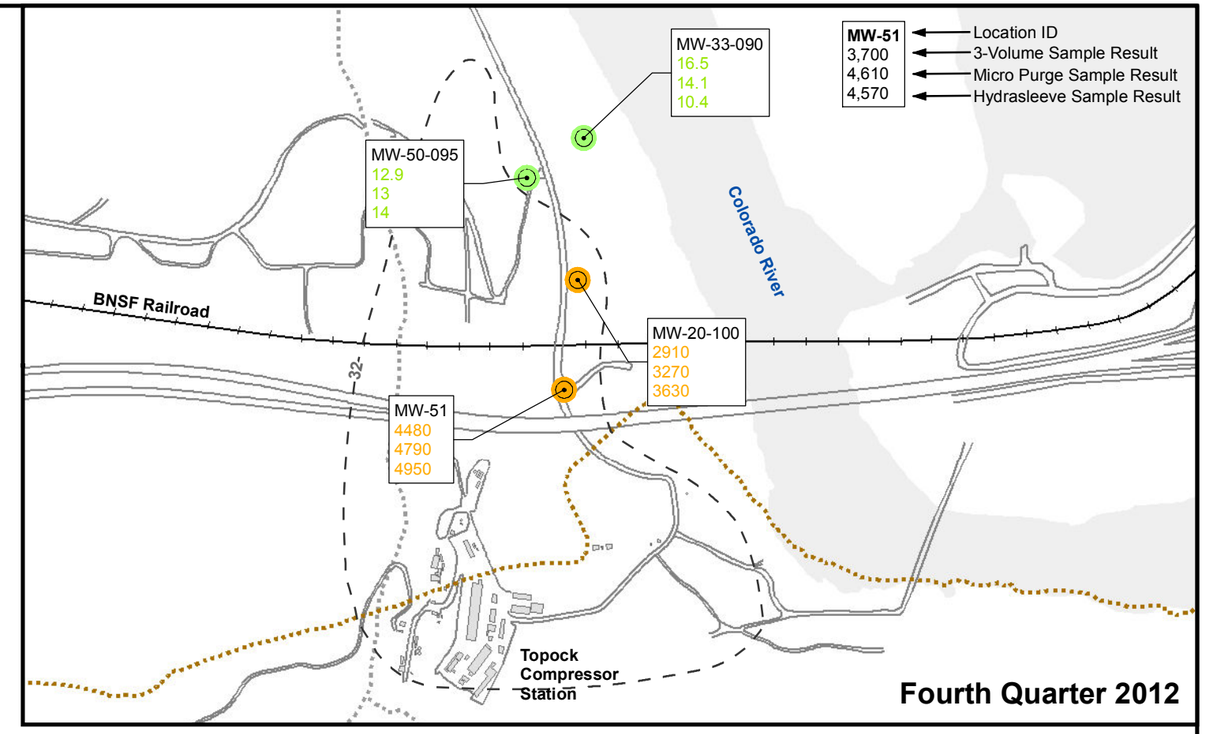
Note:
When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

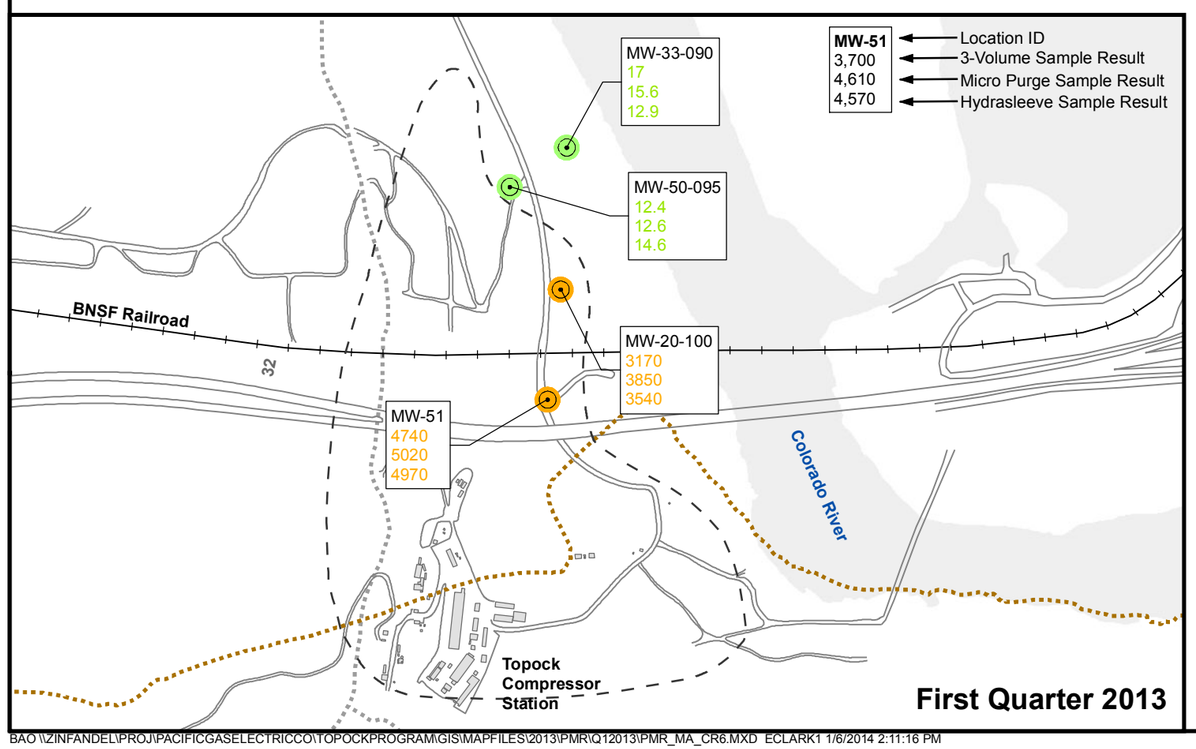
FIGURE H-1
HEXAVALENT CHROMIUM RESULTS FOR SHALLOW ZONE MONITORING WELLS IN SAMPLING METHODS TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_SA_CR6.MXD ECLARK1 1/6/2014 2:07:01 PM







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock

Hexavalent Chromium [Cr(VI)] Concentrations (3-Volume method)

- Not Detected at Analytical Reporting Limit
- Concentration Between Reporting Limit and 32 µg/L
- Concentration >32 µg/L

- 32 - Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L

Approximate bedrock contact

Cr(VI) Sample Method Results

Not detected at analytical reporting limit
Concentration between reporting limit and 32 µg/L
Concentration >32 µg/L

MW-51 ← Location ID
3,700 ← 3-Volume Sample Result
4,610 ← Micro Purge Sample Result
4,570 ← Hydrasleeve Sample Result

N

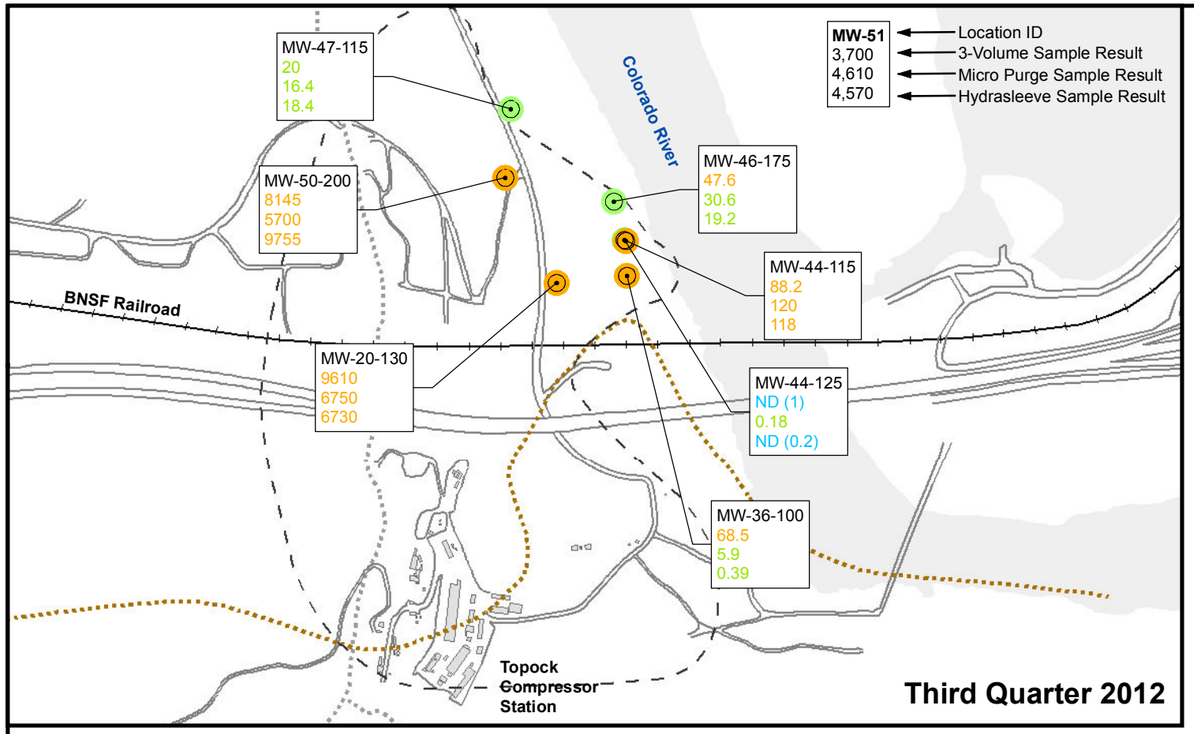
0 400 800 1,600 Feet

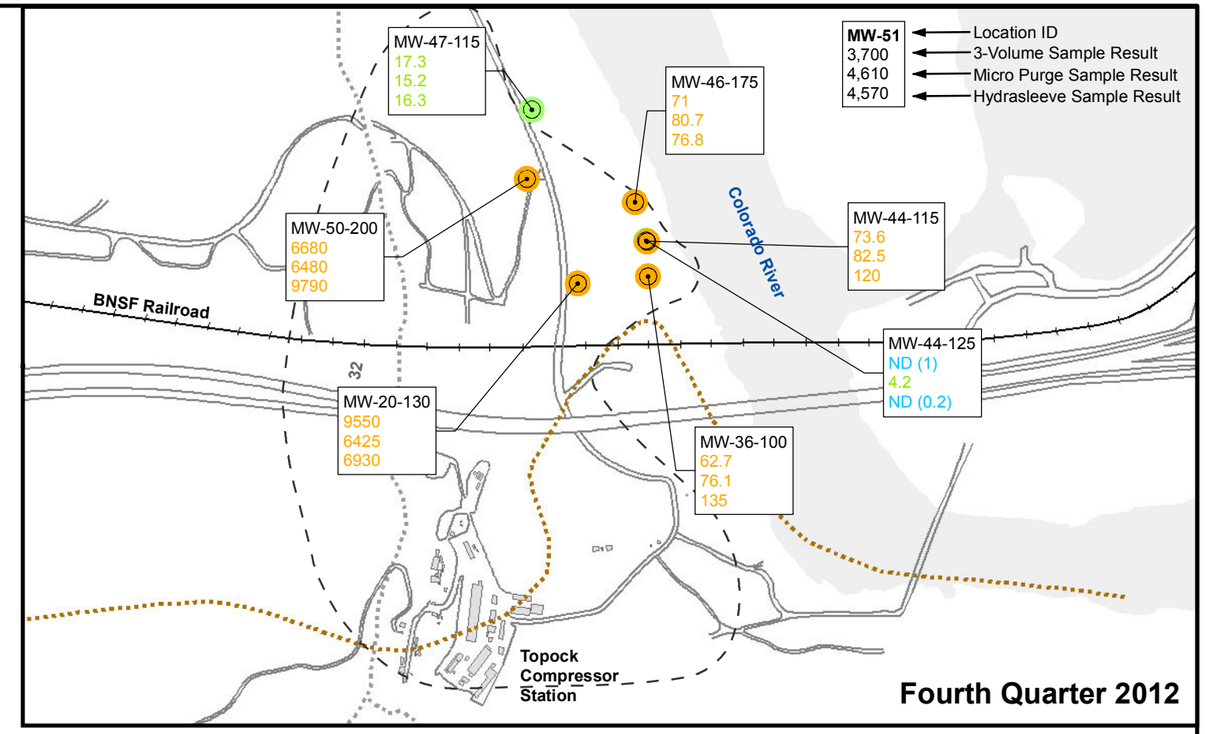
Note:
When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

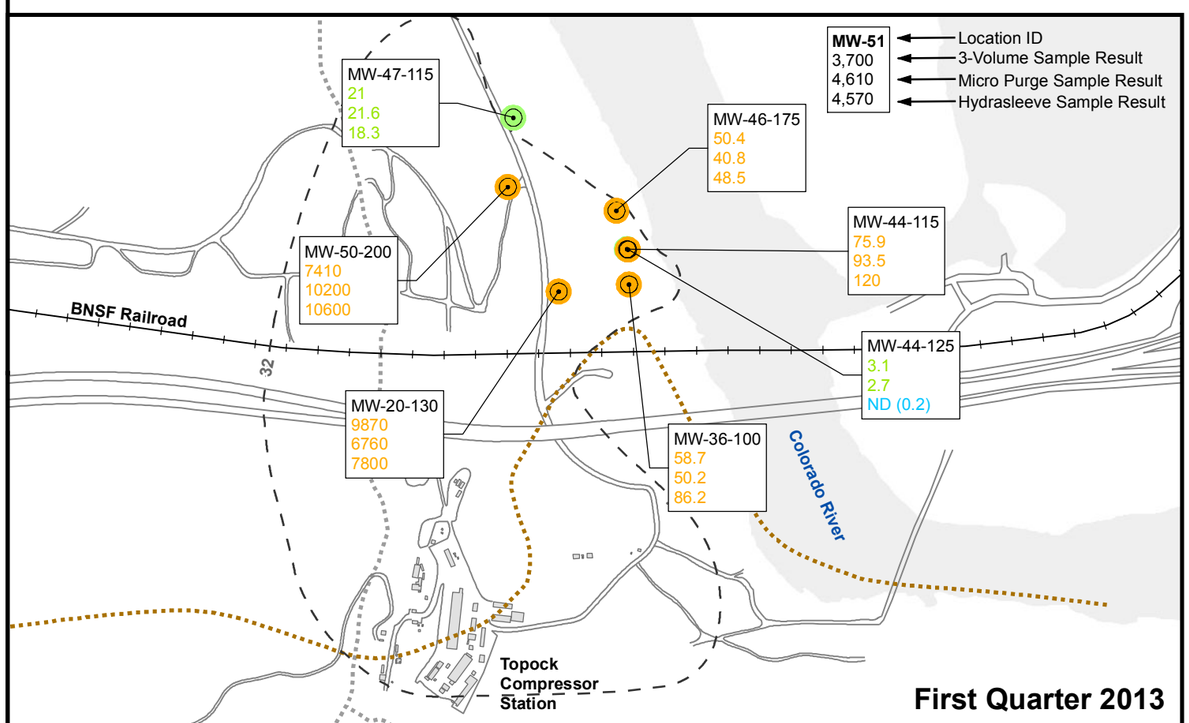
FIGURE H-2
HEXAVALENT CHROMIUM RESULTS FOR MID DEPTH ZONE MONITORING WELLS IN SAMPLING METHODS TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_MA_CR6.MXD ECLARK1 1/6/2014 2:11:16 PM







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock

Hexavalent Chromium [Cr(VI)] Concentrations (3-Volume method)

- Not Detected at Analytical Reporting Limit
- Concentration Between Reporting Limit and 32 µg/L
- Concentration >32 µg/L

- 32 - Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L

Approximate bedrock contact

Cr(VI) Sample Method Results

Not detected at analytical reporting limit
Concentration between reporting limit and 32 µg/L
Concentration >32 µg/L

MW-51 ← Location ID
3,700 ← 3-Volume Sample Result
4,610 ← Micro Purge Sample Result
4,570 ← Hydrasleeve Sample Result

N

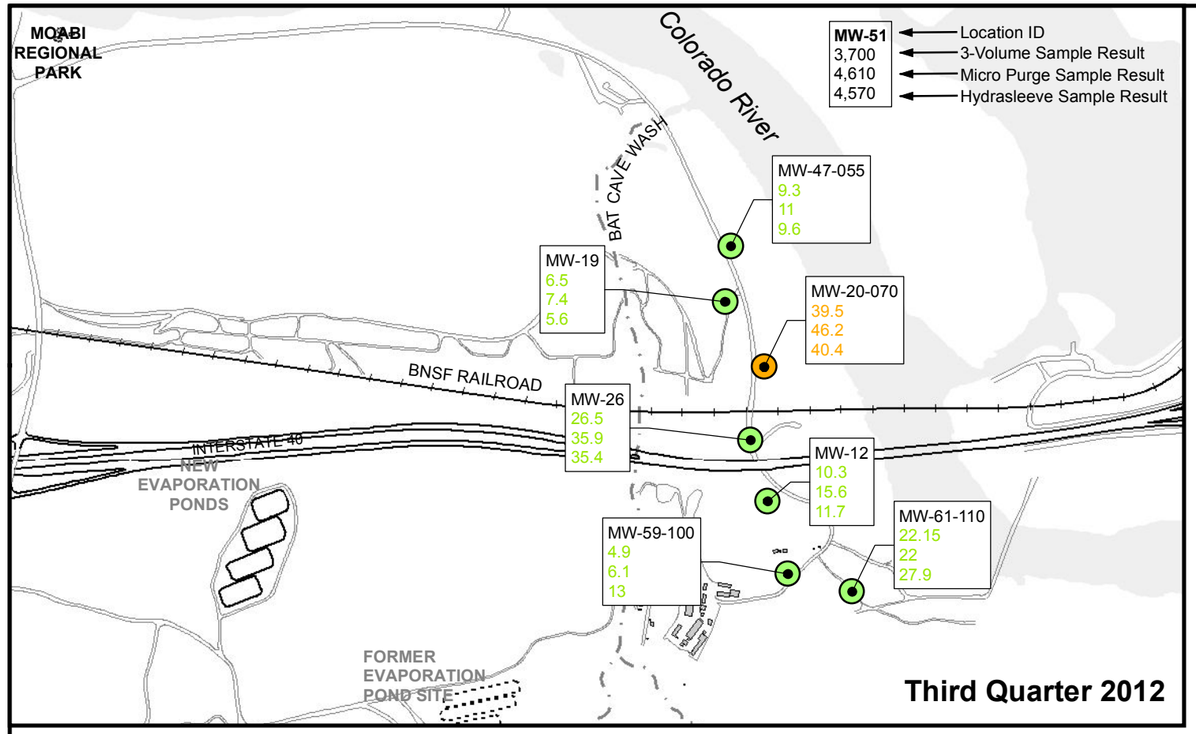
0 400 800 1,600 Feet

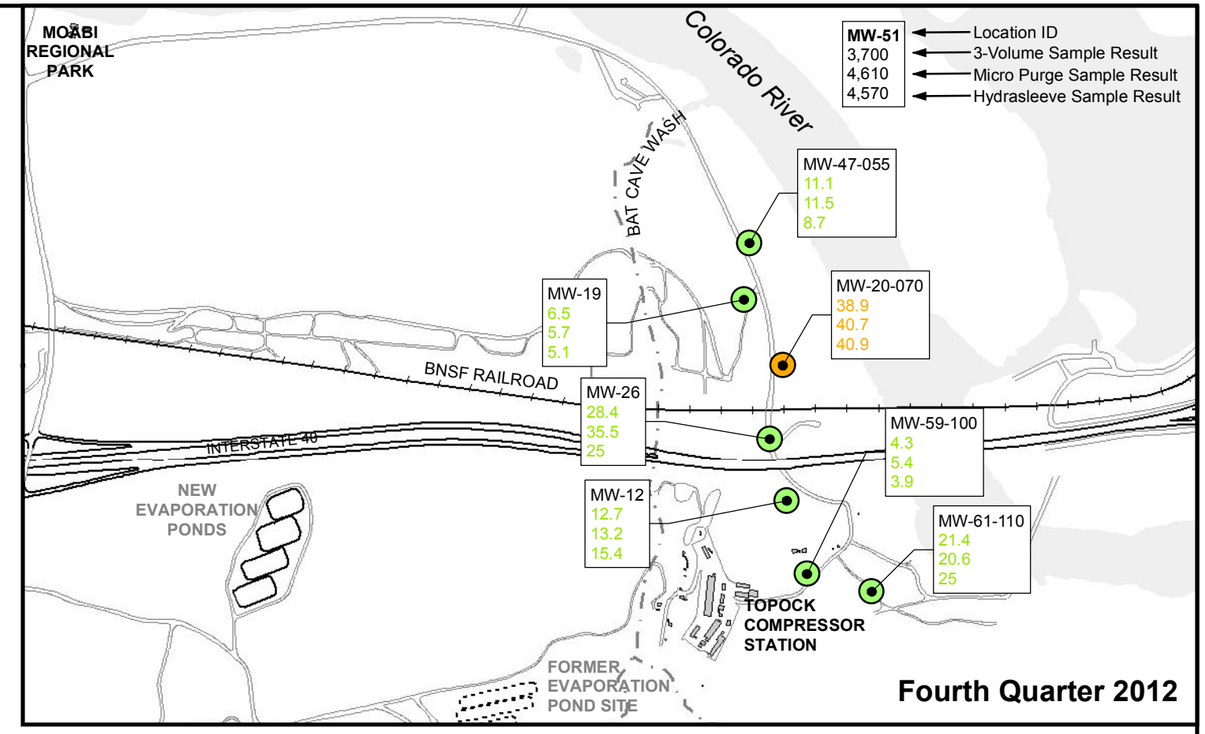
Note:
When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

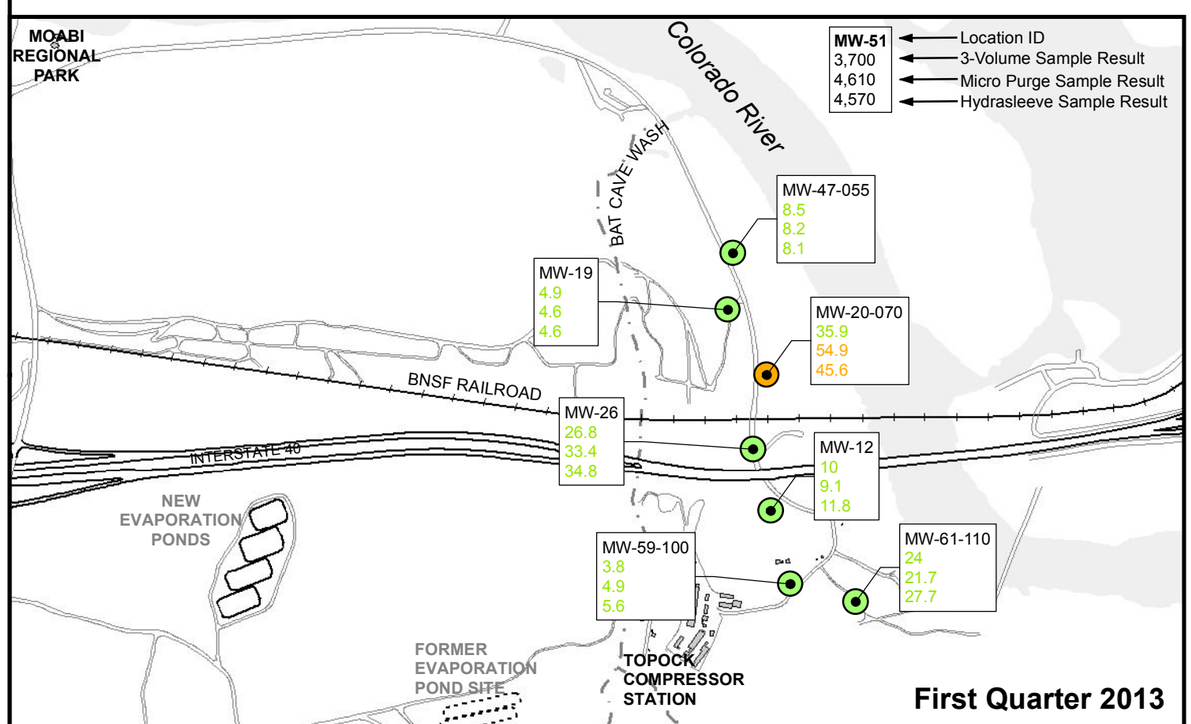
FIGURE H-3
HEXAVALENT CHROMIUM RESULTS FOR DEEP ZONE MONITORING WELLS IN SAMPLING METHODS TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_DA_CR6.MXD ECLARK1 1/6/2014 2:10:49 PM







LEGEND

- ● Groundwater Well Completed in Alluvial Aquifer
- ■ Groundwter Well Completed in Bedrock Aquifer
- Not Detected
- Concentration < 36.3 µg/L
- Concentration > 36.3 µg/L

µg/L = micrograms per Liter
USEPA = United States Environmental Protection Agency

Dissolved Molybdenum Concentrations

MW-10 ← Well ID

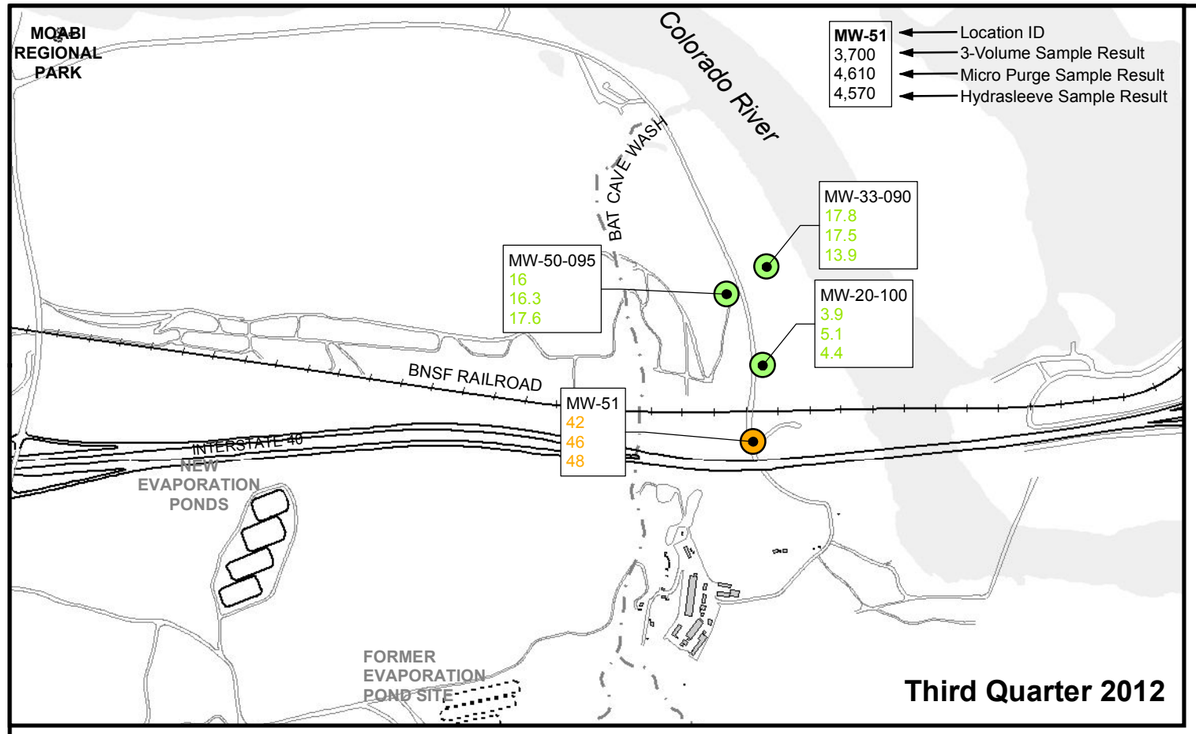
5.8 ← Concentration in µg/L (micrograms per Liter)

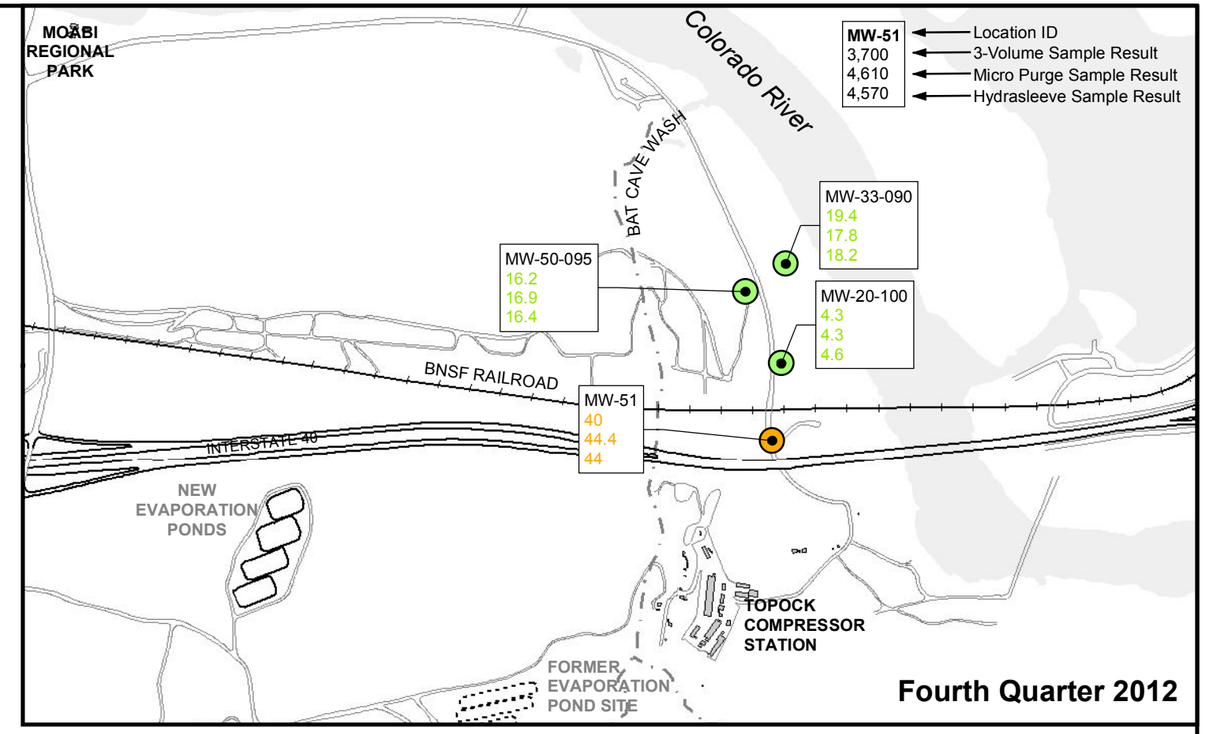
Notes:
1. Molybdenum Background Study Upper Tolerance Limit (UTL) = 36.3 µg/L
2. There is no USEPA and California Maximum Contaminant Level for Molybdenum.
3. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

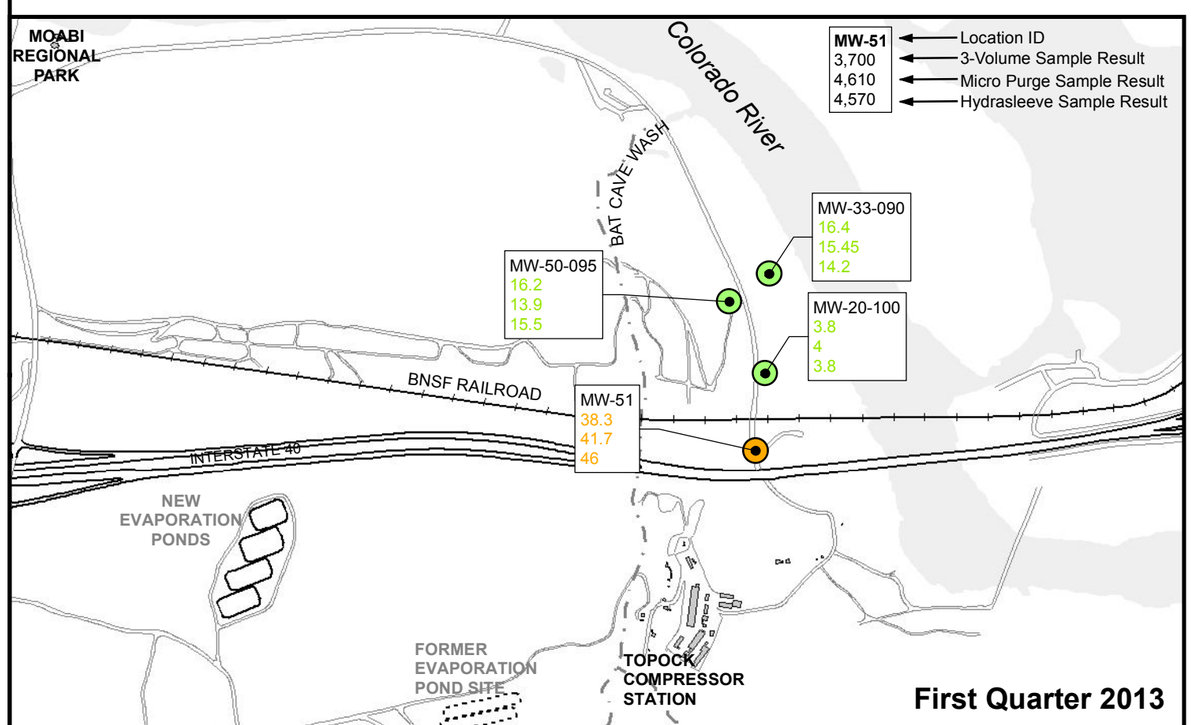
FIGURE H-4a
MOLYBDENUM RESULTS FOR SHALLOW DEPTH MONITORING WELLS IN SAMPLING TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_SA_MOLYBDENUM.MXD ECLARK1 1/6/2014 2:45:35 PM







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock
- Not Detected
- Concentration < 36.3 µg/L
- Concentration > 36.3 µg/L

µg/L = micrograms per Liter
USEPA = United States Environmental Protection Agency

Dissolved Molybdenum Concentrations

MW-10 ← Well ID

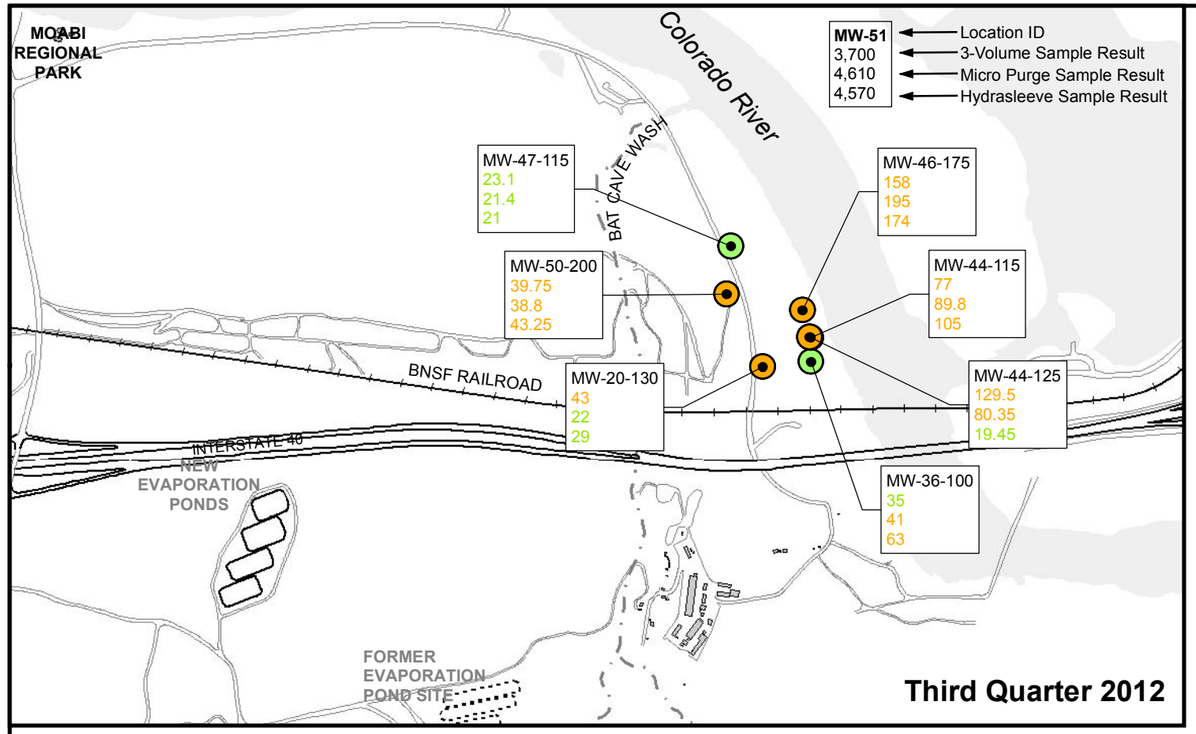
5.8 ← Concentration in µg/L (micrograms per Liter)

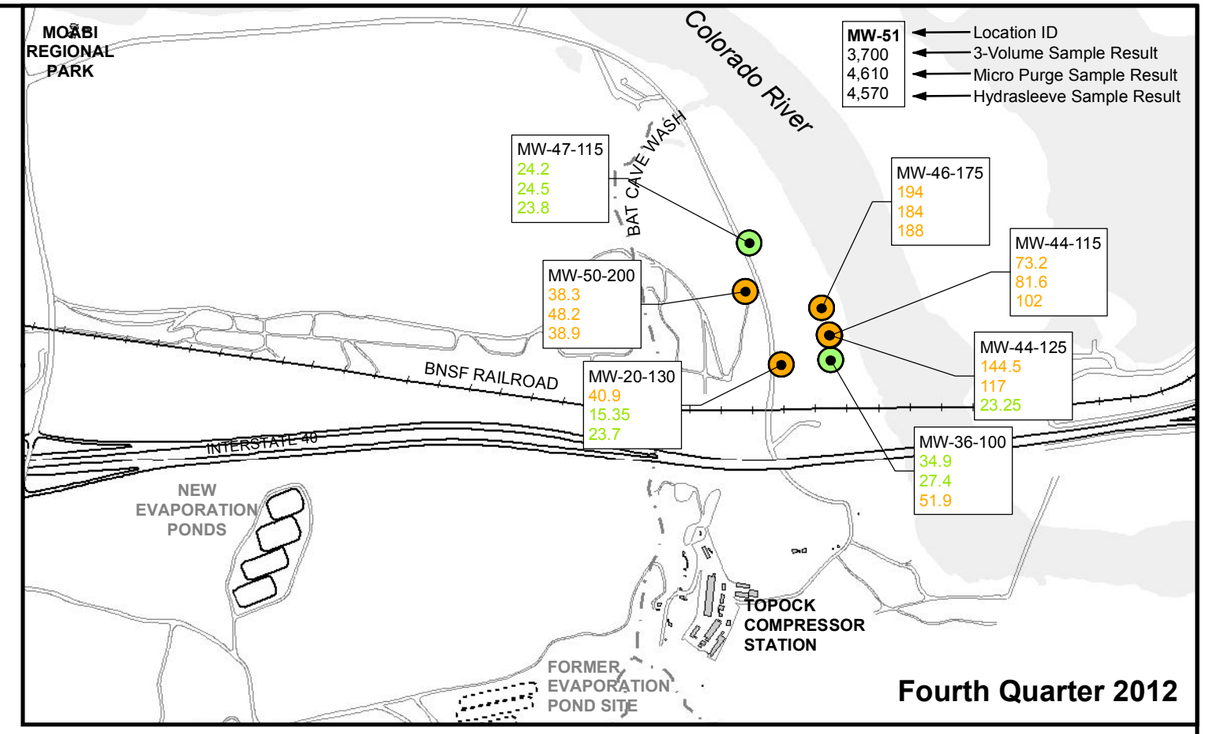
Notes:
1. Molybdenum Background Study Upper Tolerance Limit (UTL) = 36.3 µg/L
2. There is no USEPA and California Maximum Contaminant Level for Molybdenum.
3. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

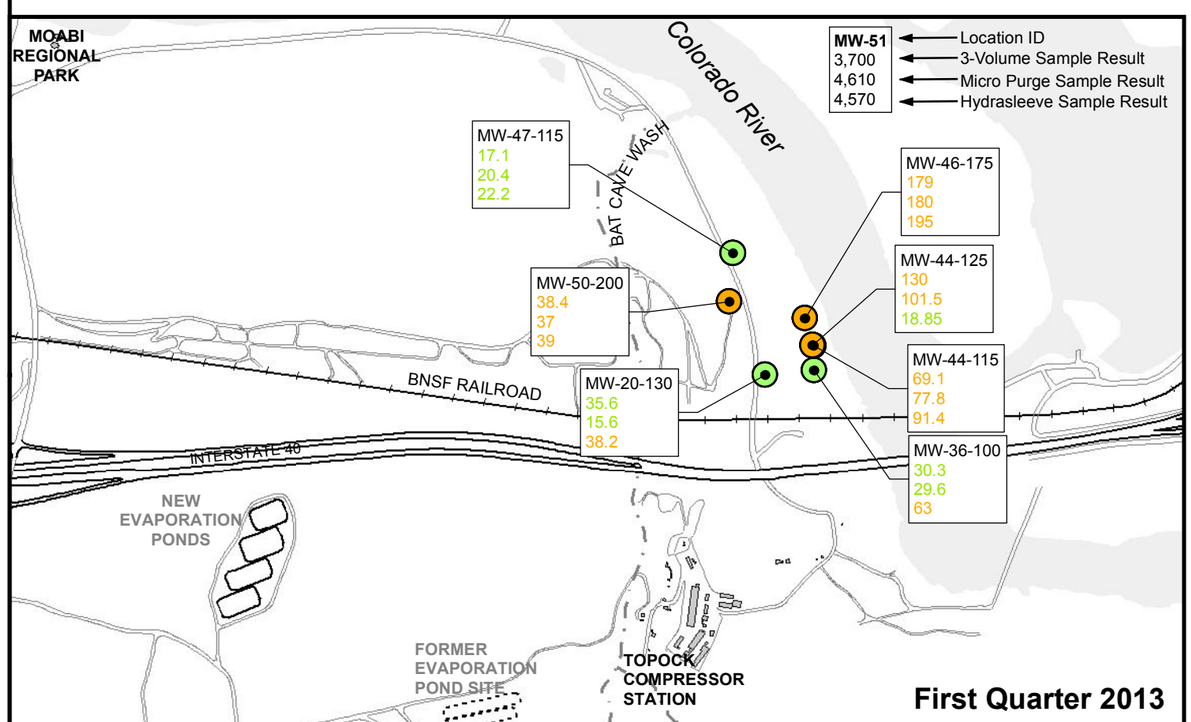
FIGURE H-4b
MOLYBDENUM RESULTS FOR MID-DEPTH MONITORING WELLS IN SAMPLING TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_MA_MOLYBDENUM.MXD ECLARK1 1/6/2014 2:45:18 PM







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwter Well Completed in Bedrock Aquifer
- Not Detected
- Concentration < 36.3 µg/L
- Concentration > 36.3 µg/L

µg/L = micrograms per Liter
USEPA = United States Environmental Protection Agency

Dissolved Molybdenum Concentrations

MW-10 ← Well ID

5.8 ← Concentration in µg/L (micrograms per Liter)

Notes:

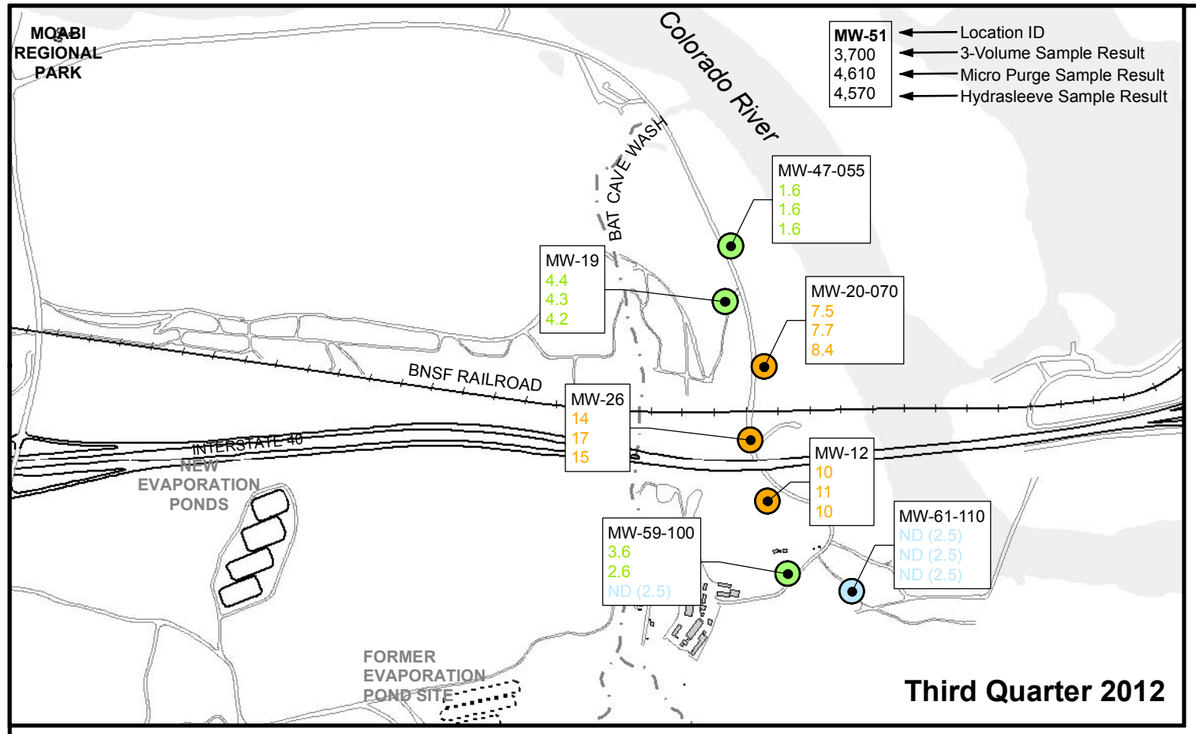
1. Molybdenum Background Study Upper Tolerance Limit (UTL) = 36.3 µg/L
2. There is no USEPA and California Maximum Contaminant Level for Molybdenum.
3. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

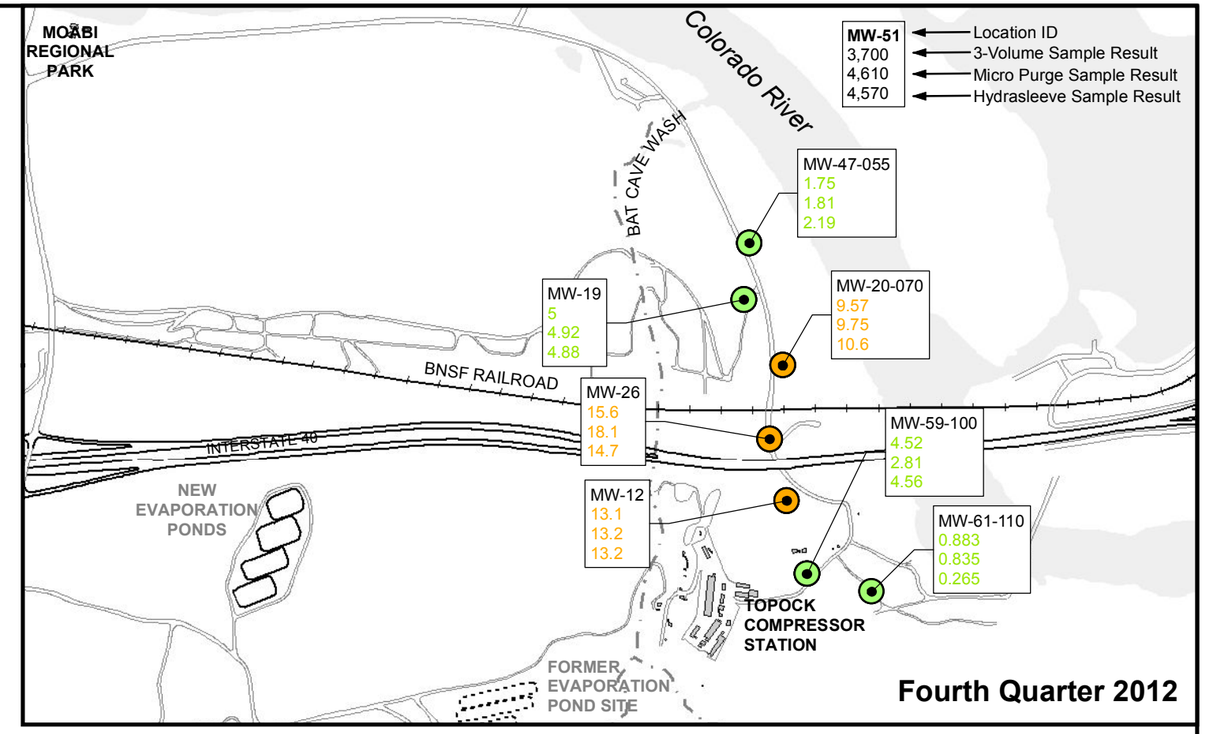
FIGURE H-4c
MOLYBDENUM RESULTS FOR DEEP MONITORING WELLS IN SAMPLING TRIAL

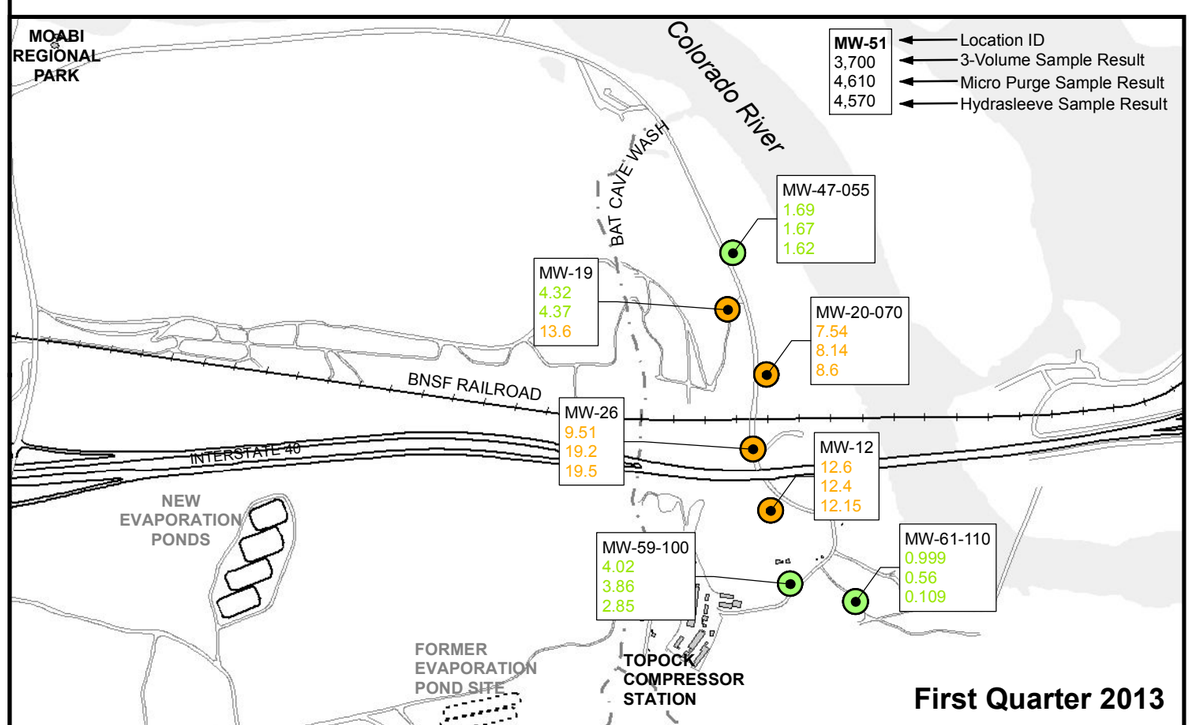
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_DA_MOLYBDENUM.MXD ECLARK1 1/6/2014 2:44:59 PM







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock
- Not Detected
- Concentration < 5.03 mg/L
- Concentration > 5.03 mg/L

mg/L = milligrams per Liter
USEPA = United States Environmental Protection Agency

Nitrate as Nitrogen Concentrations

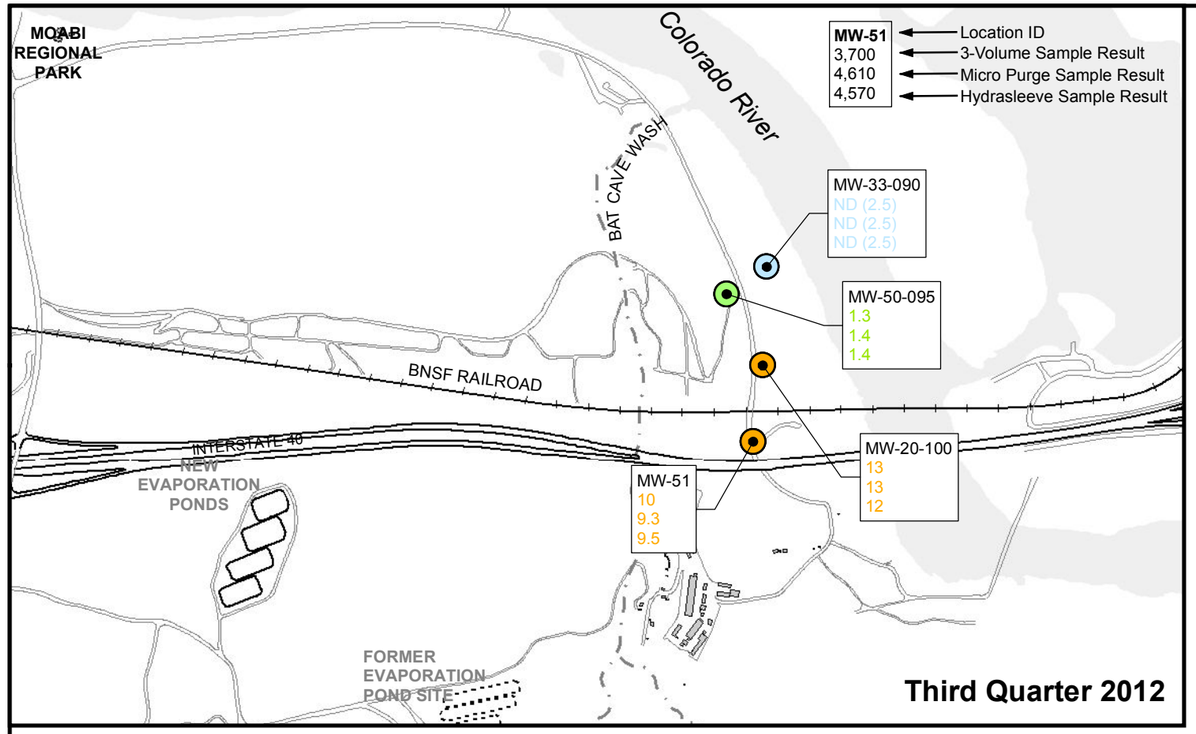
MW-10 ← Well ID
5.8 ← Concentration in mg/L

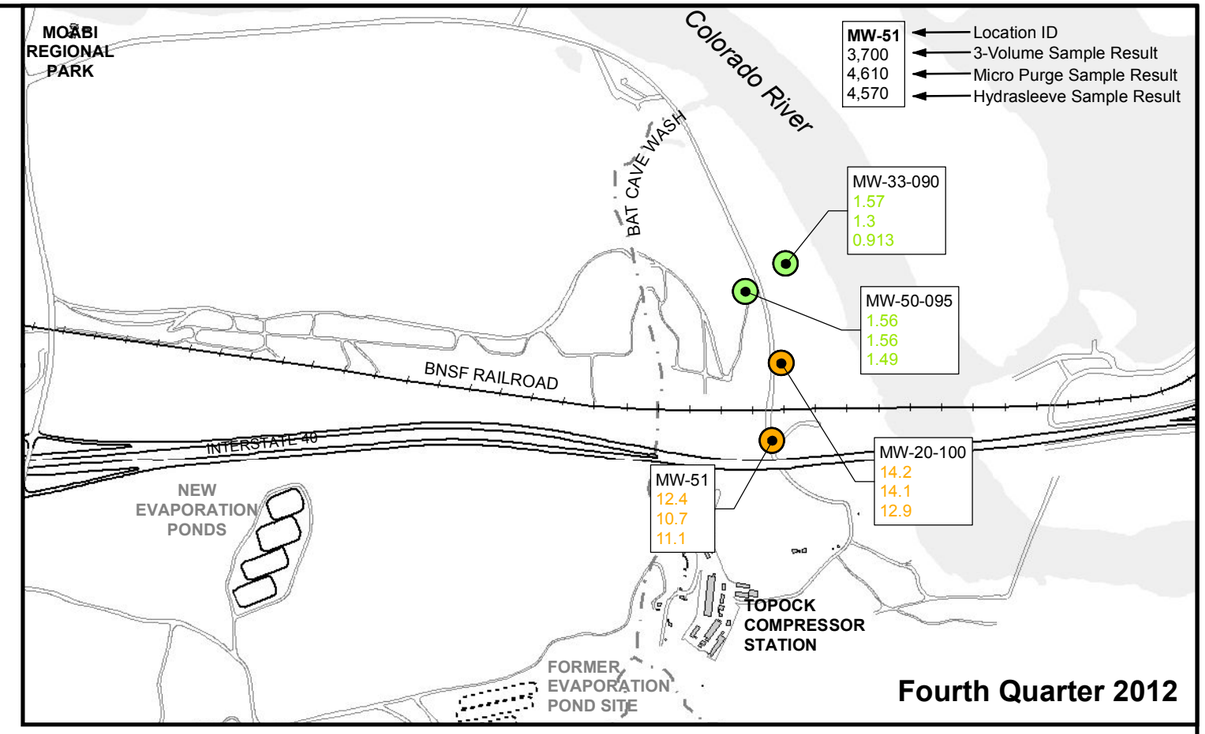
Notes:
1. Nitrate as N Background Study Upper Tolerance Limit (UTL) = 5.03 mg/L
2. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

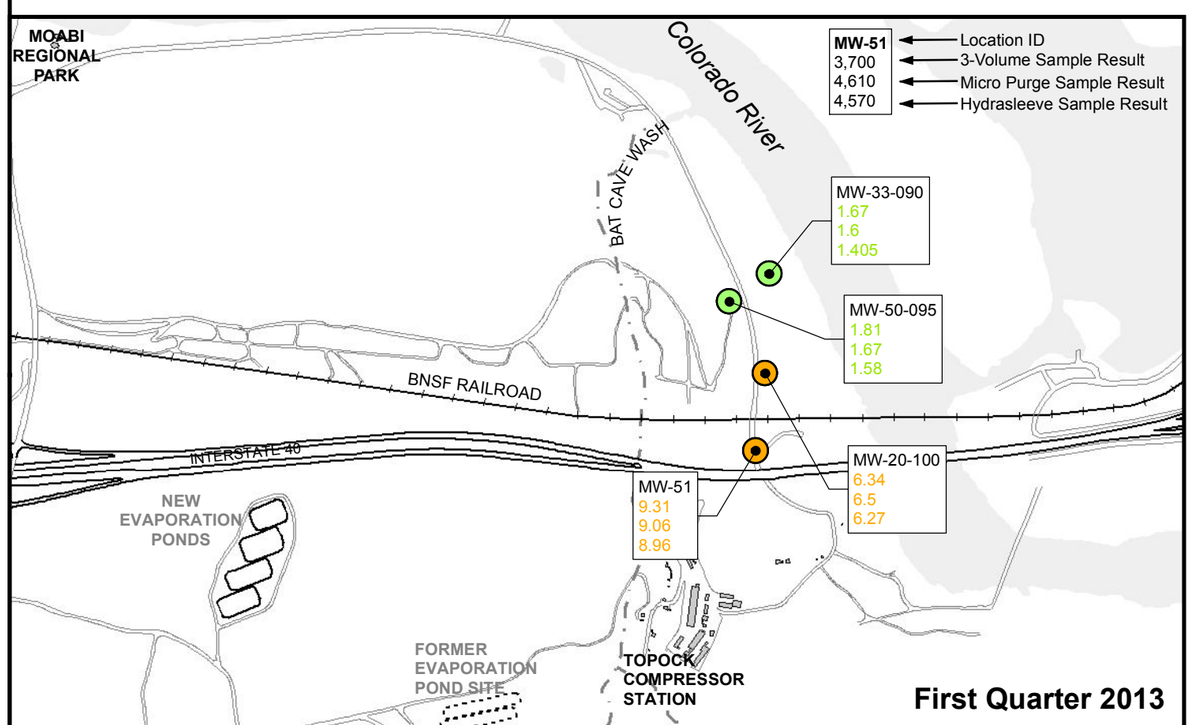
FIGURE H-5a
NITRATE RESULTS FOR SHALLOW MONITORING WELLS IN SAMPLING TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_SA_NITRATE2ND.MXD ECLARK1 1/6/2014 2:46:40 PM







LEGEND

- ● Groundwater Well Completed in Alluvial Aquifer
- ■ Groundwater Well Completed in Bedrock
- Not Detected
- Concentration < 5.03 mg/L
- Concentration > 5.03 mg/L

mg/L = milligrams per Liter
USEPA = United States Environmental Protection Agency

Nitrate as Nitrogen Concentrations

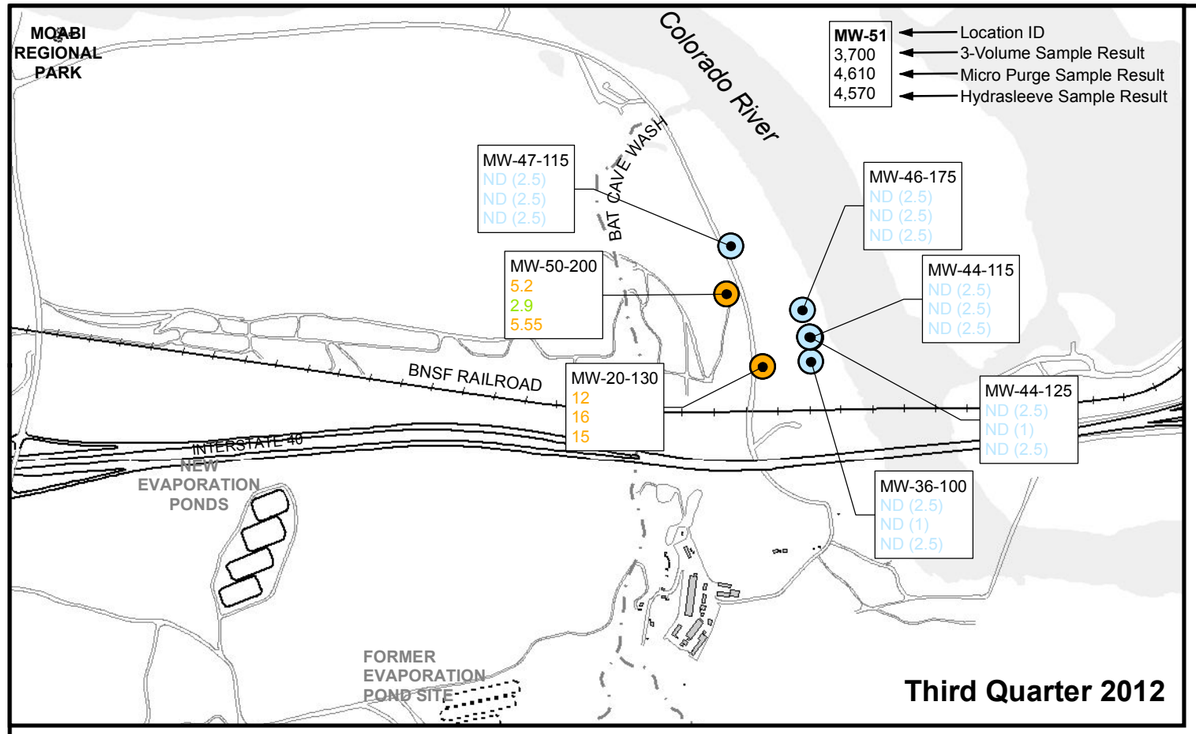
MW-10 ← Well ID
5.8 ← Concentration in mg/L

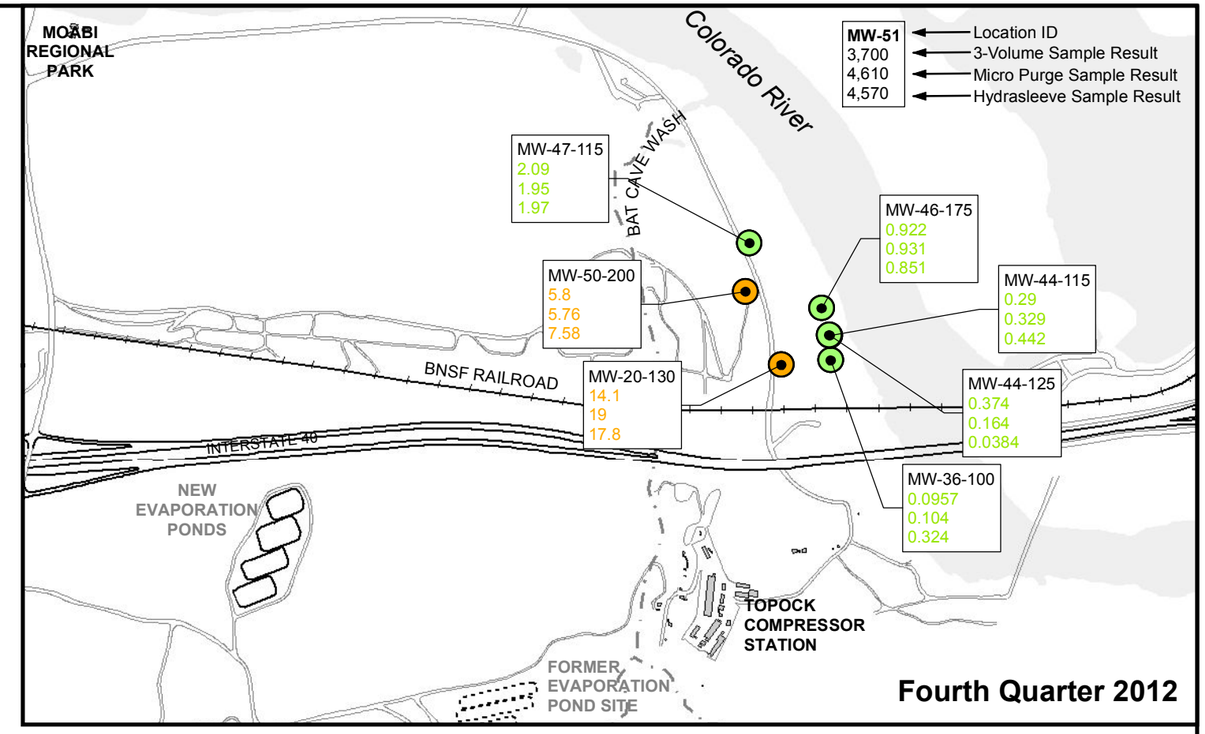
Notes:
1. Nitrate as N Background Study Upper Tolerance Limit (UTL) = 5.03 mg/L
2. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

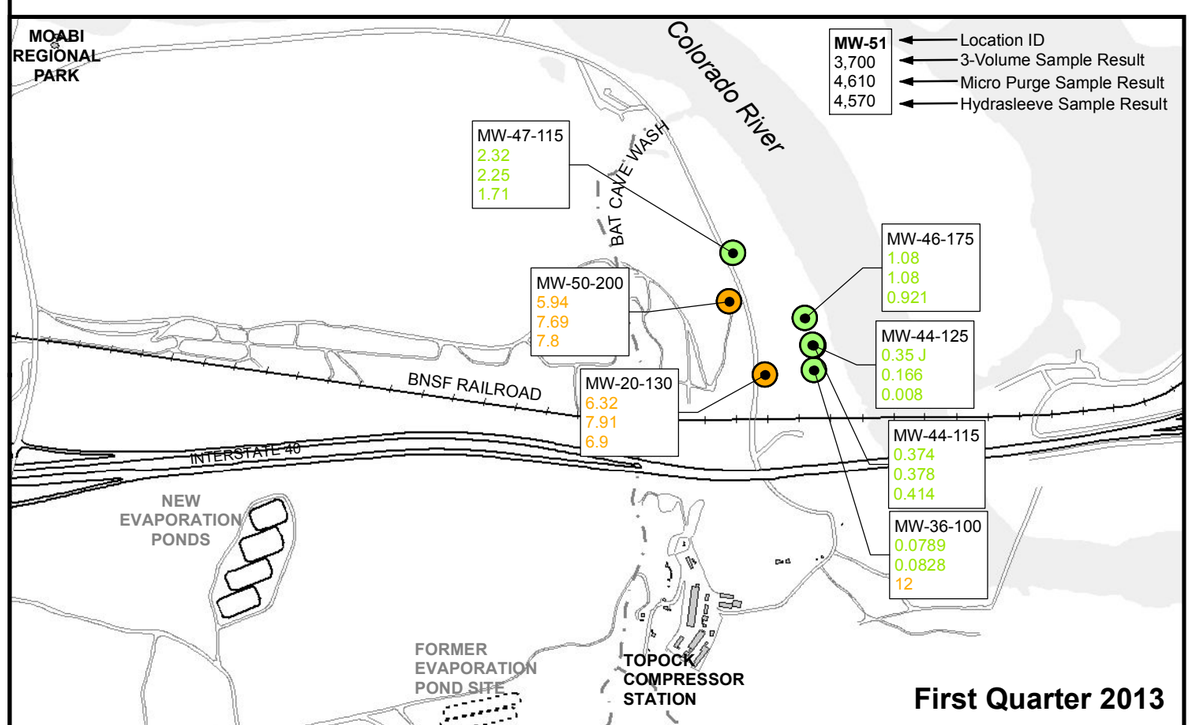
FIGURE H-5b
NITRATE RESULTS FOR MID-DEPTH MONITORING WELLS IN SAMPLING TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_MA_NITRATE2ND.MXD ECLARK1 1/6/2014 2:46:25 PM







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock
- Not Detected
- Concentration < 5.03 mg/L
- Concentration > 5.03 mg/L

mg/L = milligrams per Liter
USEPA = United States Environmental Protection Agency

Nitrate as Nitrogen Concentrations

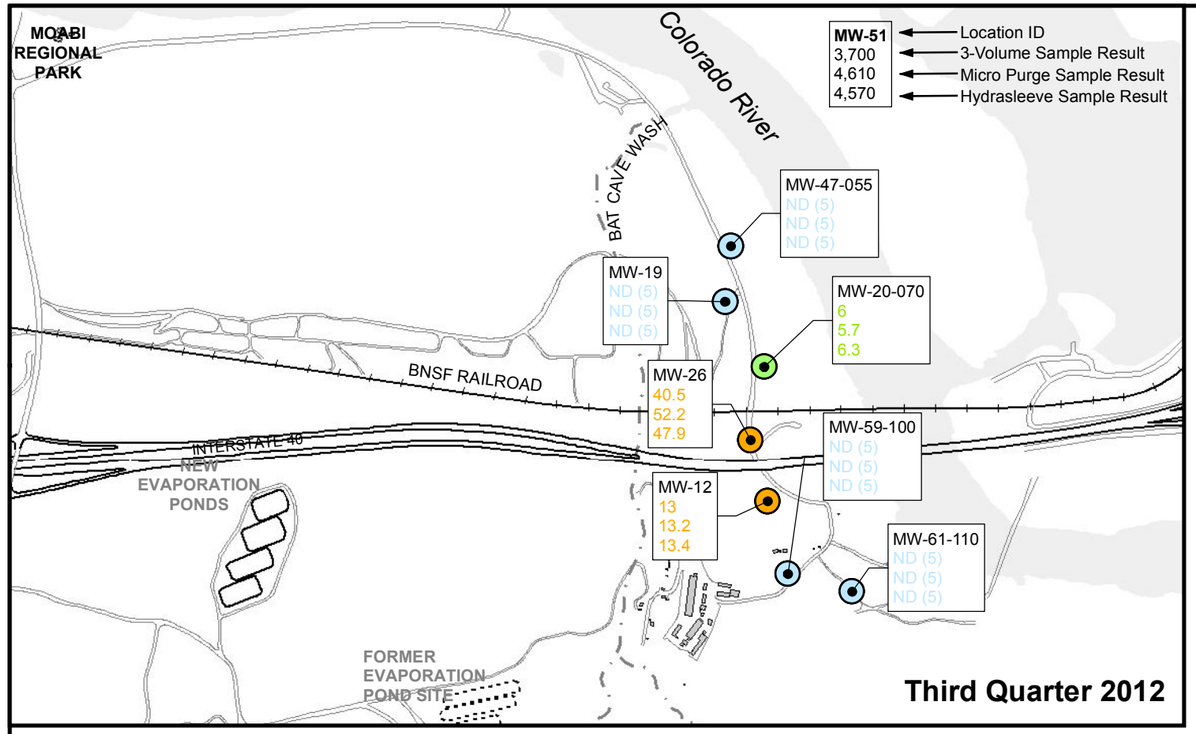
MW-10 ← Well ID
5.8 ← Concentration in mg/L

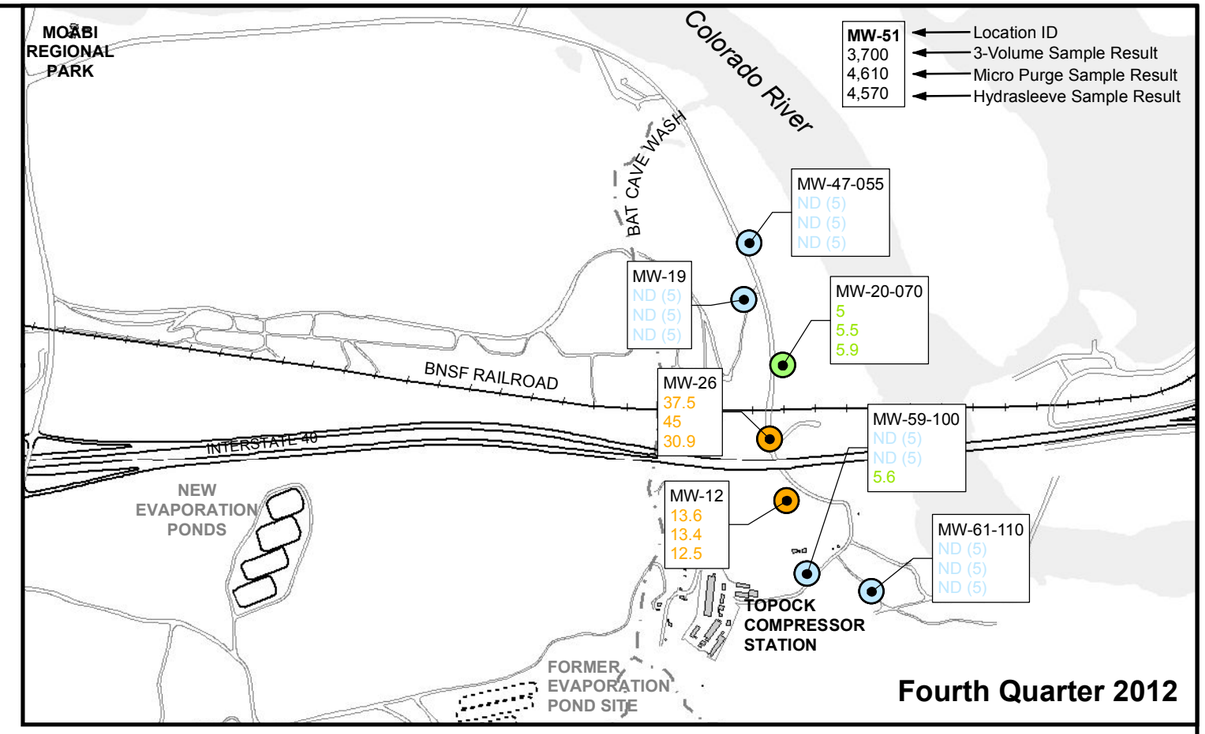
Notes:
1. Nitrate as N Background Study Upper Tolerance Limit (UTL) = 5.03 mg/L
2. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

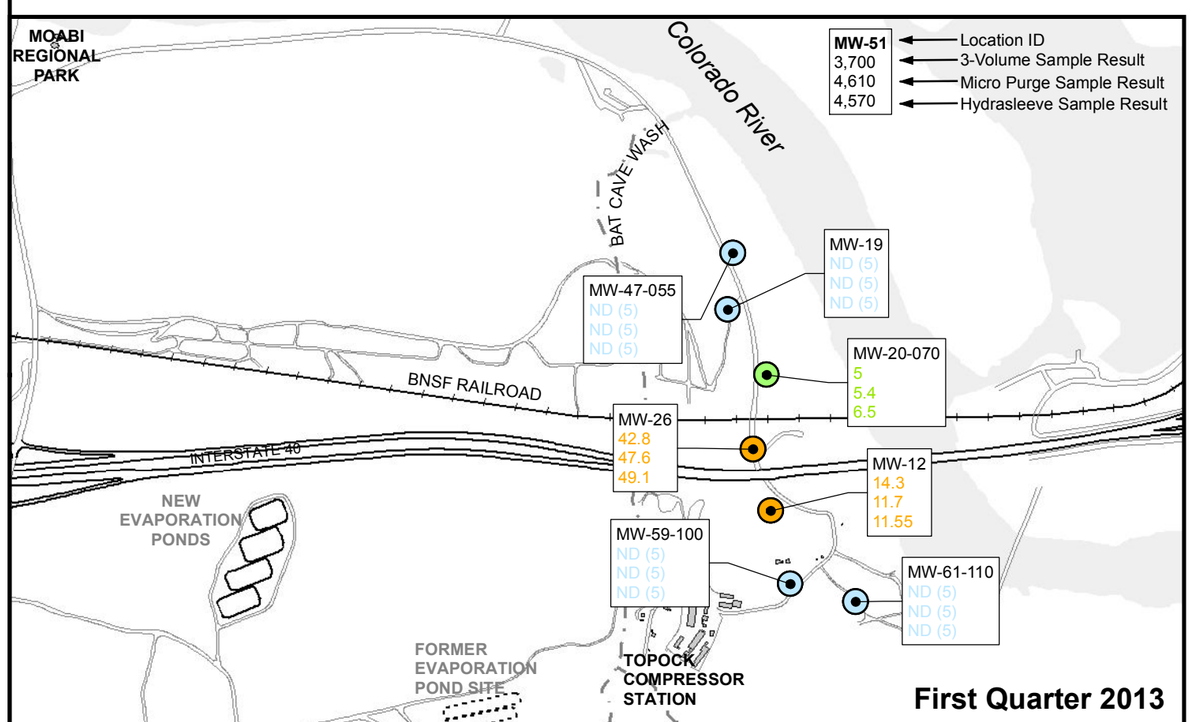
FIGURE H-5c
NITRATE RESULTS FOR DEEP MONITORING WELLS IN SAMPLING TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_DA_NITRATE2ND.MXD ECLARK1 1/6/2014 2:46:07 PM







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock
- Not Detected
- Concentration < 10.03 µg/L
- Concentration > 10.03 µg/L

µg/L = micrograms per Liter
USEPA = United States Environmental Protection Agency

Selenium Concentrations

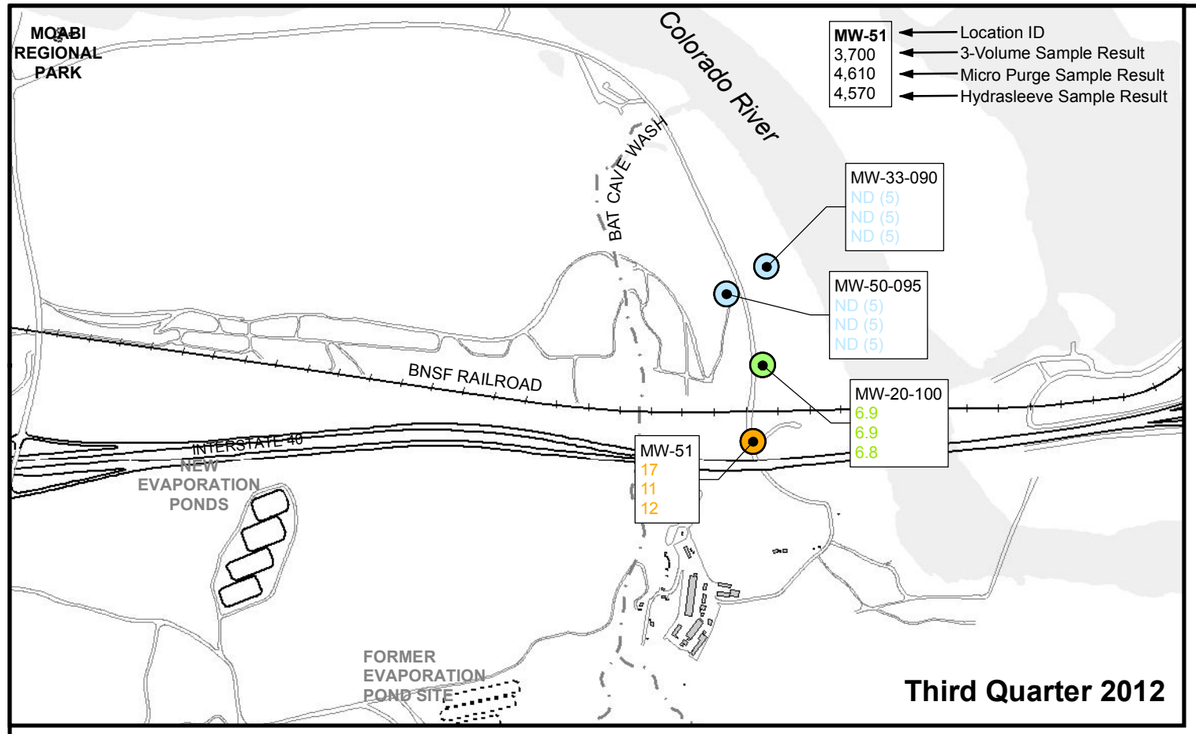
MW-10 ← Well ID
5.8 ← Concentration in µg/L

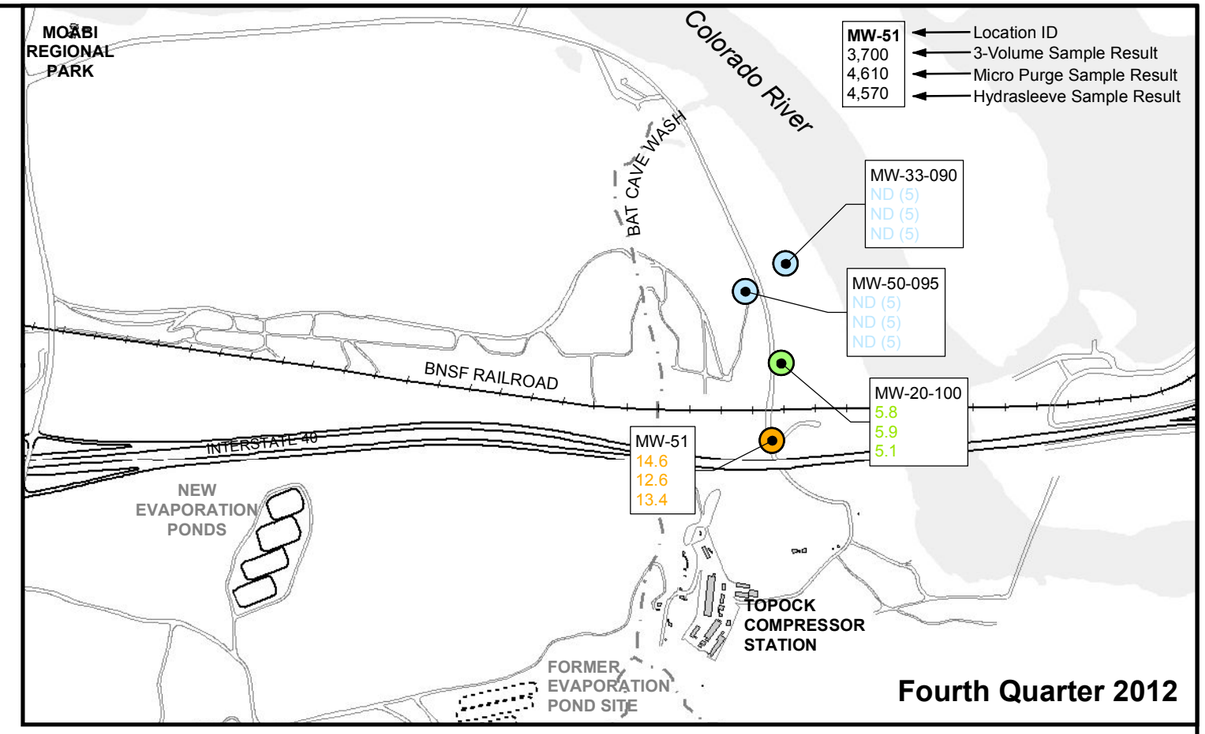
Notes:
1. Selenium Background Study Upper Tolerance Limit (UTL) = 10.3 µg/L
2. Selenium applicable or relavant and appropriate requirement (ARAR) = 50.0 µg/L
3. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

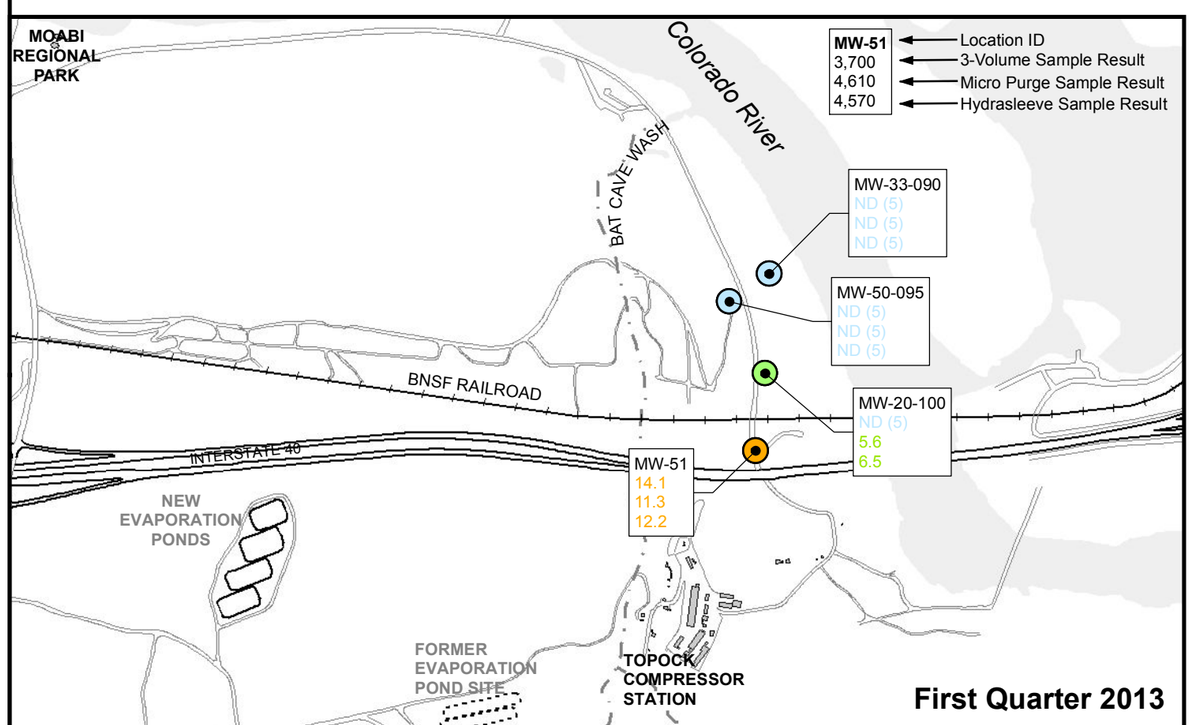
FIGURE H-6a
SELENIUM RESULTS FOR SHALLOW MONITORING WELLS IN SAMPLING TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_SA_SELENIUM.MXD ECLARK1 1/6/2014 2:47:43 PM







LEGEND

- ● Groundwater Well Completed in Alluvial Aquifer
- ■ Groundwater Well Completed in Bedrock
- Not Detected
- Concentration < 10.03 µg/L
- Concentration > 10.03 µg/L

µg/L = micrograms per Liter
USEPA = United States Environmental Protection Agency

Selenium Concentrations

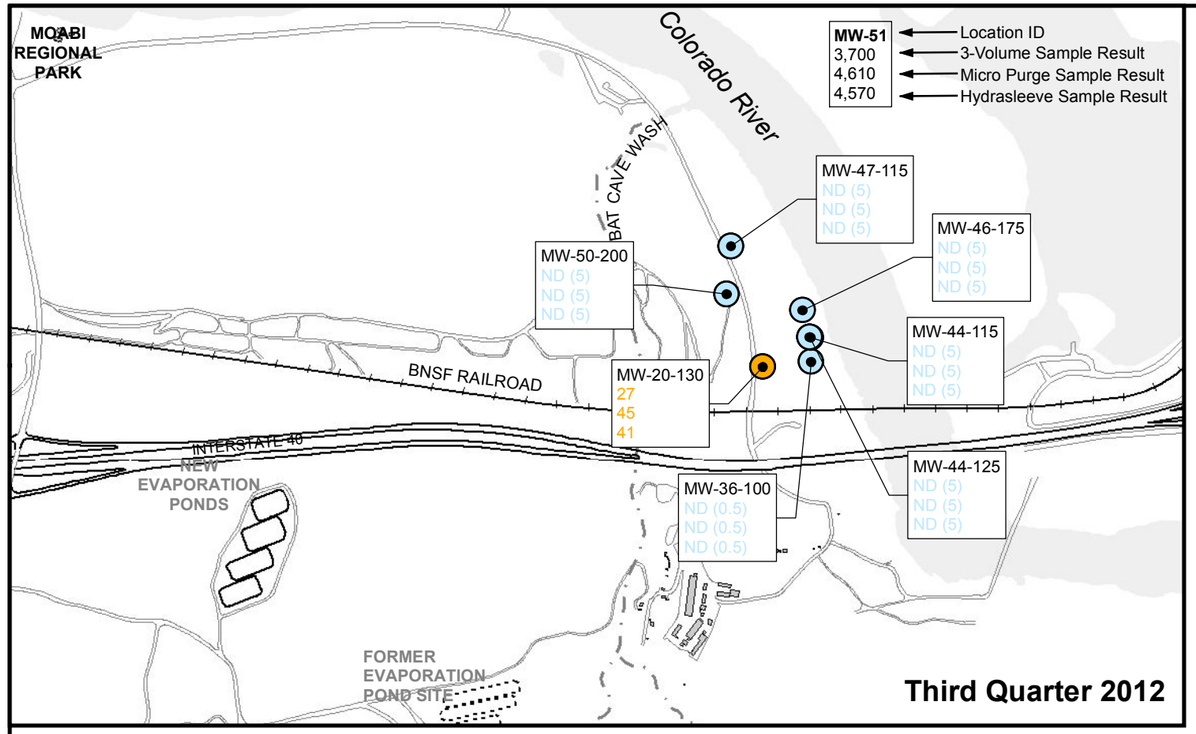
MW-10 ← Well ID
5.8 ← Concentration in µg/L

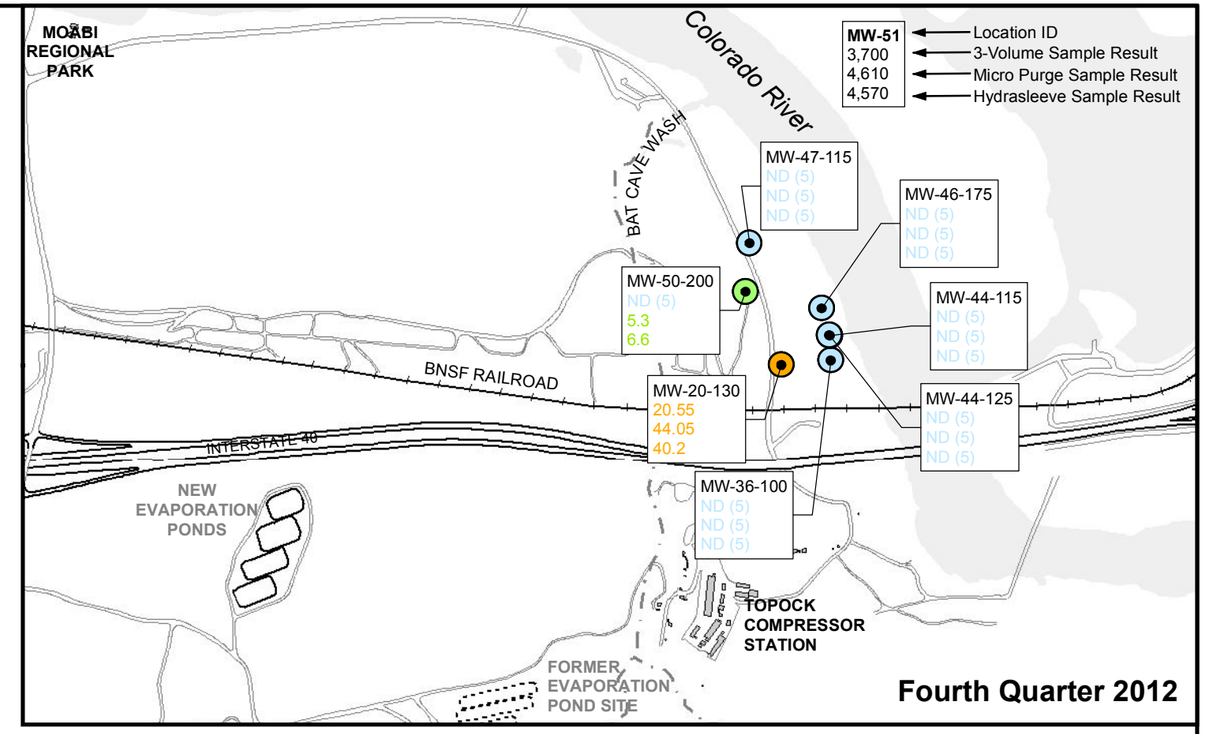
Notes:
1. Selenium Background Study Upper Tolerance Limit (UTL) = 10.3 µg/L
2. Selenium applicable or relavant and appropriate requirement (ARAR) = 50.0 µg/L
3. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

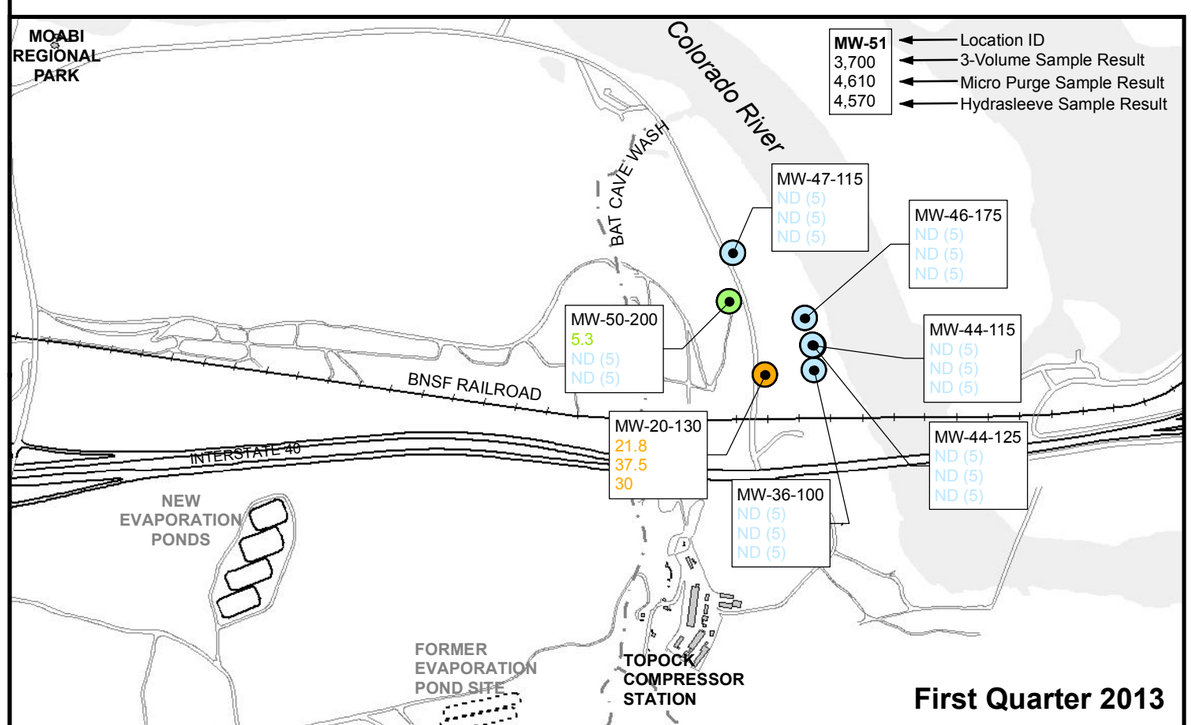
FIGURE H-6b
SELENIUM RESULTS FOR MID-DEPTH MONITORING WELLS IN SAMPLING TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_MA_SELENIUM.MXD ECLARK1 1/6/2014 2:47:25 PM







LEGEND

- ● Groundwater Well Completed in Alluvial Aquifer
- ■ Groundwater Well Completed in Bedrock
- Not Detected
- Concentration < 10.03 µg/L
- Concentration > 10.03 µg/L

µg/L = micrograms per Liter
USEPA = United States Environmental Protection Agency

Dissolved Selenium Concentrations

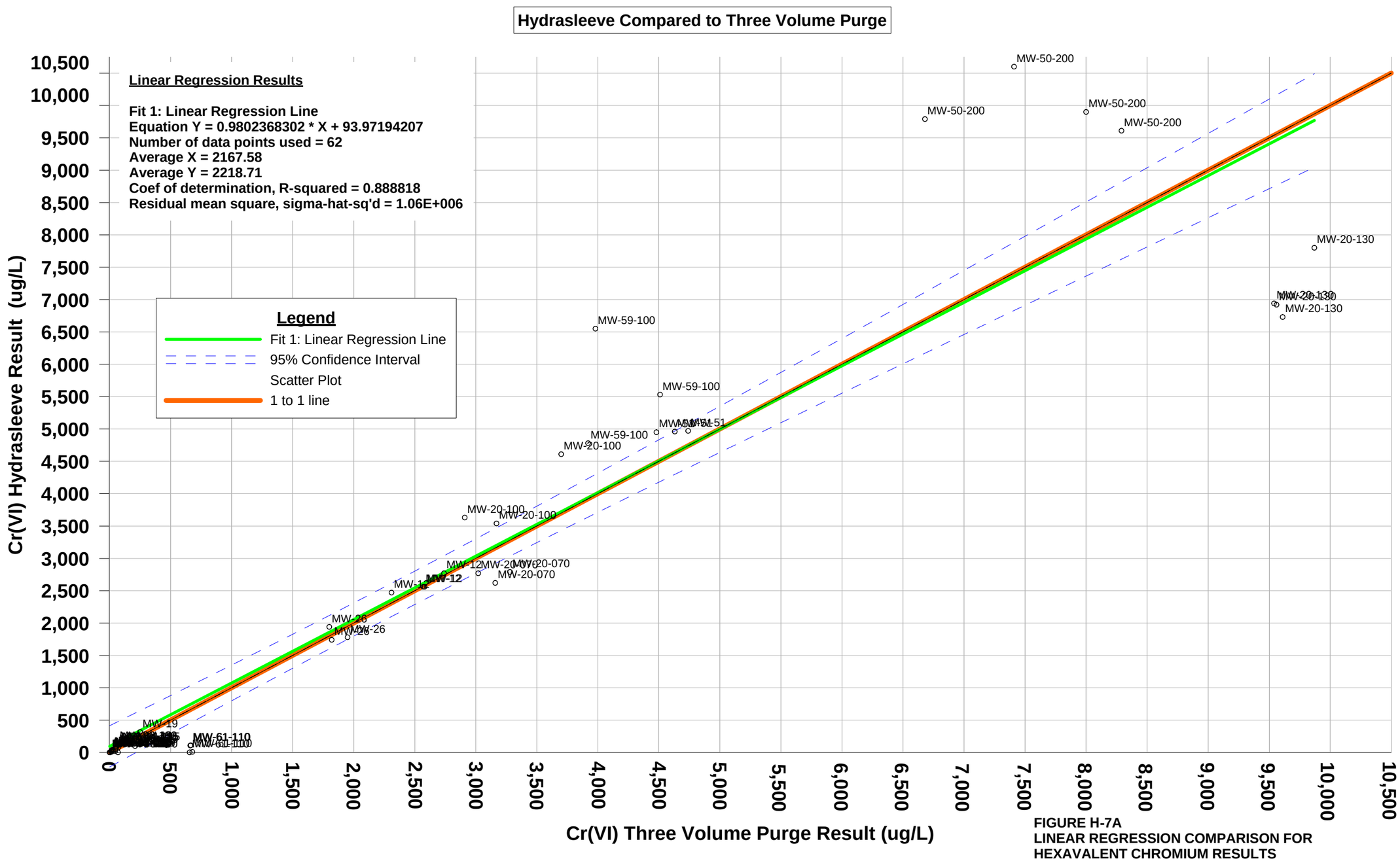
MW-10 ← Well ID
5.8 ← Concentration in µg/L

Notes:
1. Selenium Background Study Upper Tolerance Limit (UTL) = 10.3 µg/L
2. Selenium applicable or relavant and appropriate requirement (ARAR) = 50.0 µg/L
3. When duplicate samples were collected the result posted is the average between the primary and duplicate sample results.

FIGURE H-6c
SELENIUM RESULTS FOR DEEP MONITORING WELLS IN SAMPLING TRIAL
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES, NEEDLES, CALIFORNIA

CH2MHILL

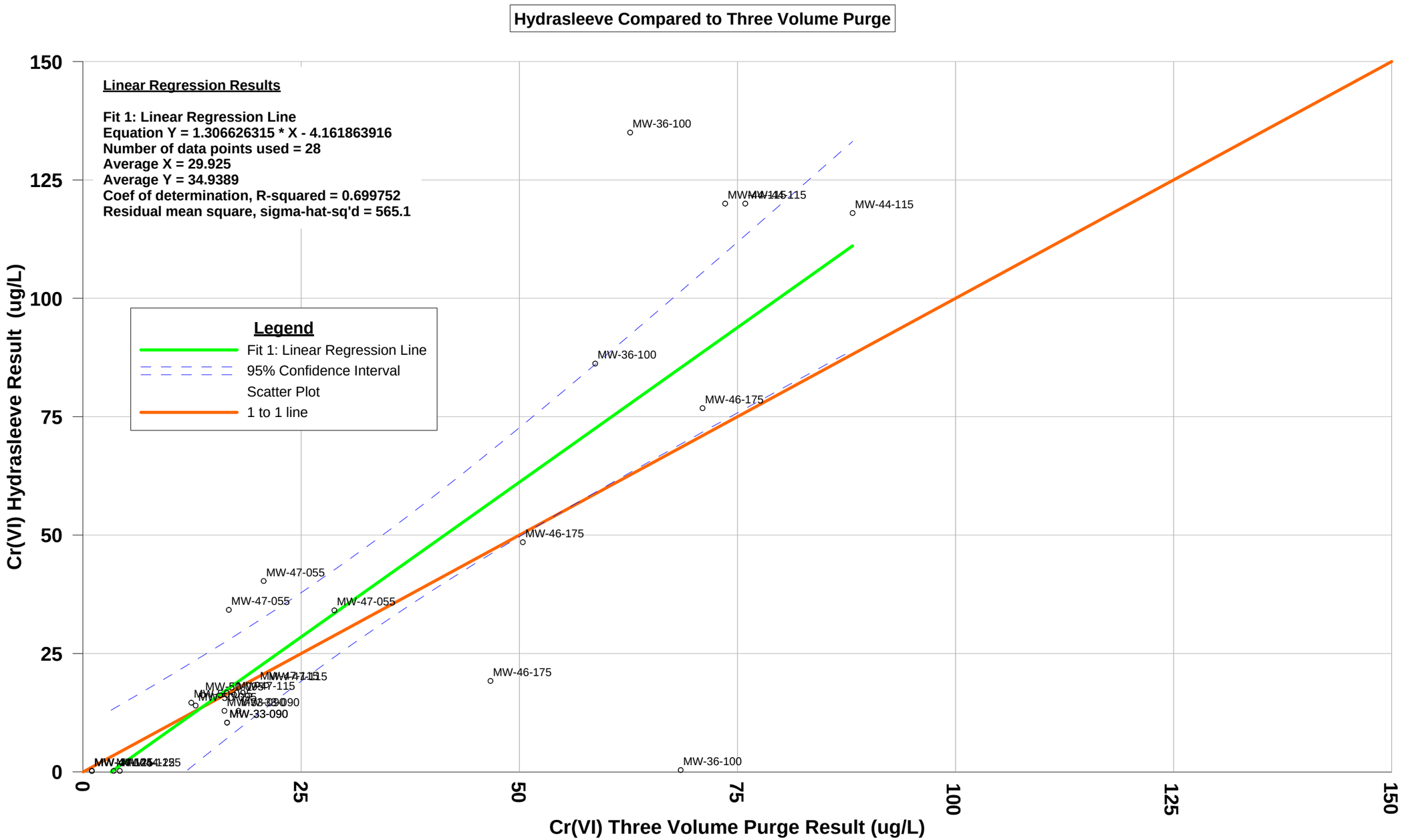
BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2013\PMR\Q12013\PMR_DA_SELENIUM.MXD ECLARK1 1/6/2014 2:47:08 PM



Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H-7A
LINEAR REGRESSION COMPARISON FOR HEXAVALENT CHROMIUM RESULTS FROM HYDRASLEEVE AND THREE VOLUME PURGE, ALL DATA
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

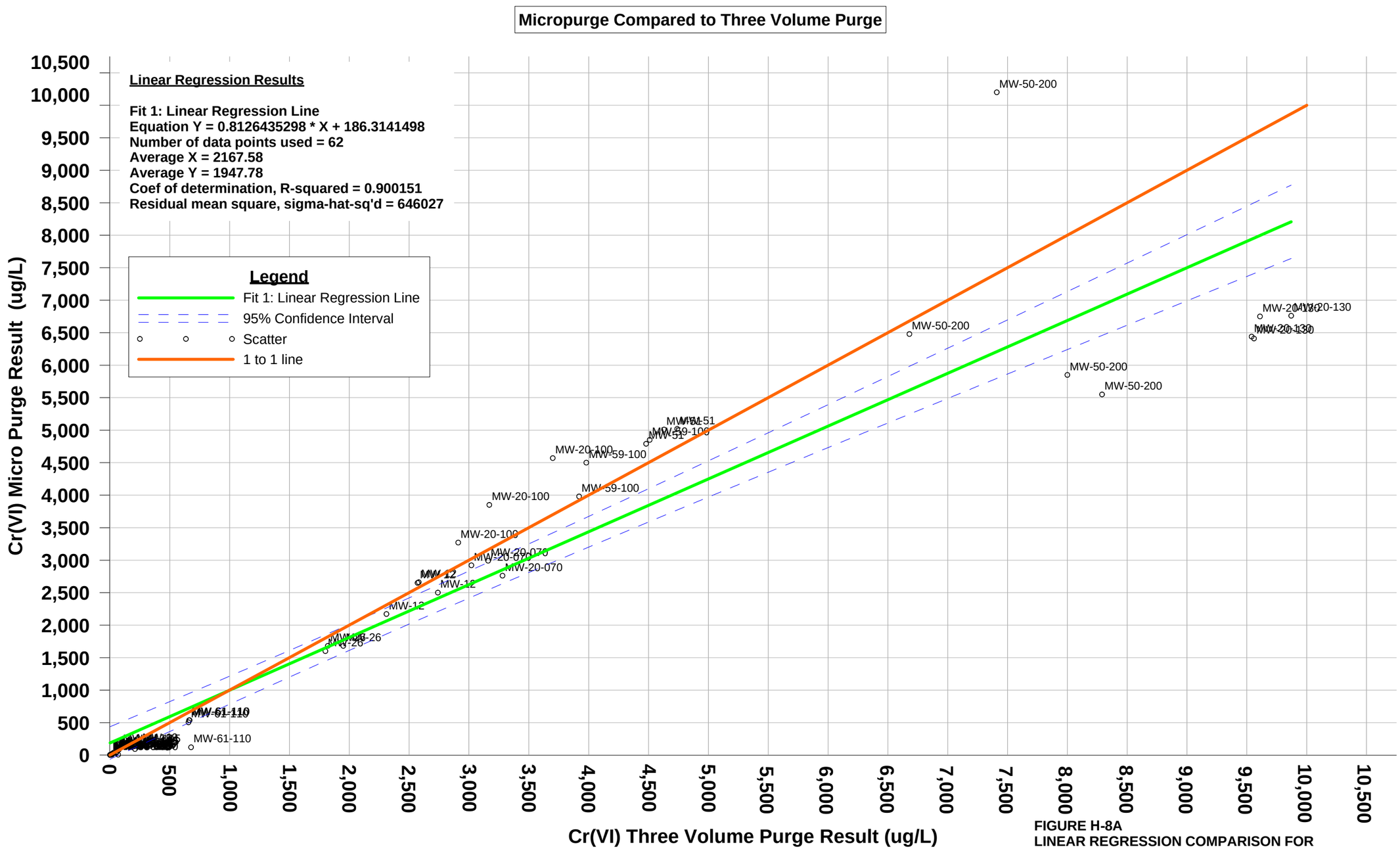
CH2MHILL



Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H-7B
LINEAR REGRESSION COMPARISON FOR HEXAVALENT CHROMIUM RESULTS LESS THAN 150 ug/L FROM HYDRASLEEVE AND THREE VOLUME PURGE
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF
ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

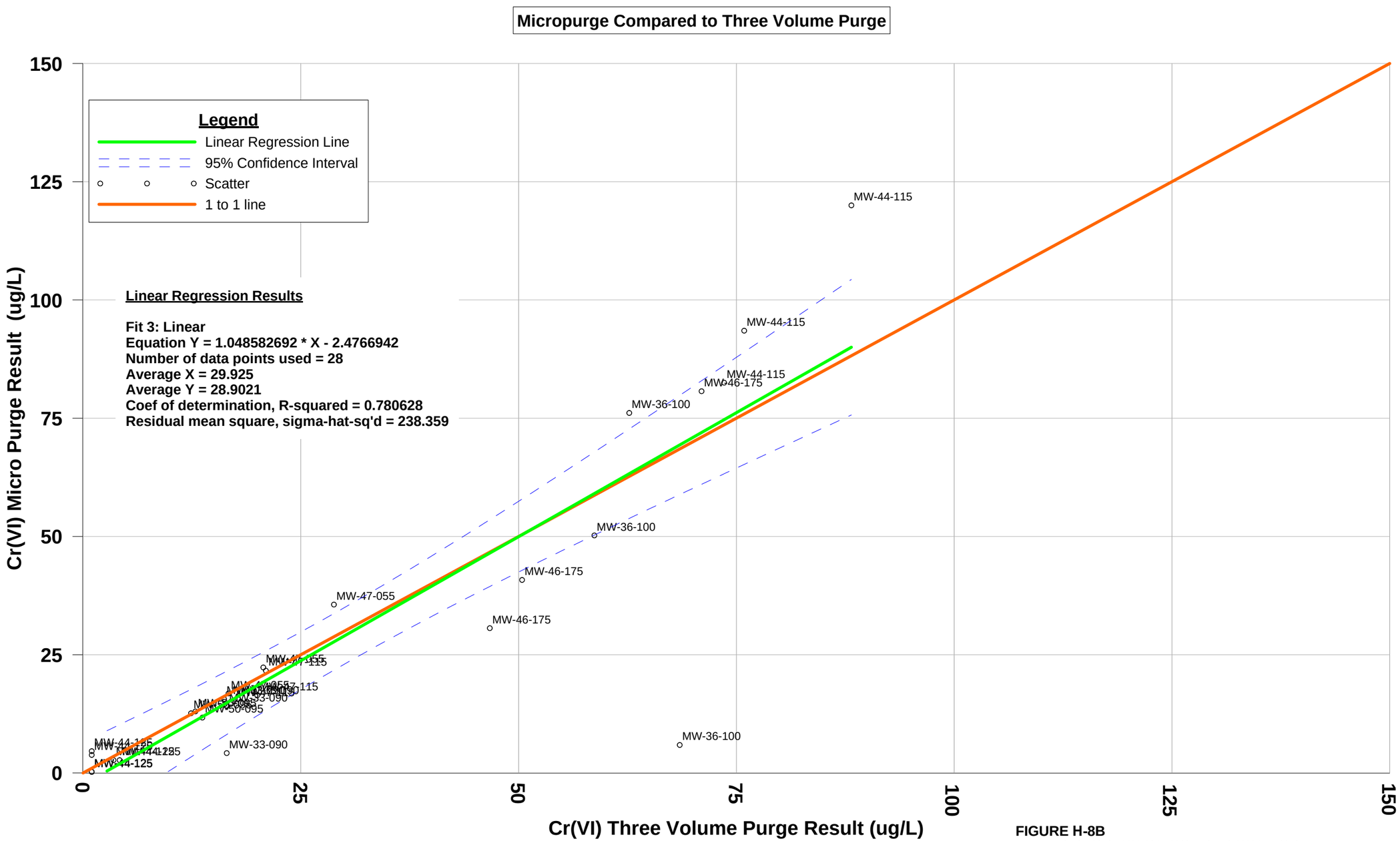


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H-8A
LINEAR REGRESSION COMPARISON FOR HEXAVALENT CHROMIUM RESULTS FROM MIRCO PURGE AND THREE VOLUME PURGE, ALL DATA

GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF
ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

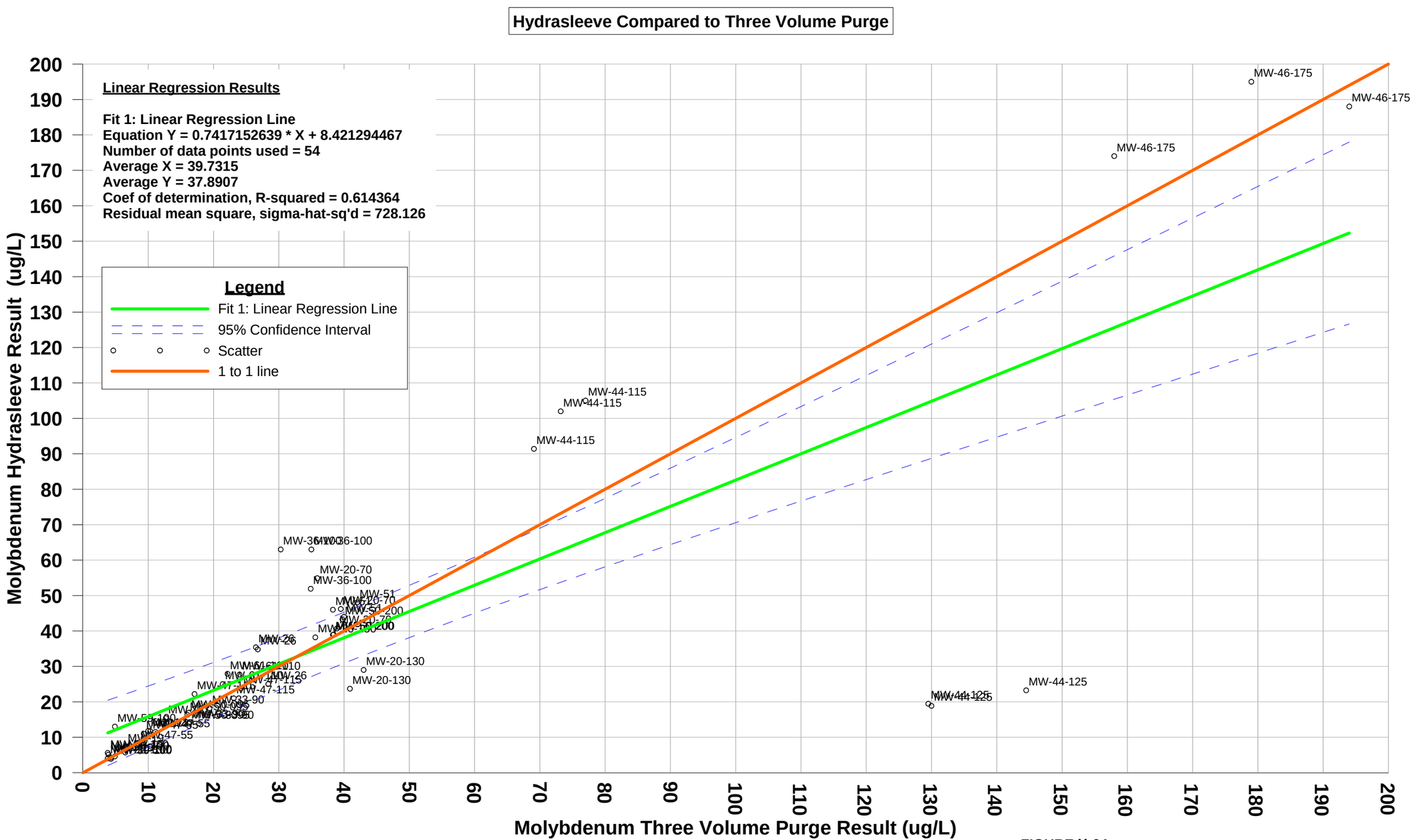


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H-8B
LINEAR REGRESSION COMPARISON FOR HEXAVALENT CHROMIUM RESULTS LESS THAN 150 ug/L FROM MIRCO PURGE AND THREE VOLUME PURGE

GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

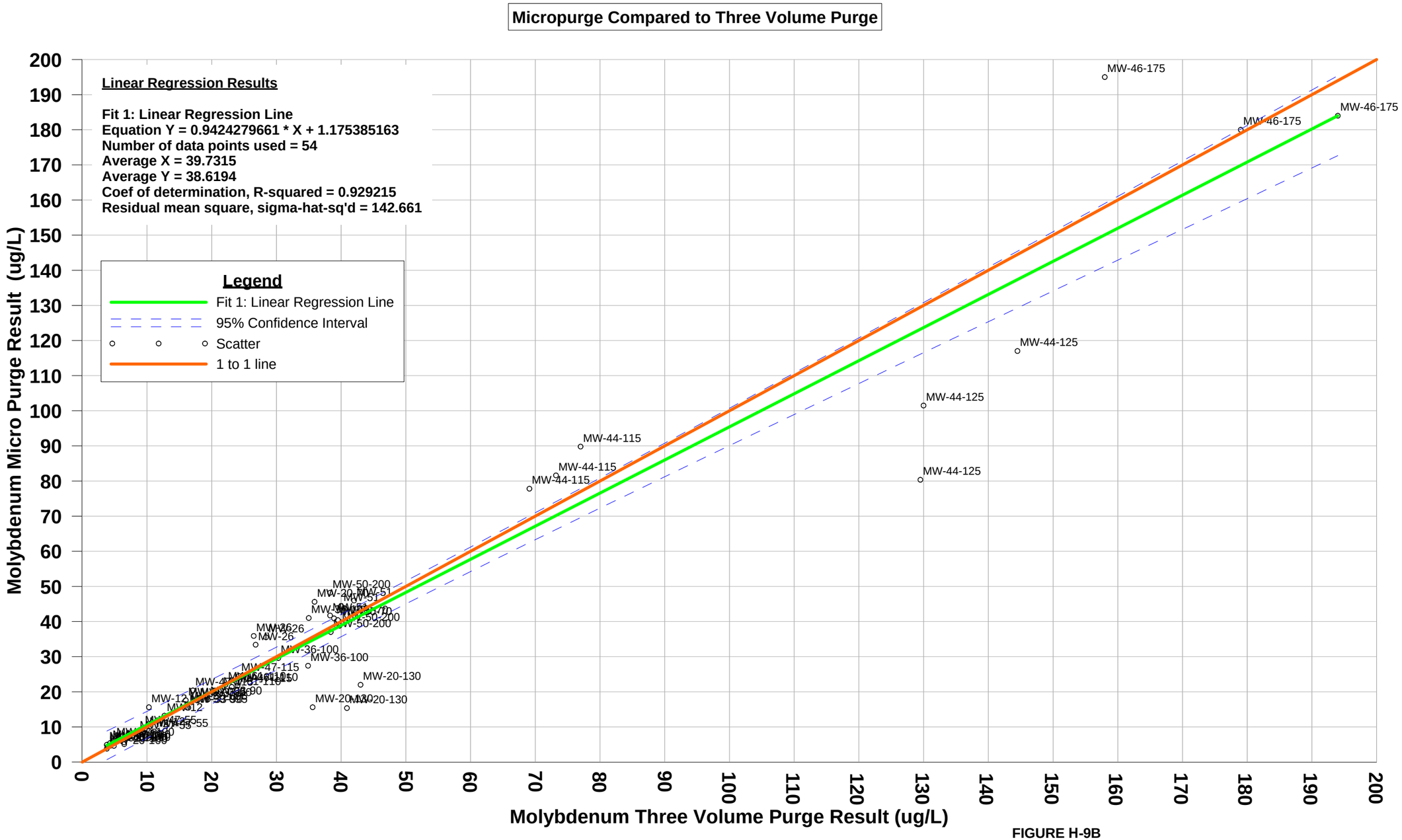
CH2MHILL



Notes
1. ug/L = micrograms per liter

FIGURE H-9A
LINEAR REGRESSION COMPARISON FOR DISSOLVED MOLYBDENMUM RESULTS FROM HYDRASLEEVE AND THREE VOLUME PURGE, ALL DATA
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

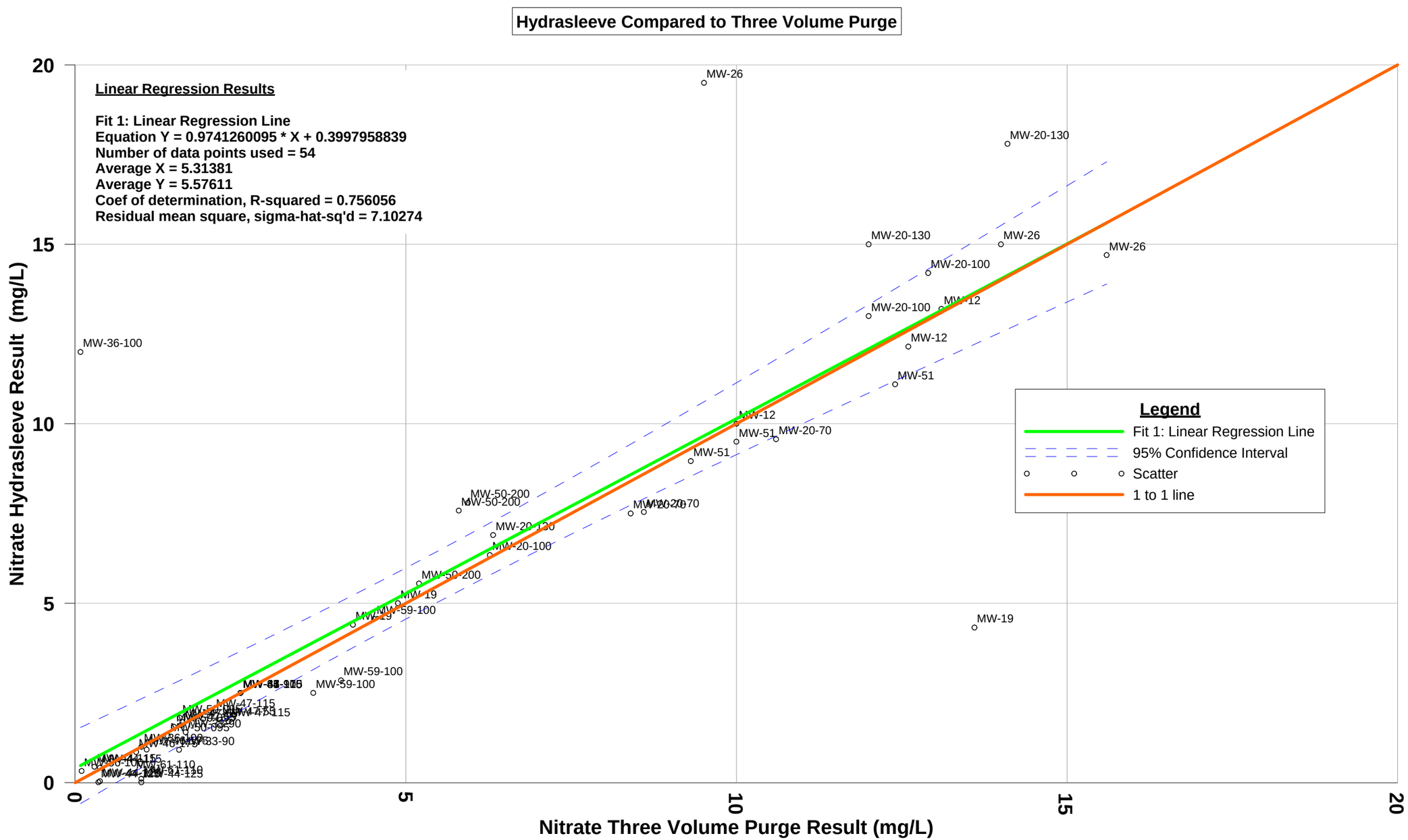


Notes
1. ug/L = micrograms per liter

FIGURE H-9B
LINEAR REGRESSION COMPARISON FOR DISSOLVED MOLYBDENMUM RESULTS FROM MIRCO PURGE AND THREE VOLUME PURGE, ALL DATA

GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF
ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

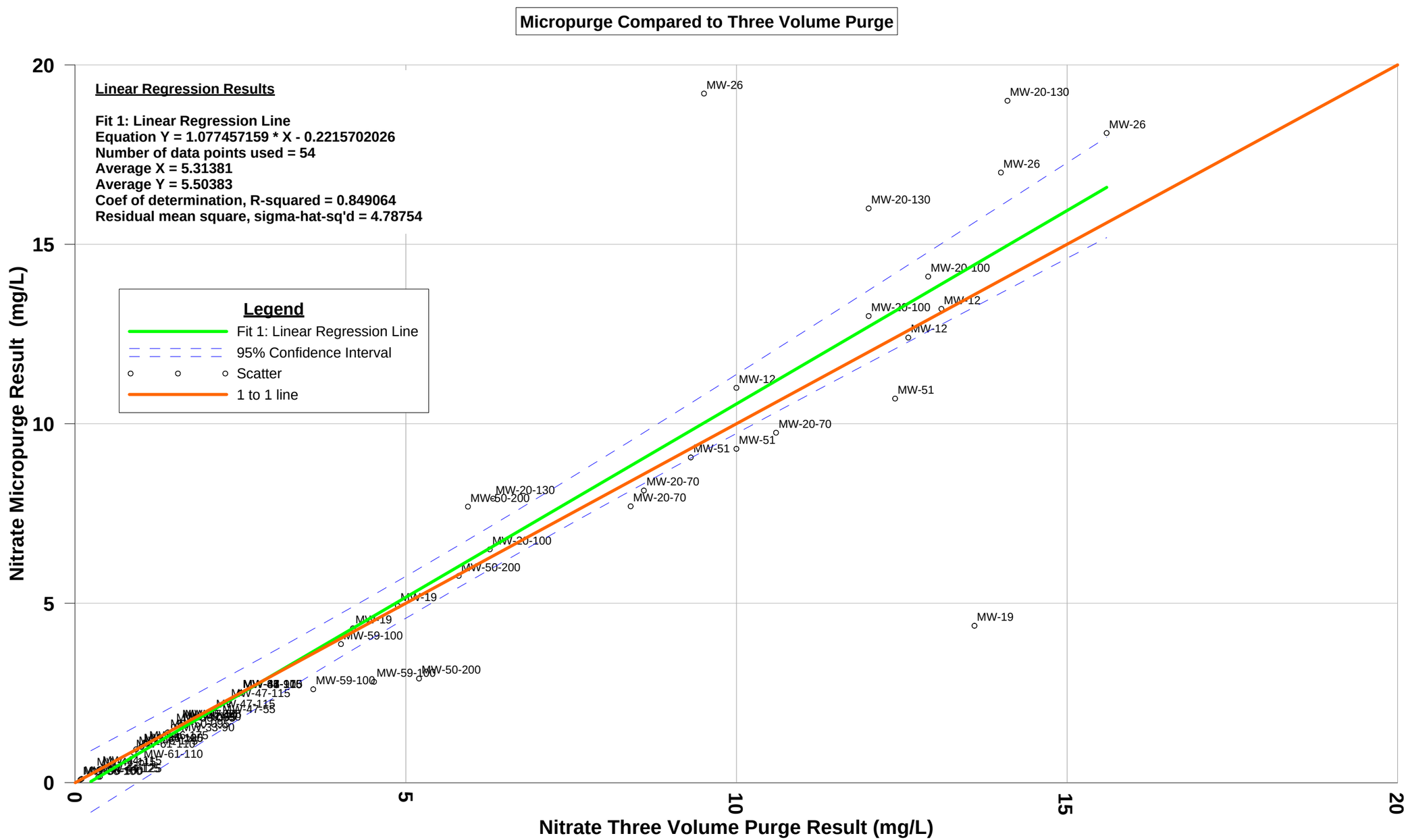


Notes
1. mg/L = milligrams per liter

FIGURE H-10A
LINEAR REGRESSION COMPARISON FOR
NITRATE AS NITROGEN RESULTS
FROM HYDRASLEEVE AND THREE VOLUME PURGE, ALL DATA

GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF
ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

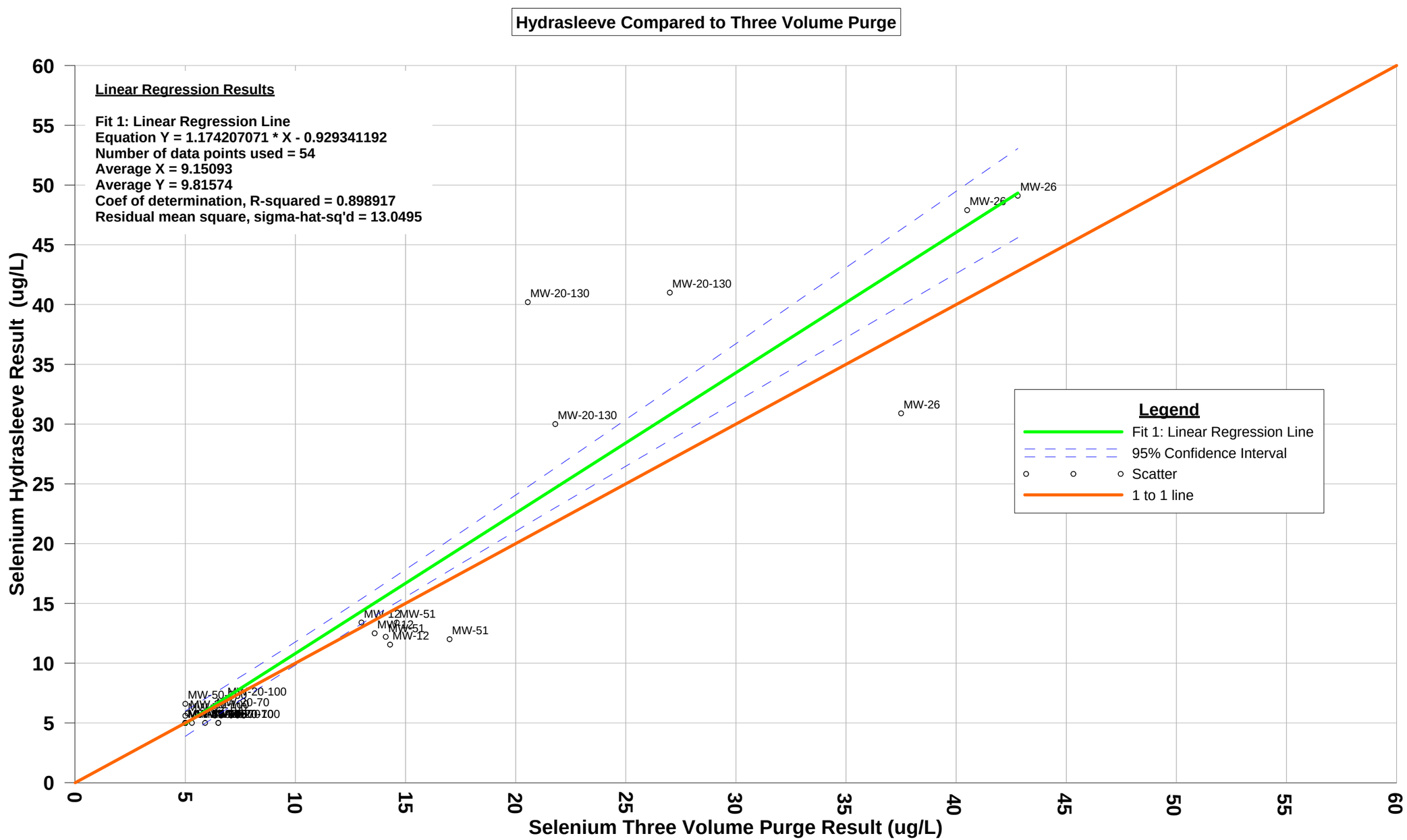
CH2MHILL



Notes
1. mg/L = milligrams per liter

FIGURE H-10B
LINEAR REGRESSION COMPARISON FOR NITRATE AS NITROGEN RESULTS FROM MICROPURGE AND THREE VOLUME PURGE, ALL DATA
GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF
ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

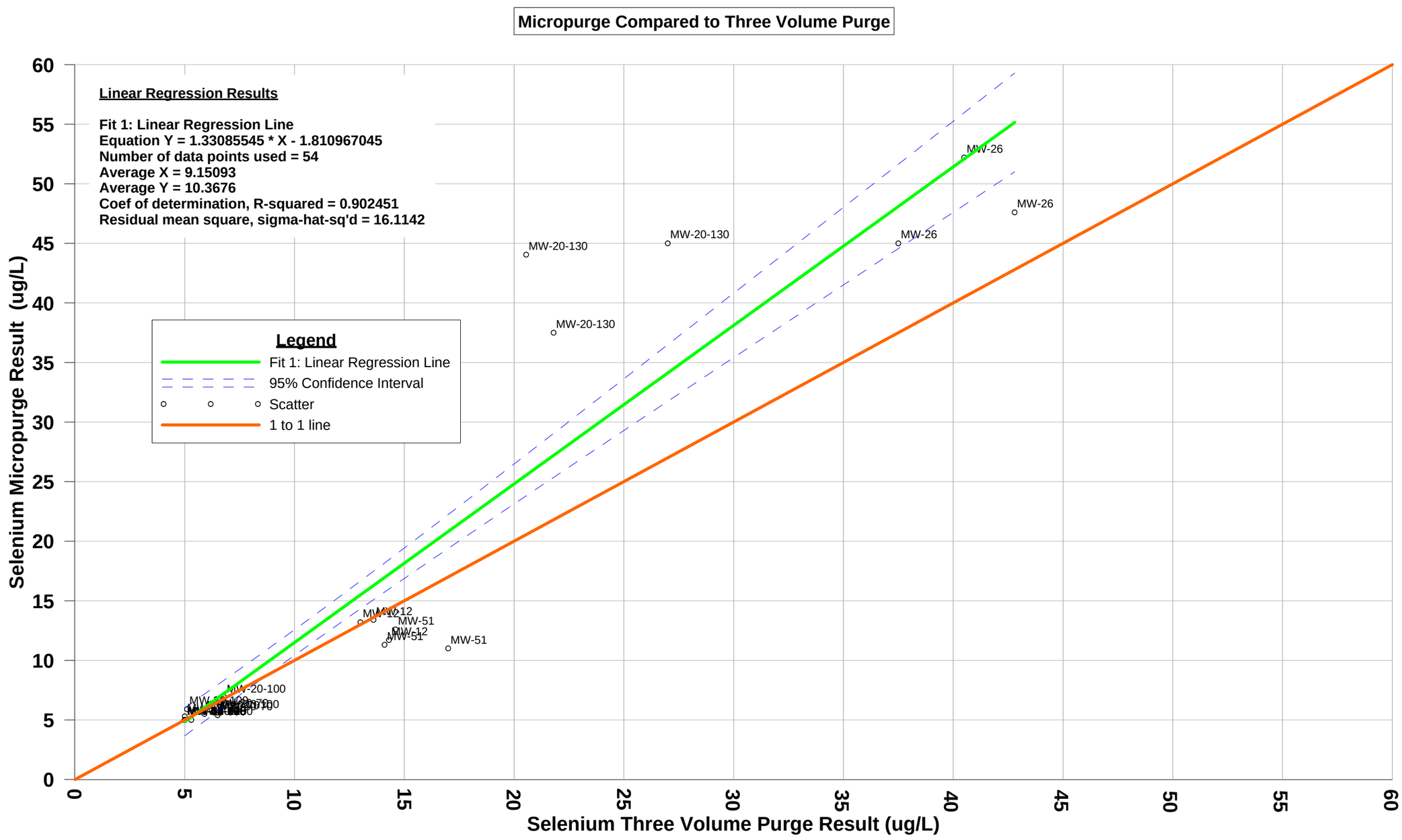


Notes
1. ug/L = micrograms per liter

FIGURE H-12A
LINEAR REGRESSION COMPARISON FOR DISSOLVED SELENIUM RESULTS FROM HYDRASLEEVE AND THREE VOLUME PURGE, ALL DATA

GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF
ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL



Notes
1. ug/L = micrograms per liter

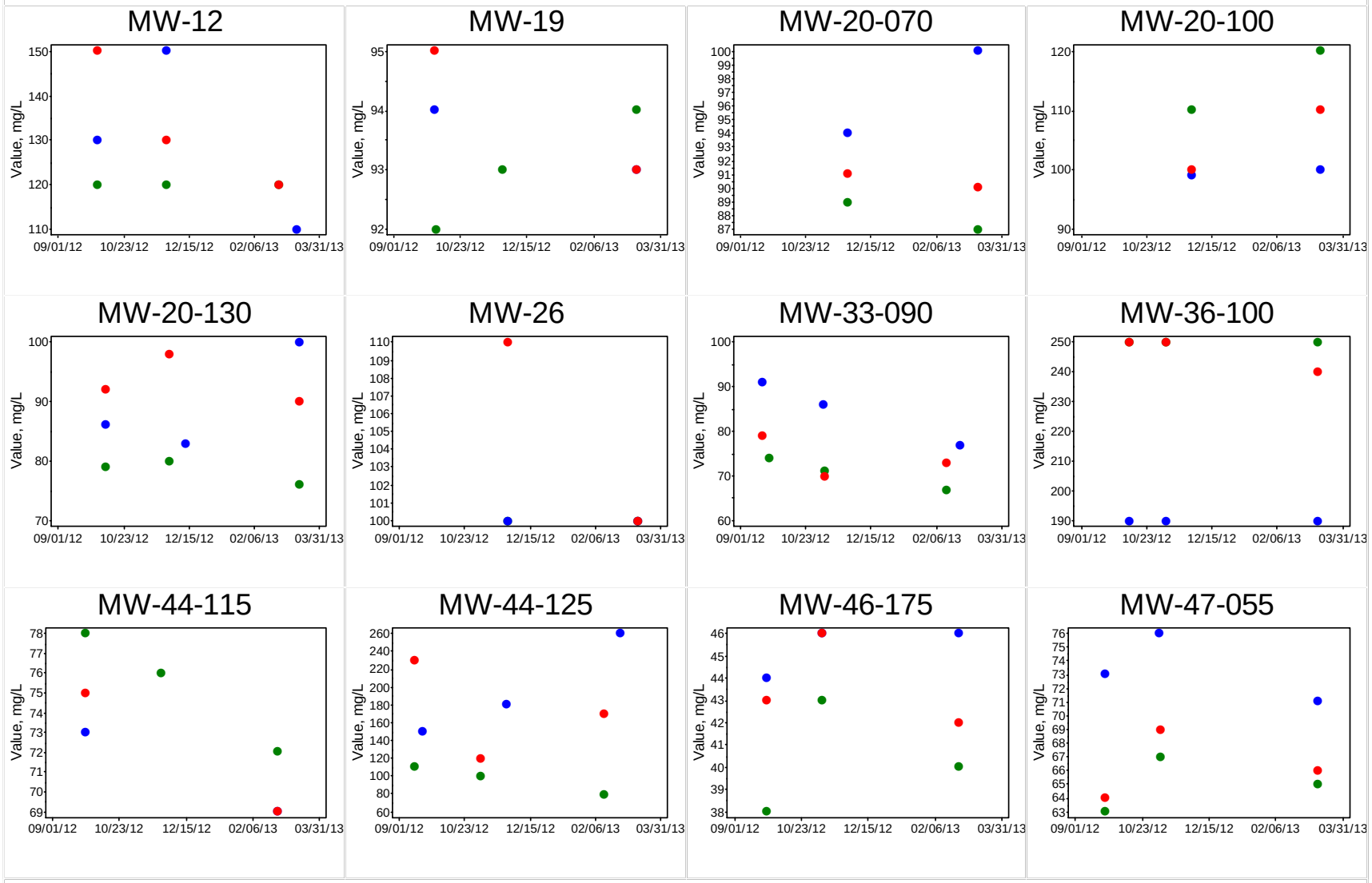
FIGURE H-12B
LINEAR REGRESSION COMPARISON FOR DISSOLVED SELENIUM RESULTS FROM MICROPURGE AND THREE VOLUME PURGE, ALL DATA

GROUNDWATER ANALYTICAL RESULTS FOR FIELD TRIAL OF
ALTERNATIVE SAMPLING APPROACHES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

Attachment H1
Scatter Plots

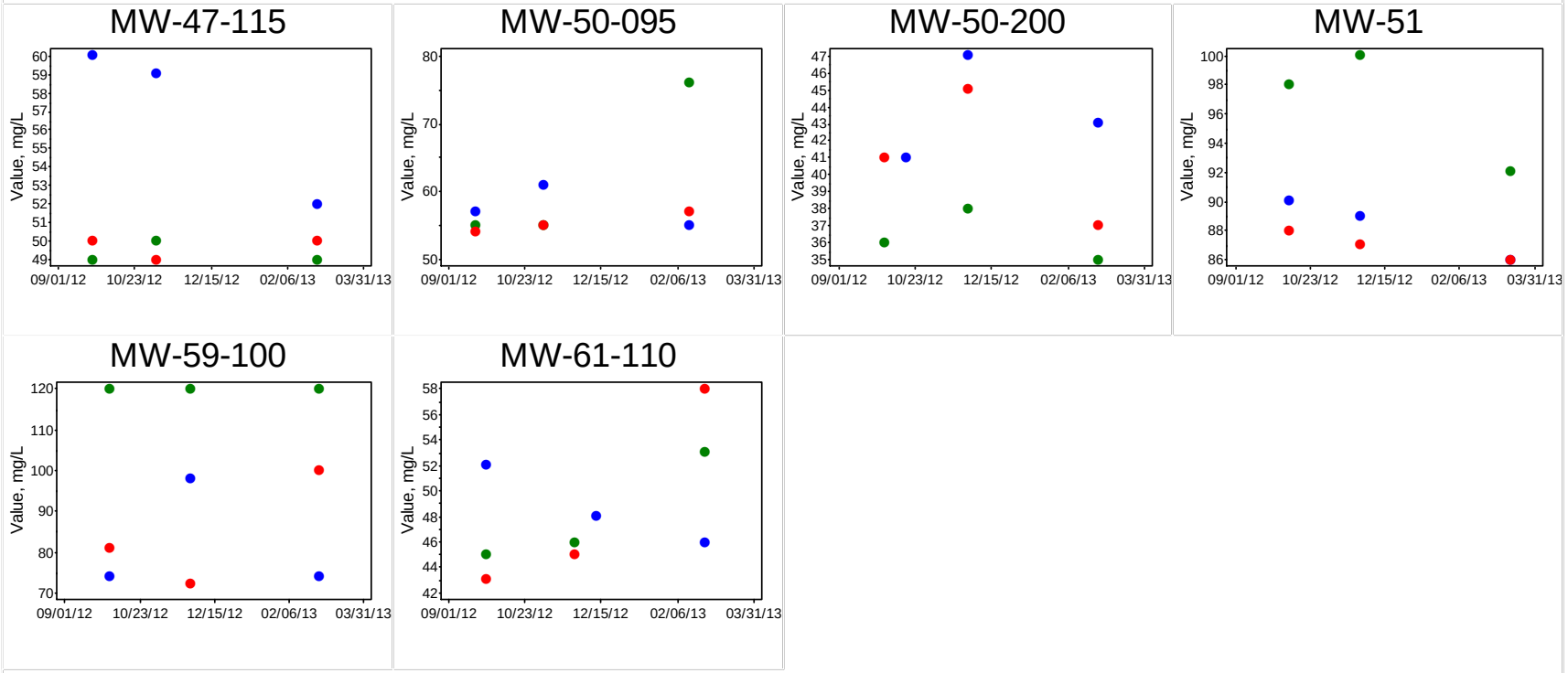
Time Plots for Alkalinity, Bicarbonate (As CaCO3)



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

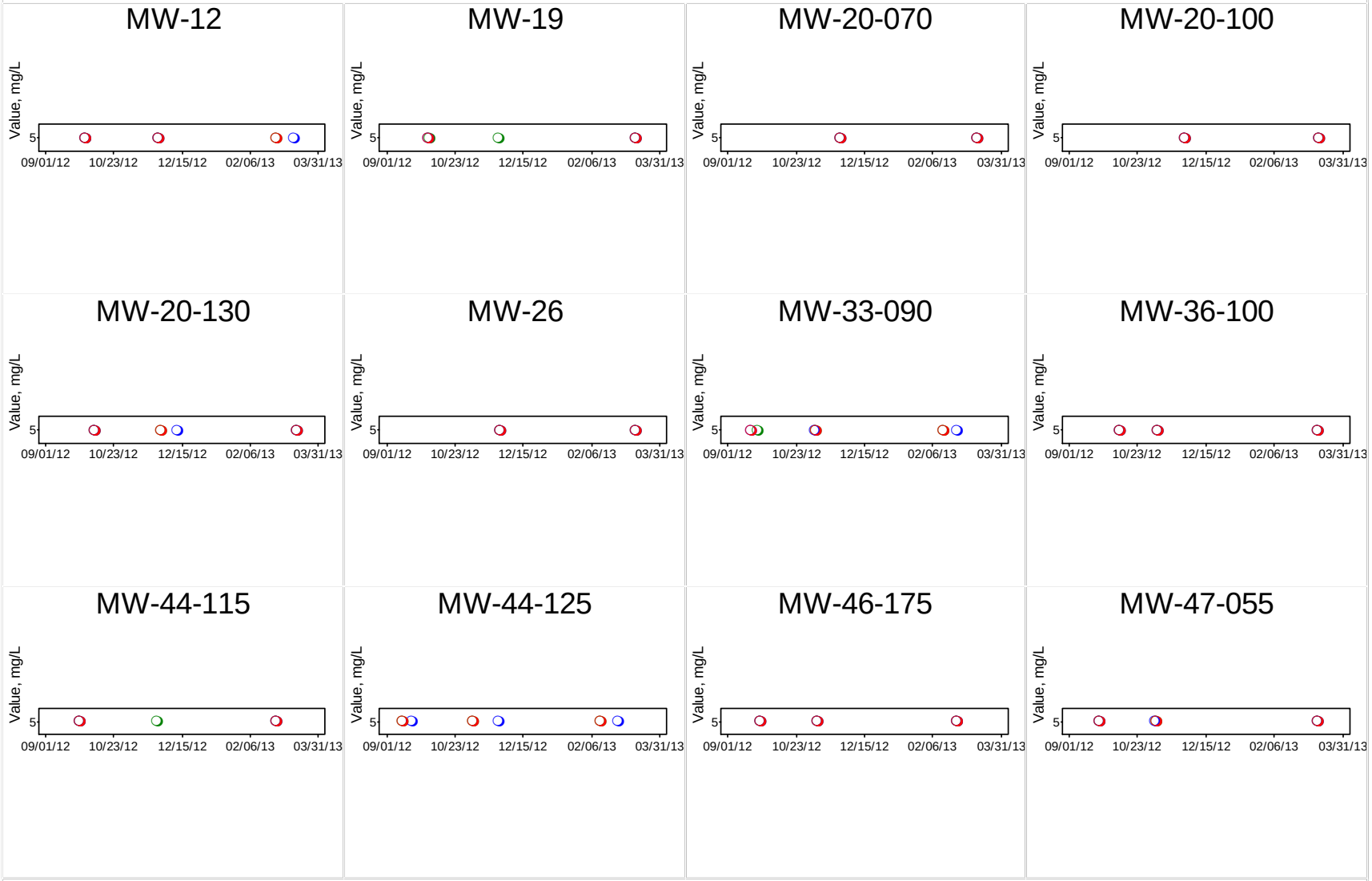
Time Plots for Alkalinity, Bicarbonate (As CaCO3)



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

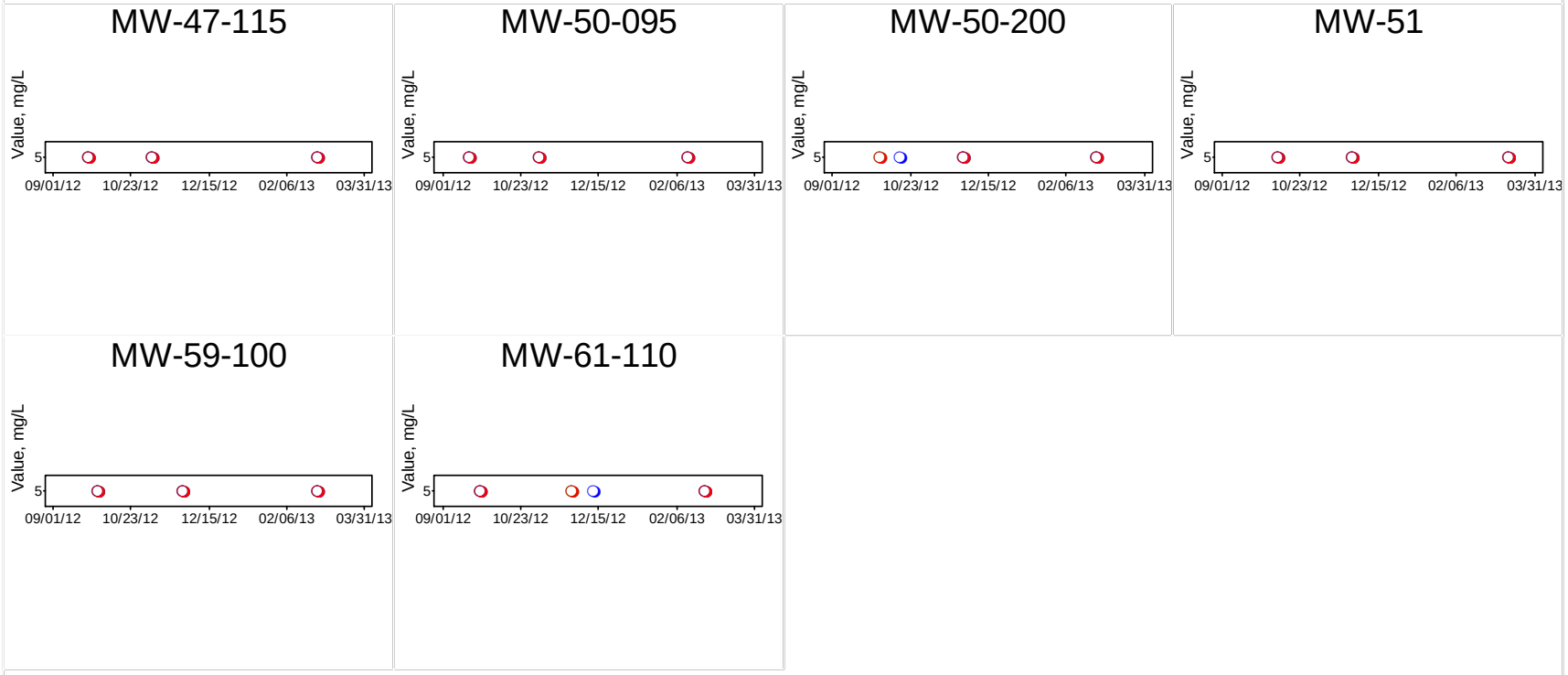
Time Plots for Alkalinity, Carbonate (As CaCO3)



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

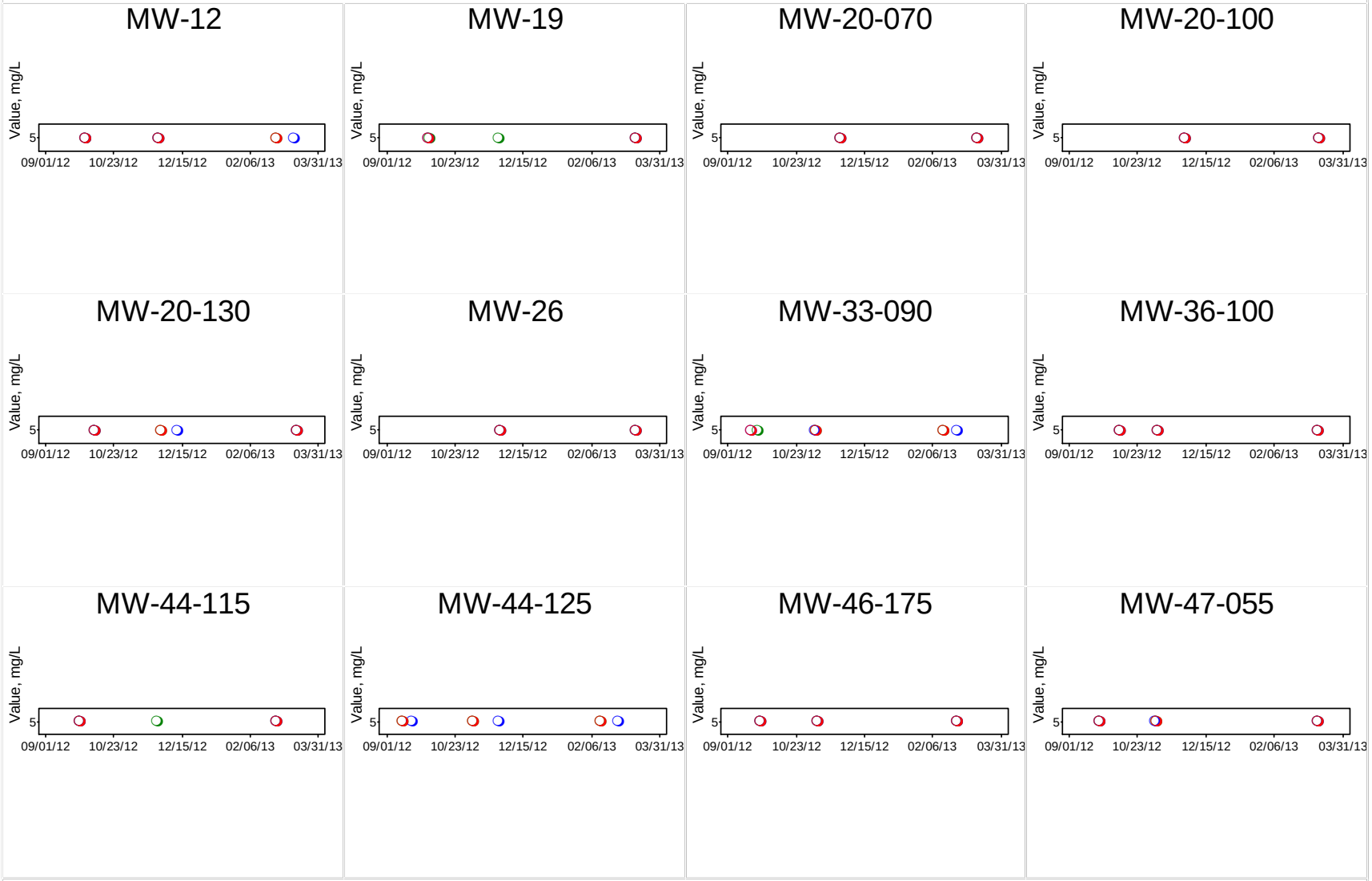
Time Plots for Alkalinity, Carbonate (As CaCO3)



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

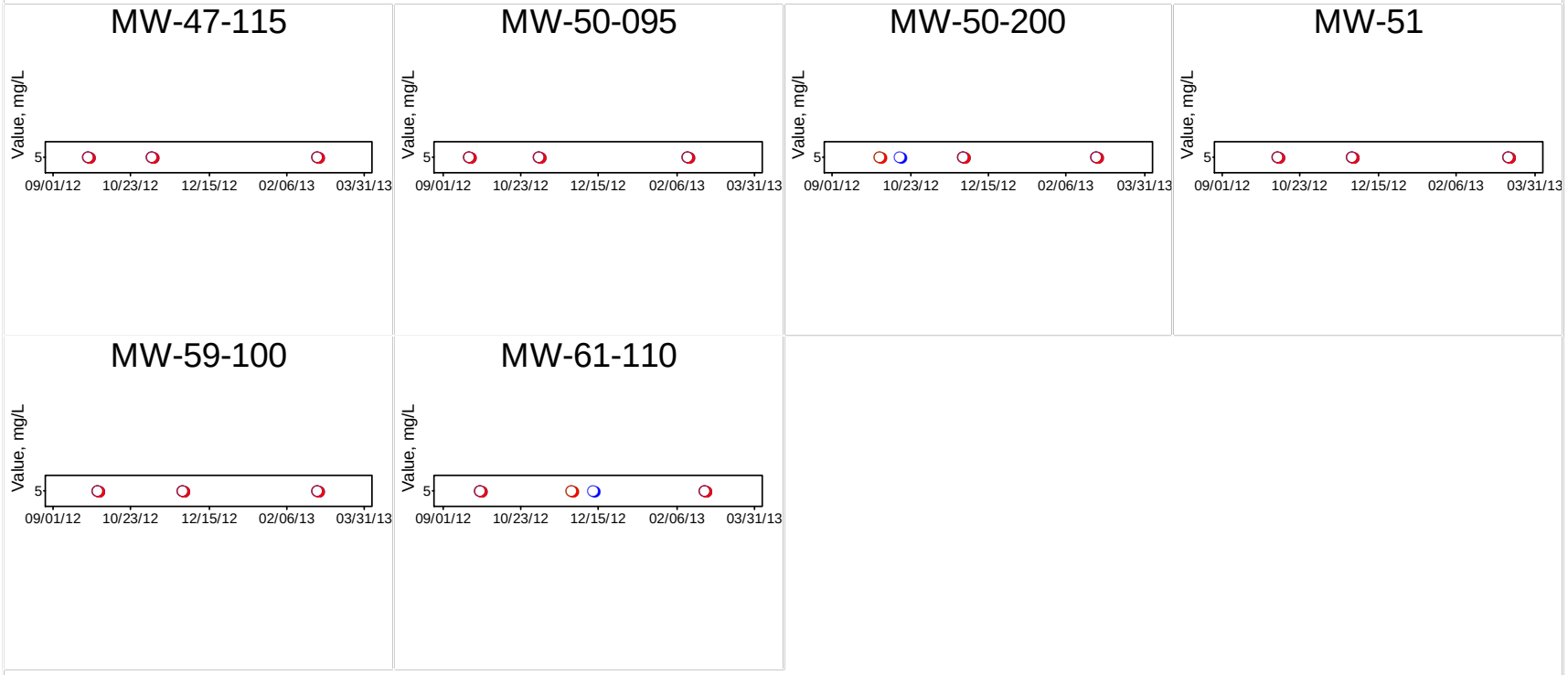
Time Plots for Alkalinity, Hydroxide (As CaCO3)



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

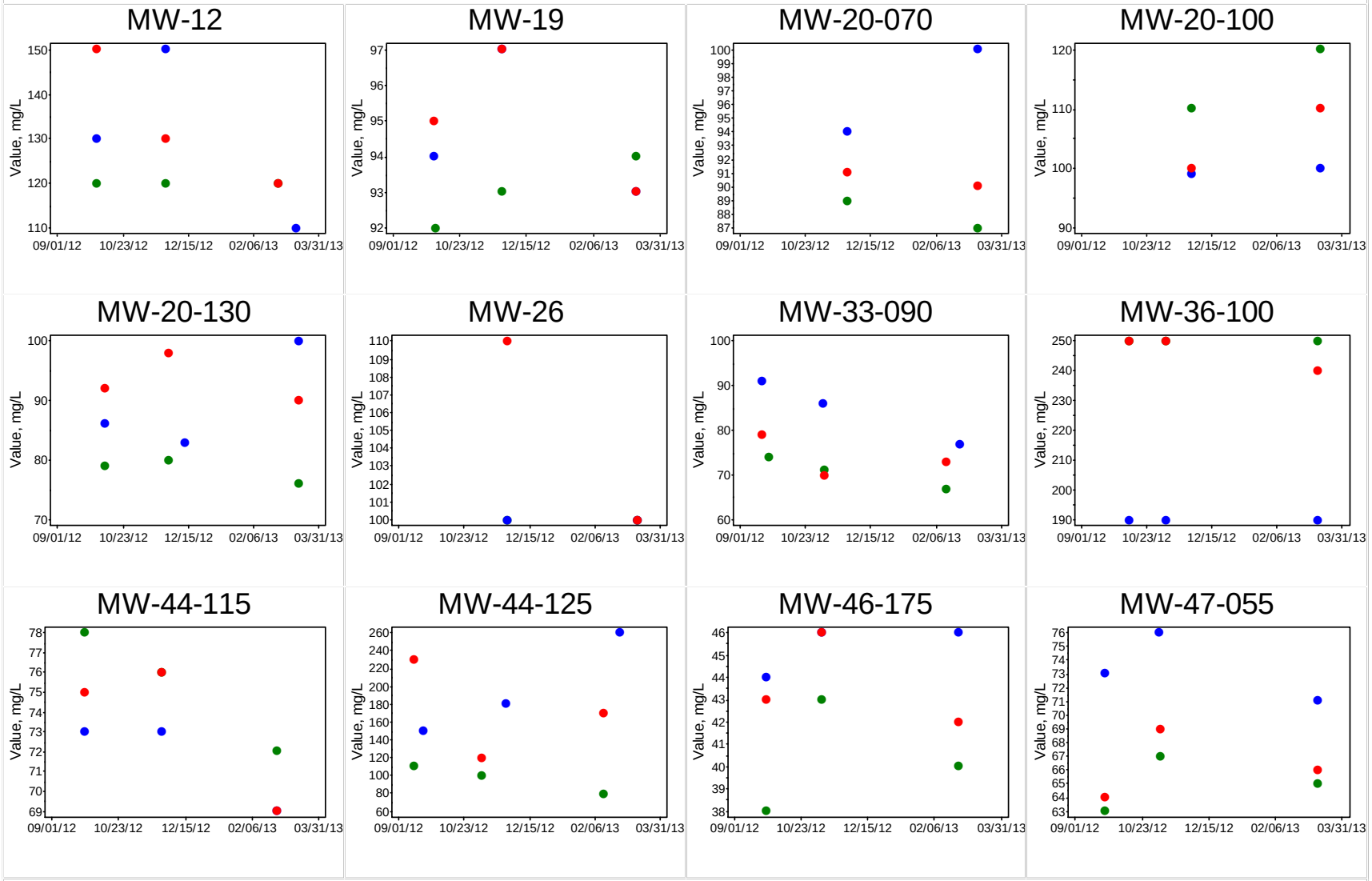
Time Plots for Alkalinity, Hydroxide (As CaCO3)



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

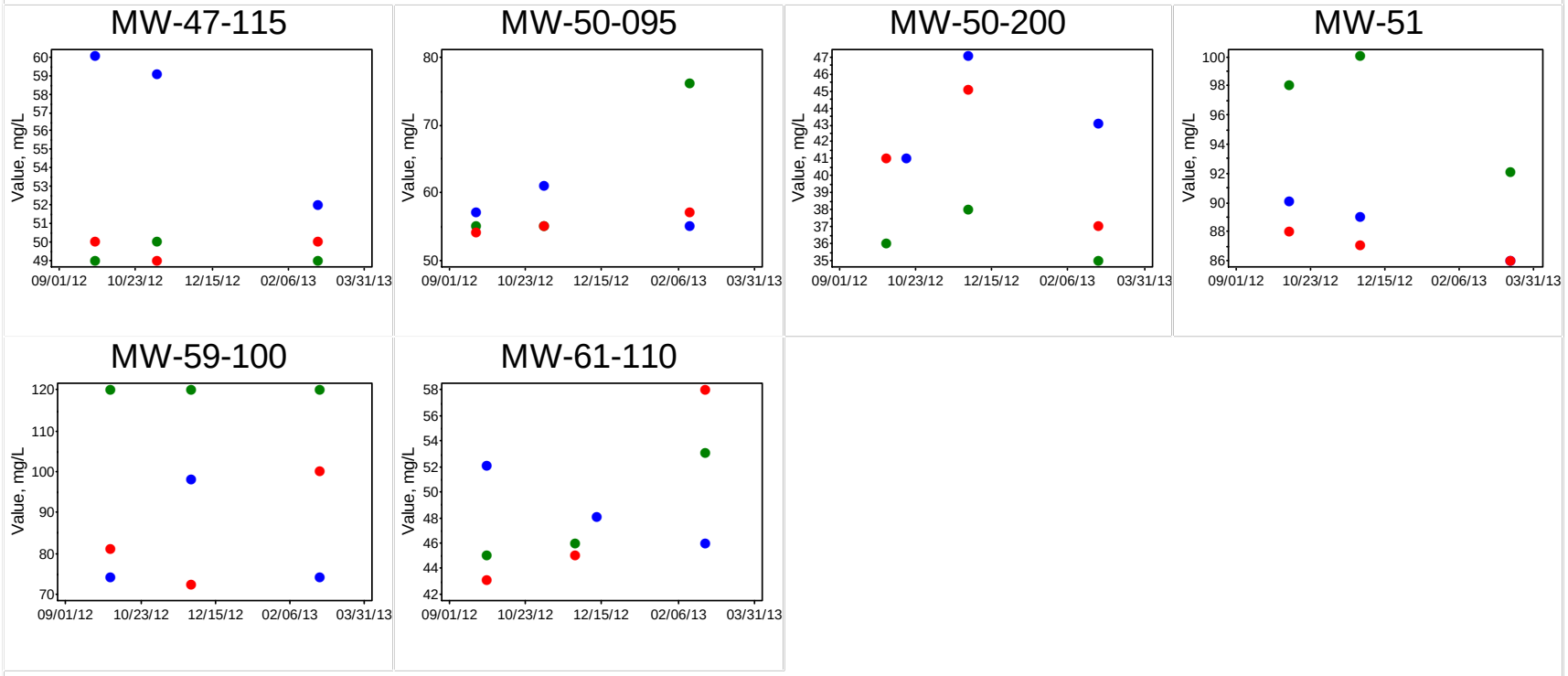
Time Plots for Alkalinity



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

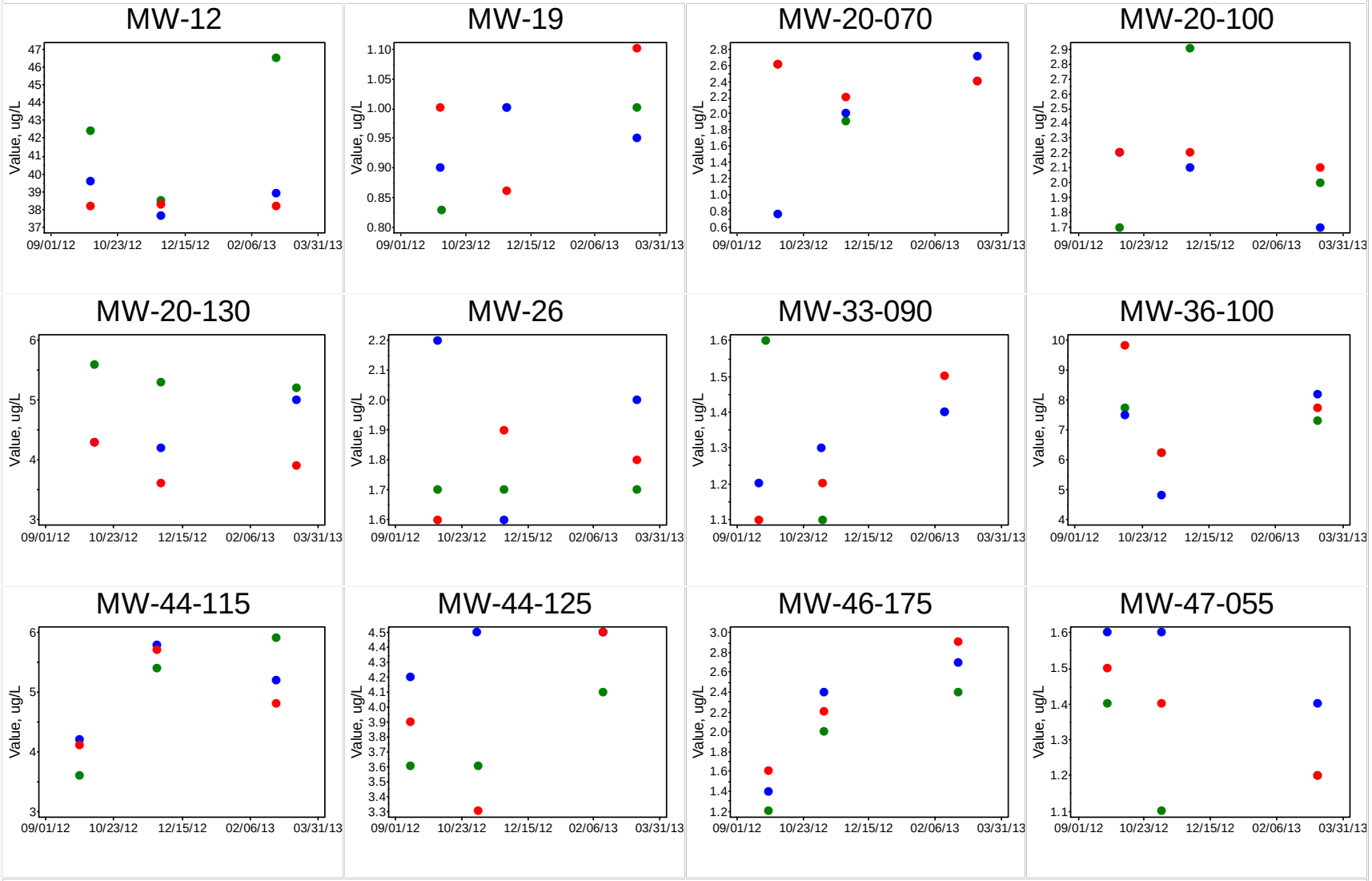
Time Plots for Alkalinity



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

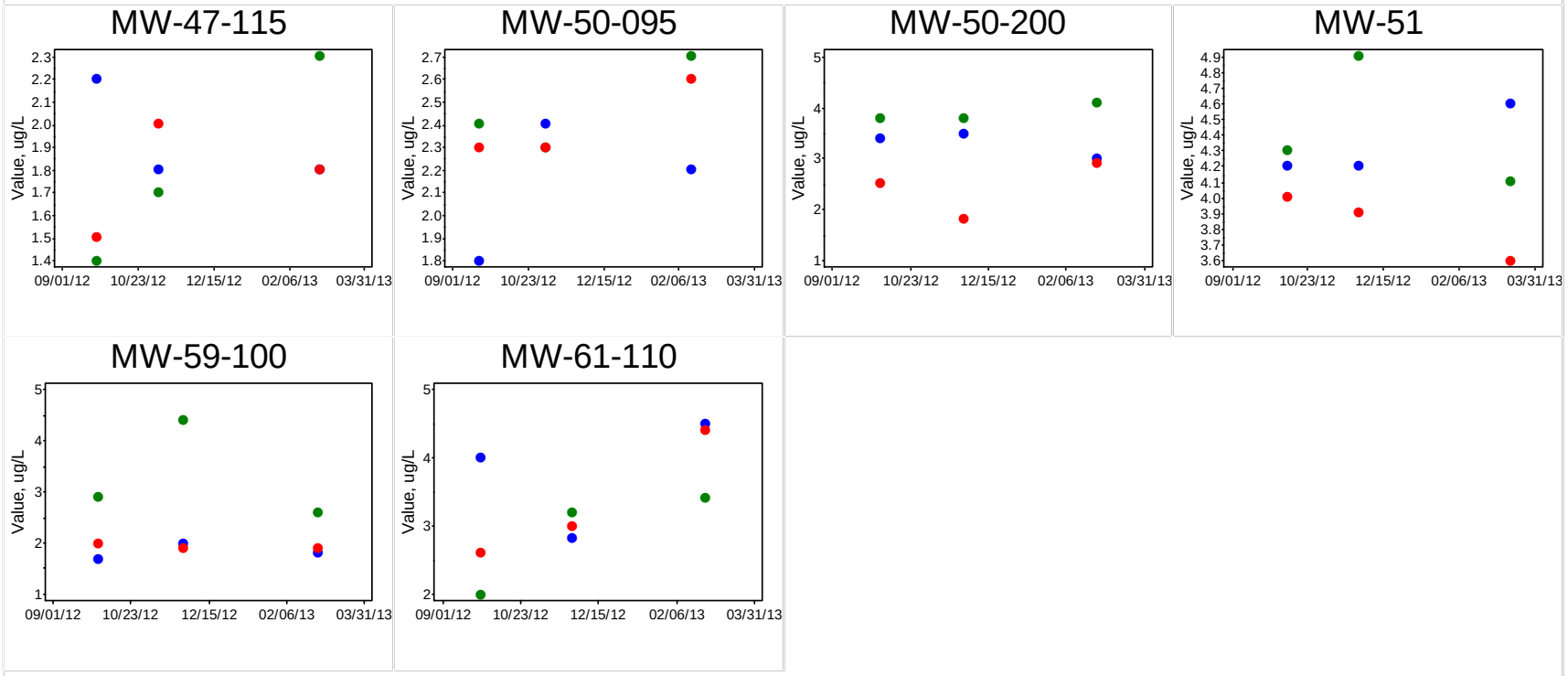
Time Plots for Arsenic, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

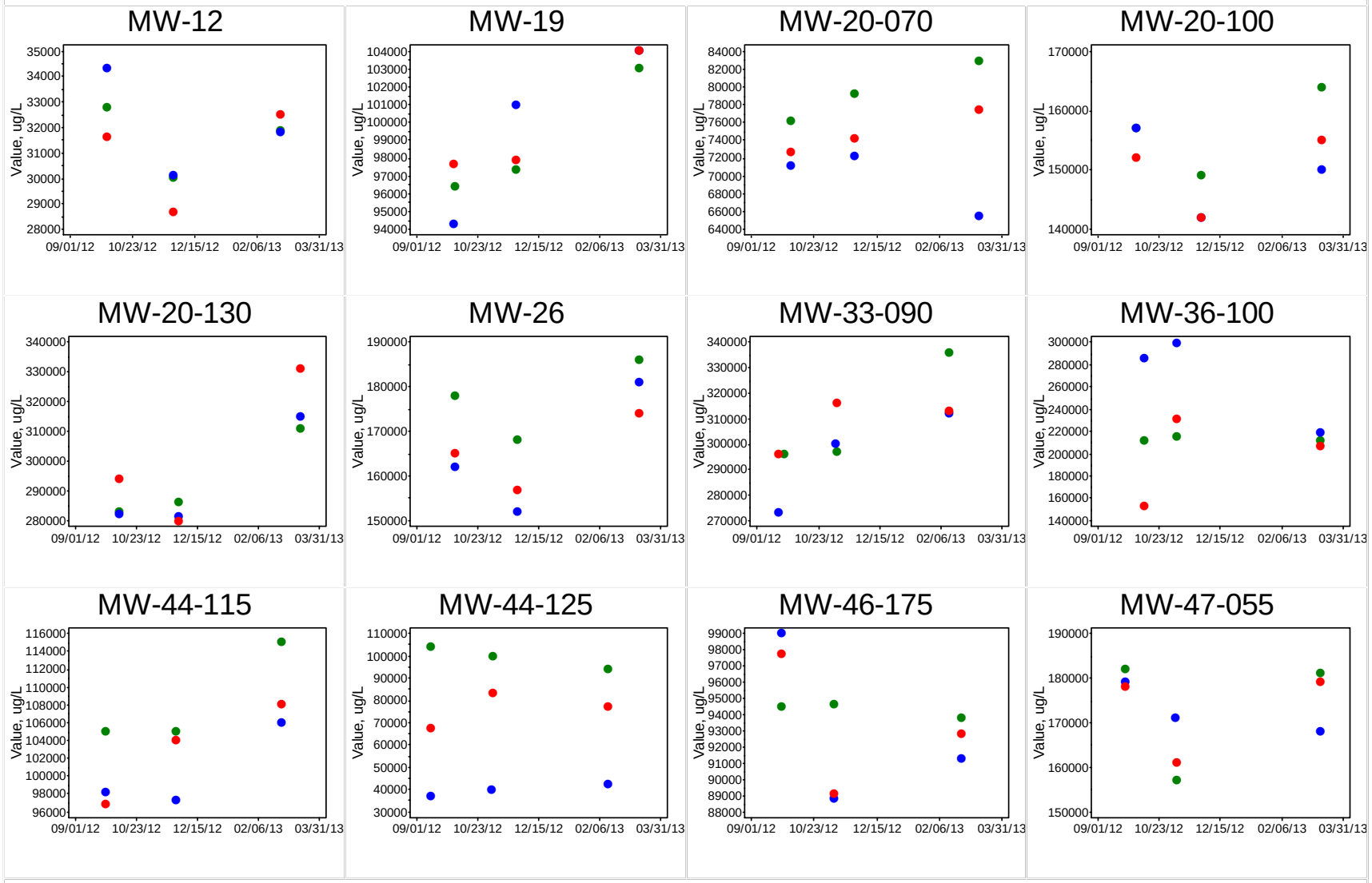
Time Plots for Arsenic, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

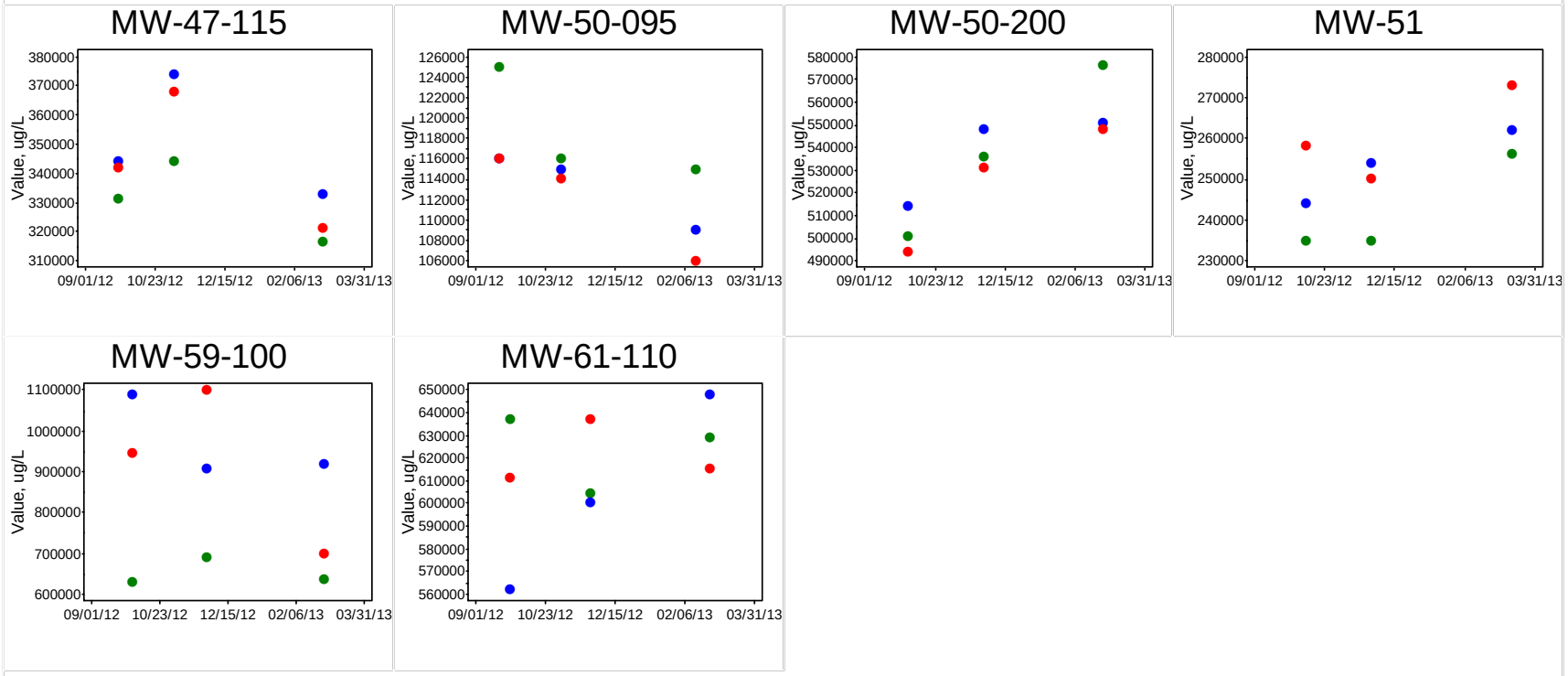
Time Plots for Calcium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

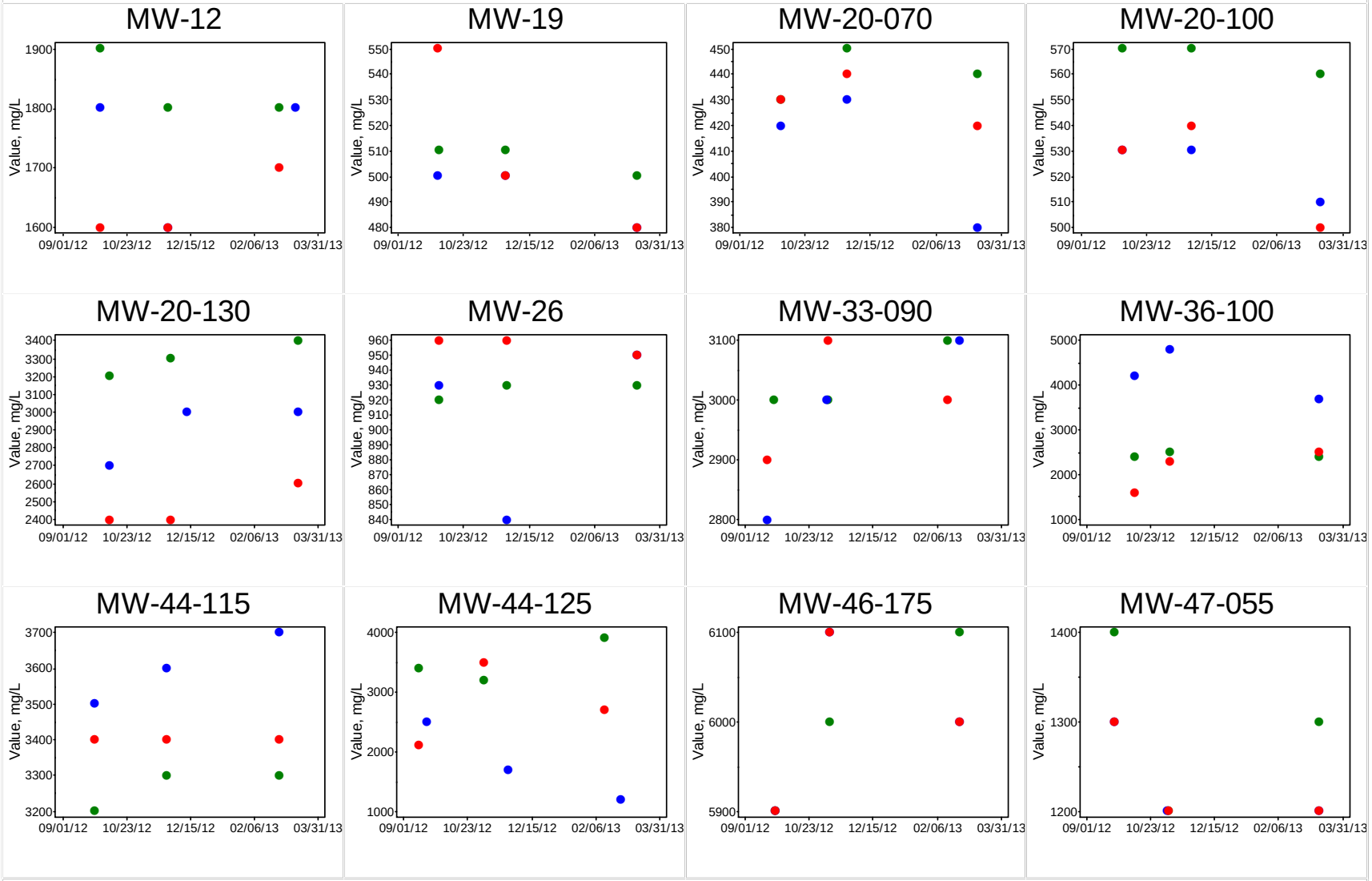
Time Plots for Calcium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

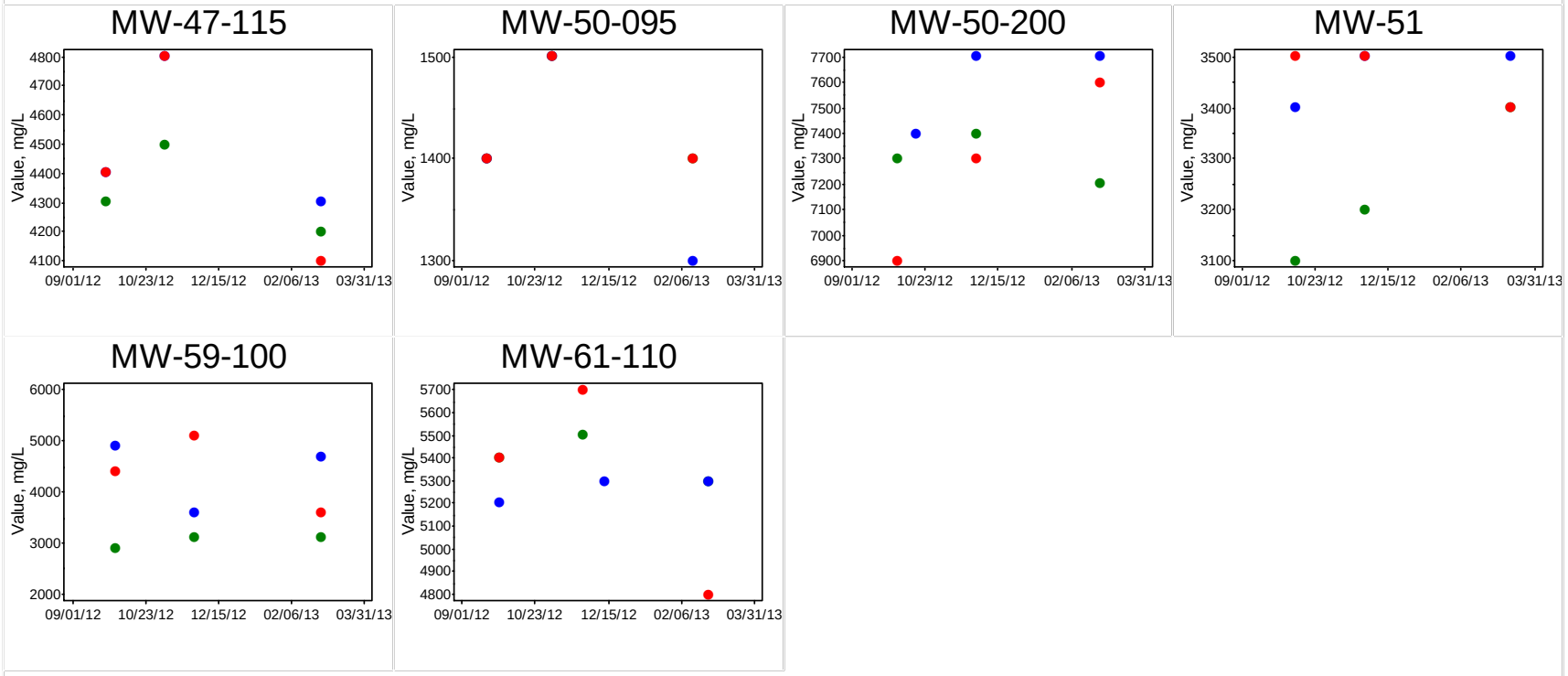
Time Plots for Chloride



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

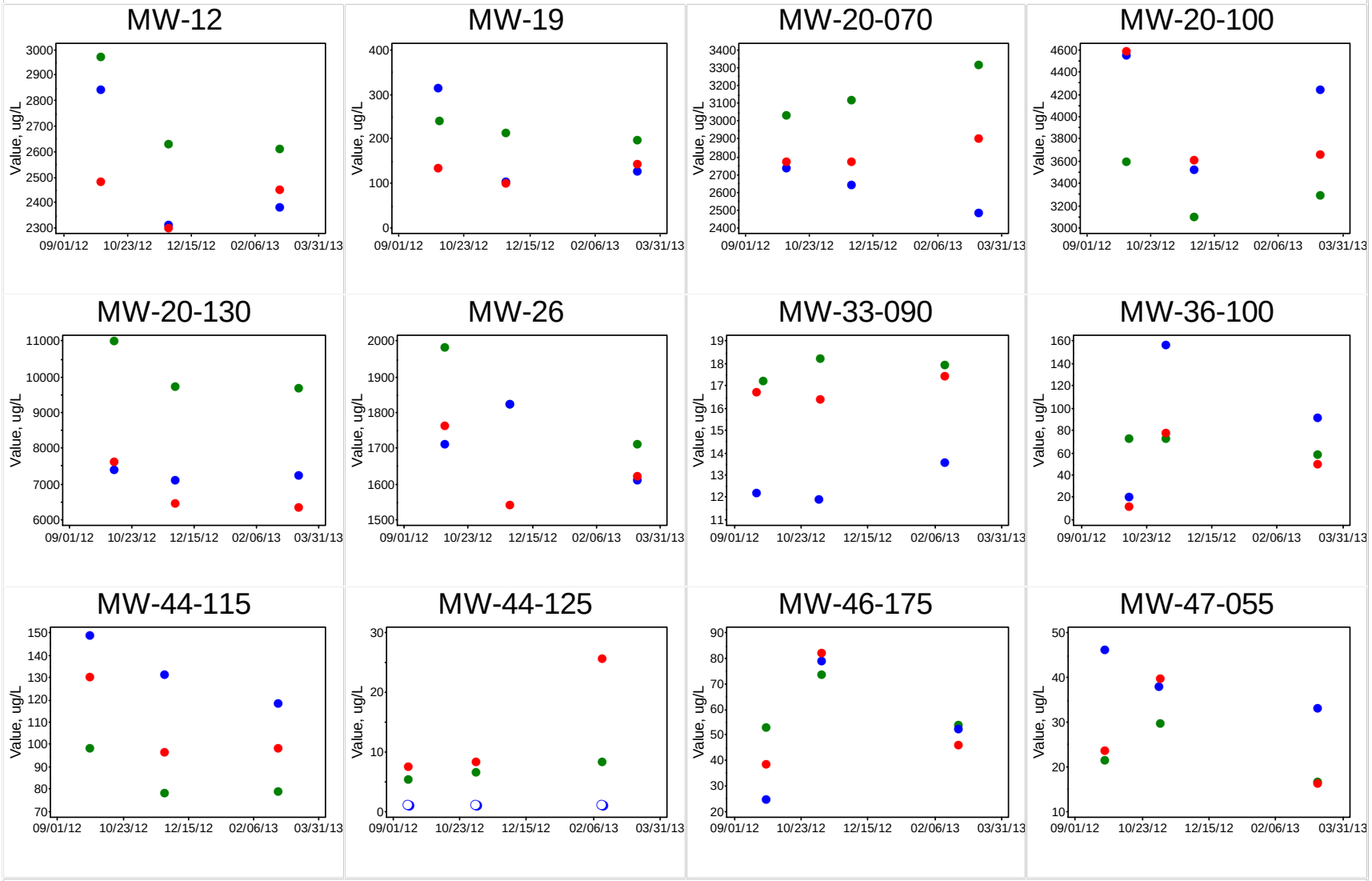
Time Plots for Chloride



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

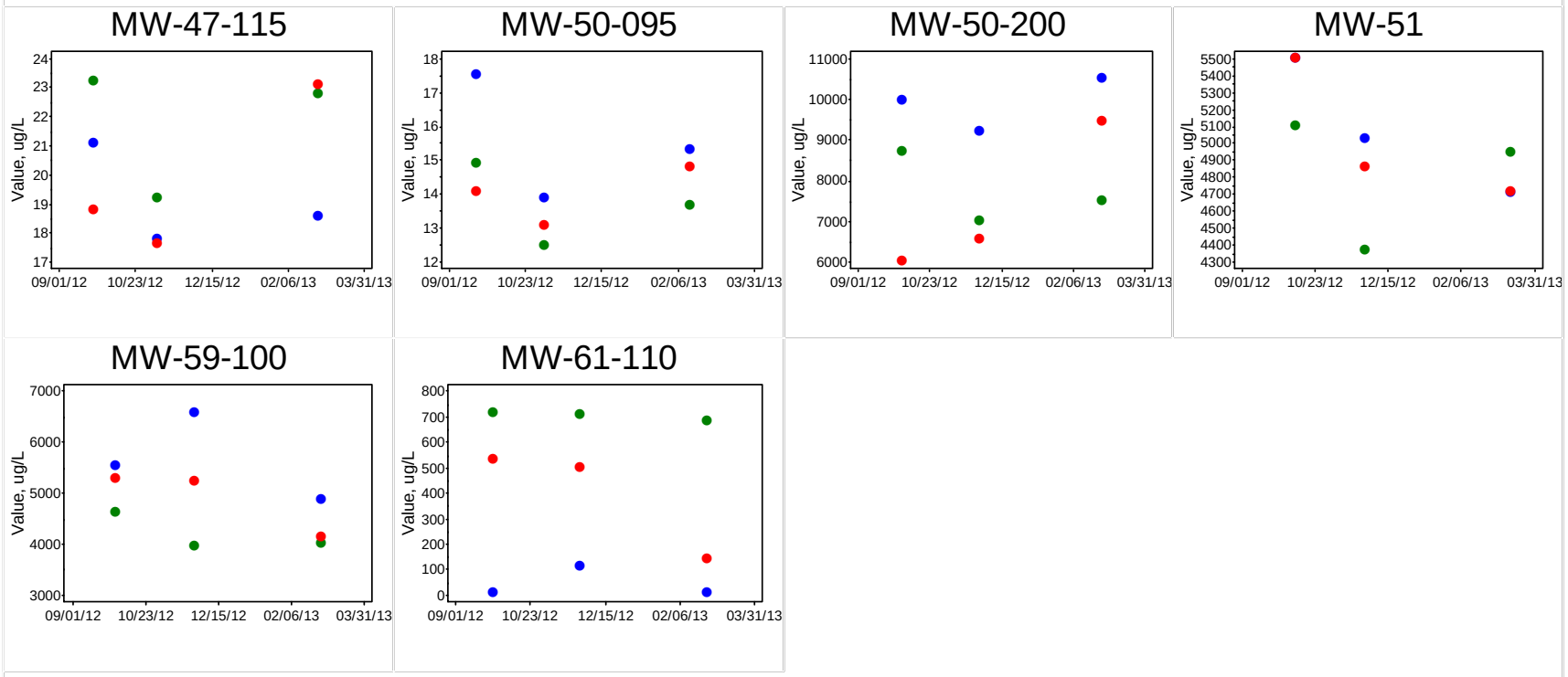
Time Plots for Chromium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

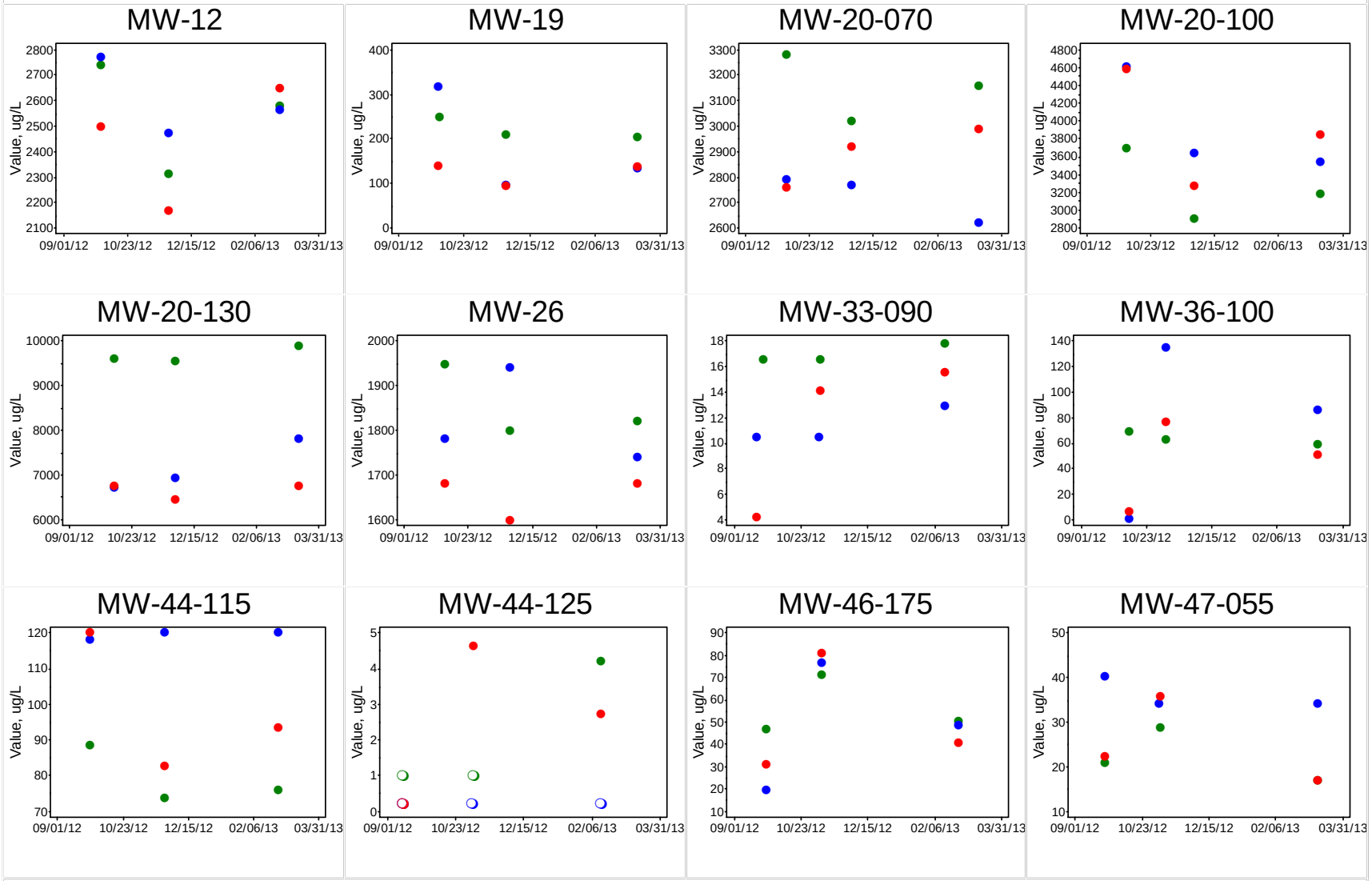
Time Plots for Chromium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

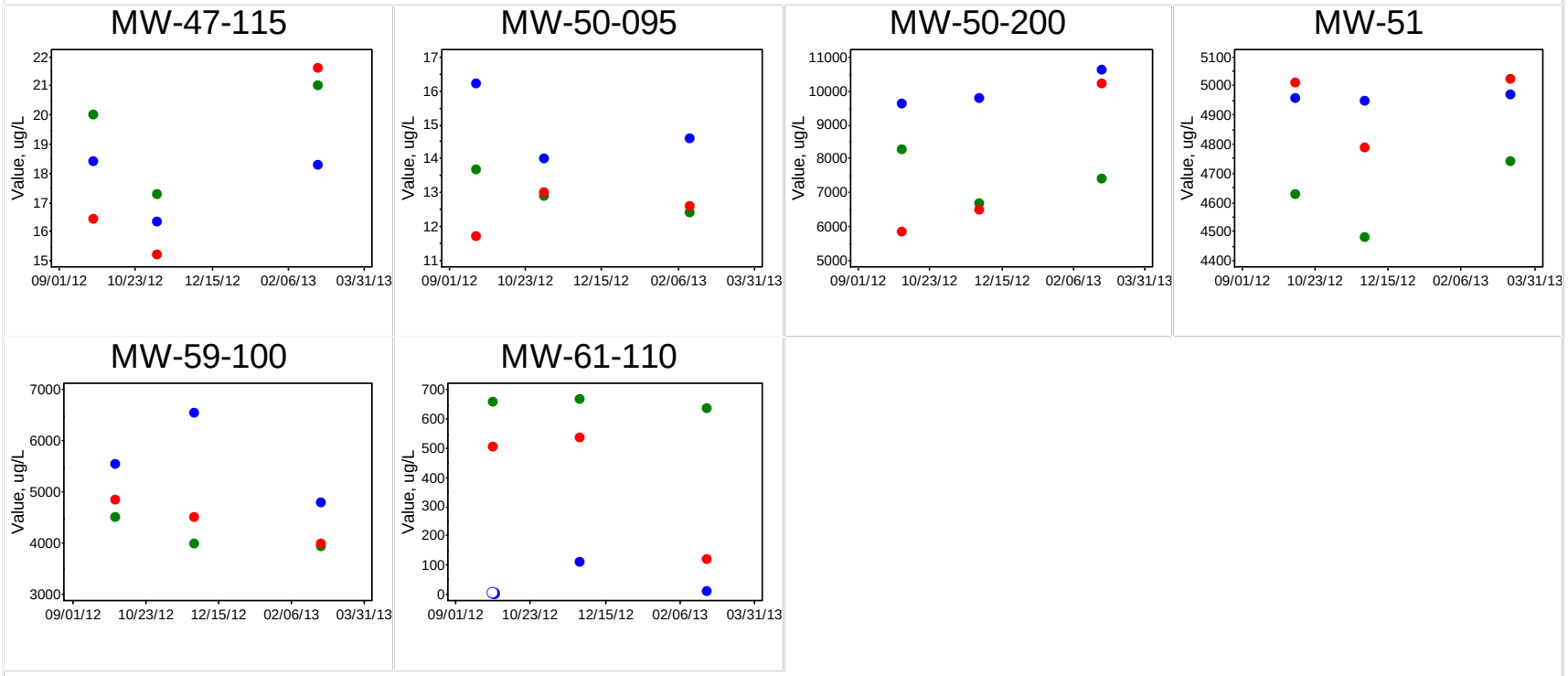
Time Plots for Chromium, Hexavalent



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

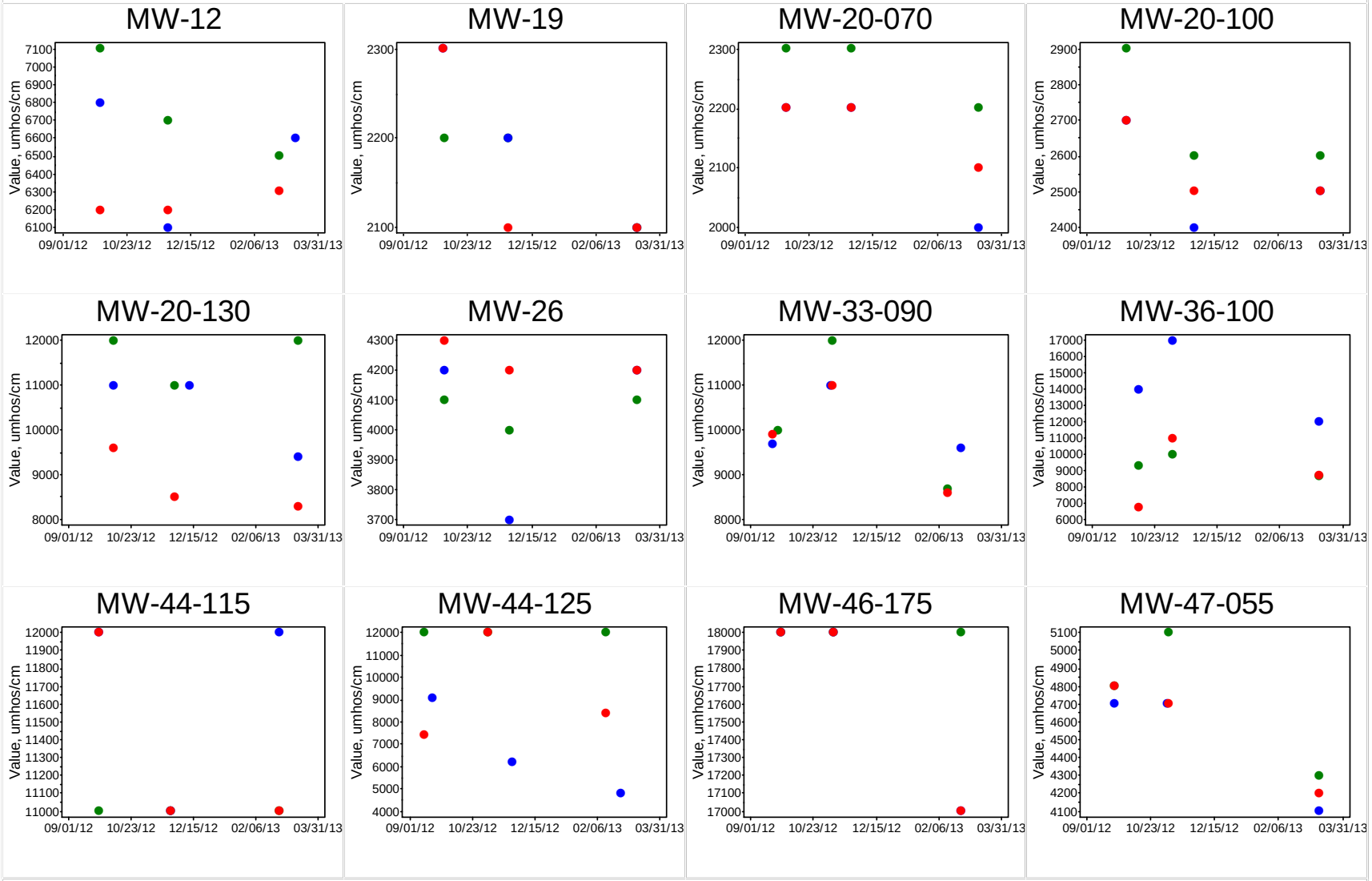
Time Plots for Chromium, Hexavalent



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

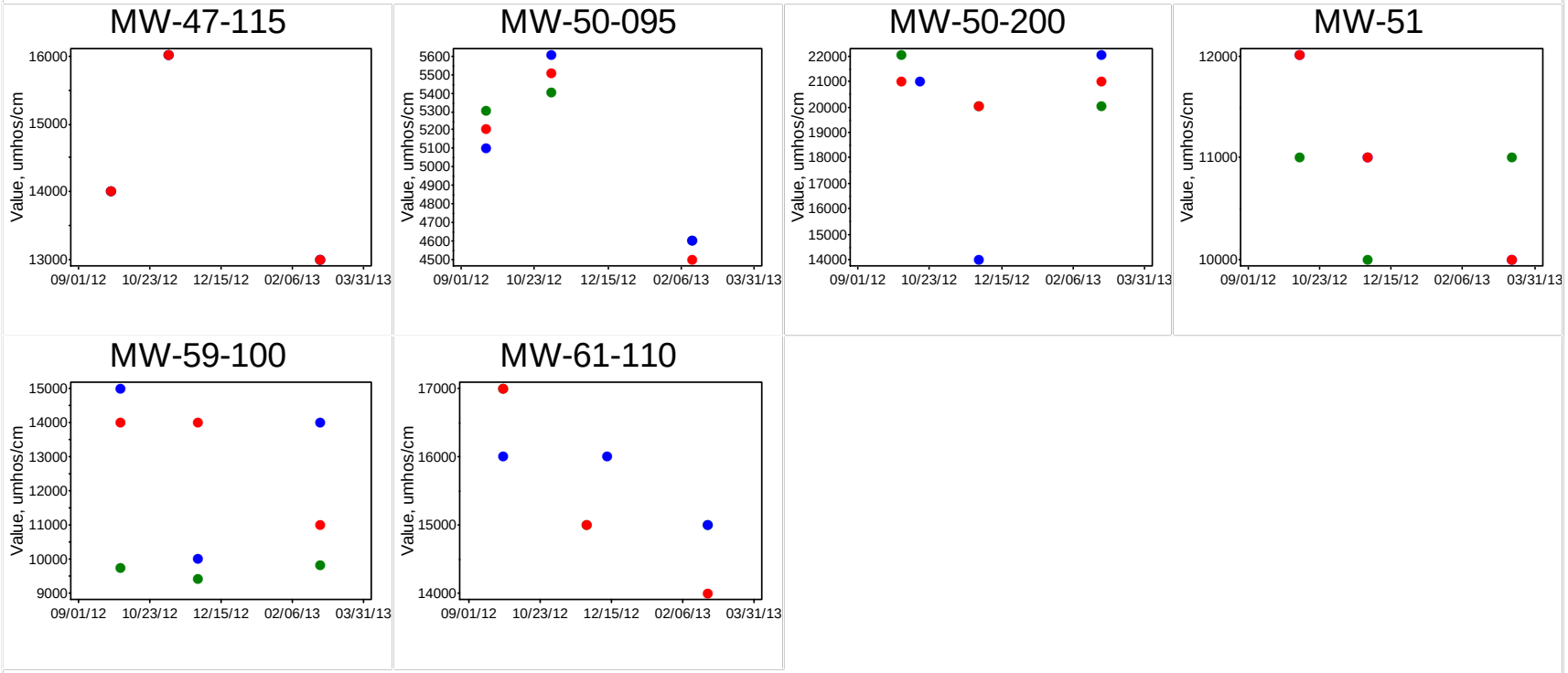
Time Plots for EC



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

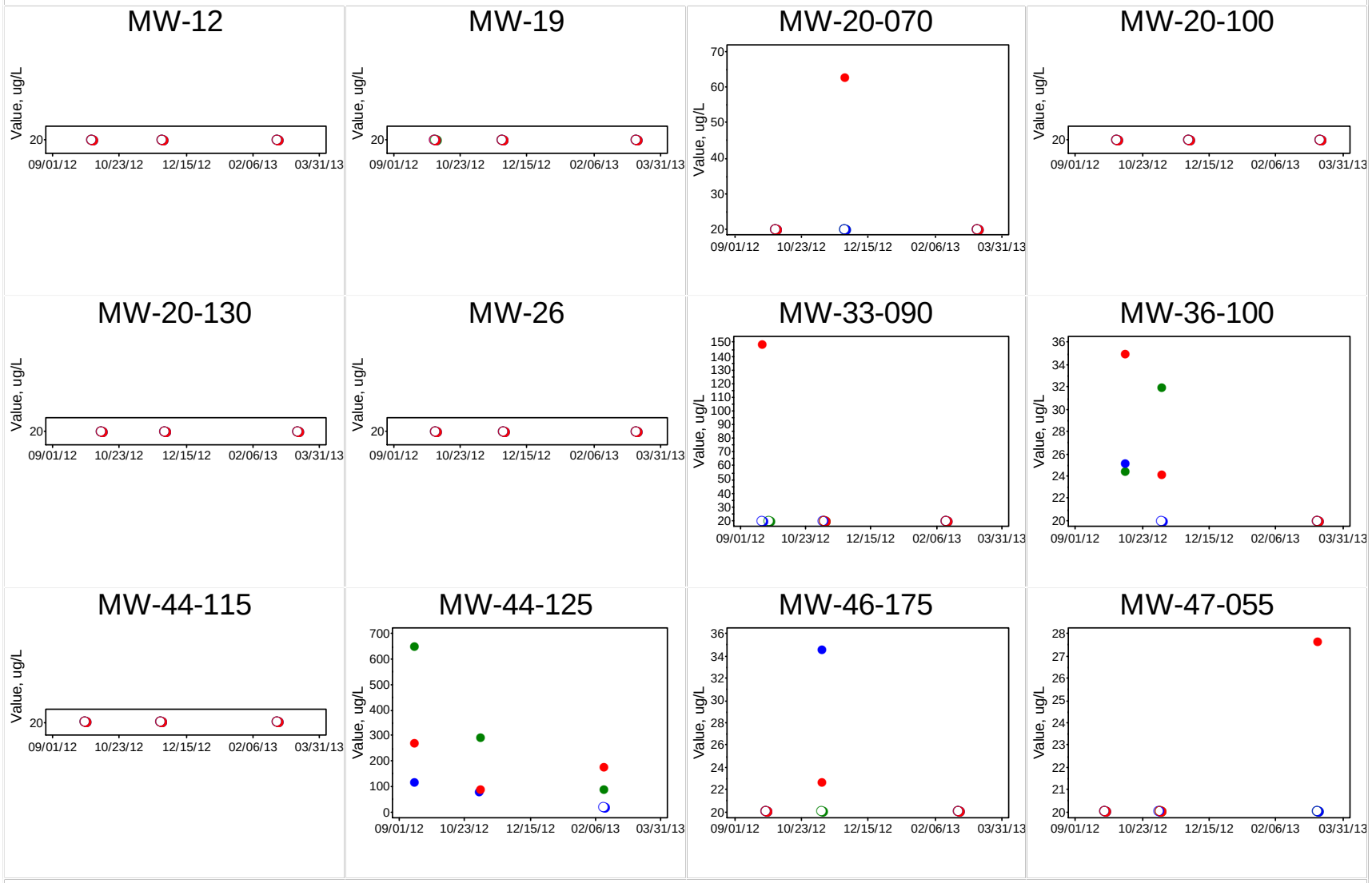
Time Plots for EC



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

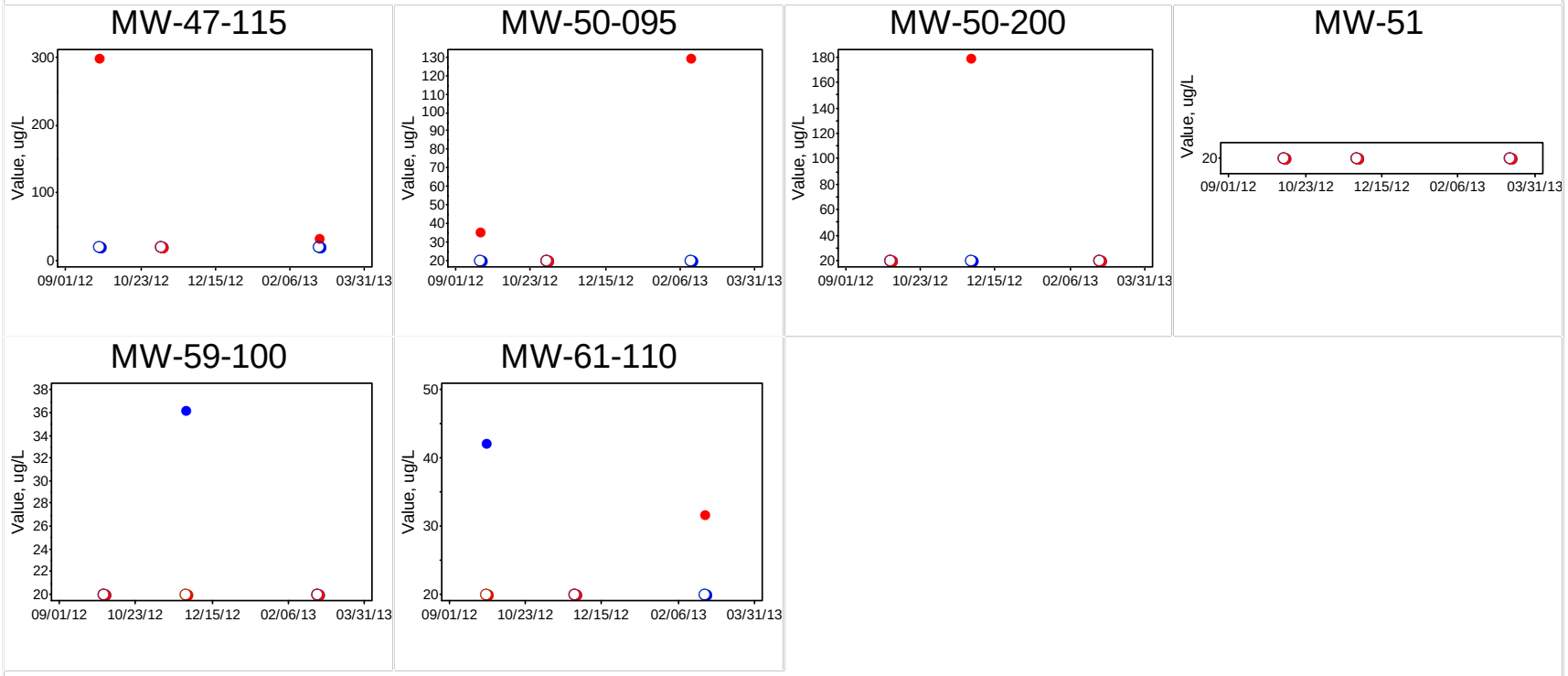
Time Plots for Iron, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

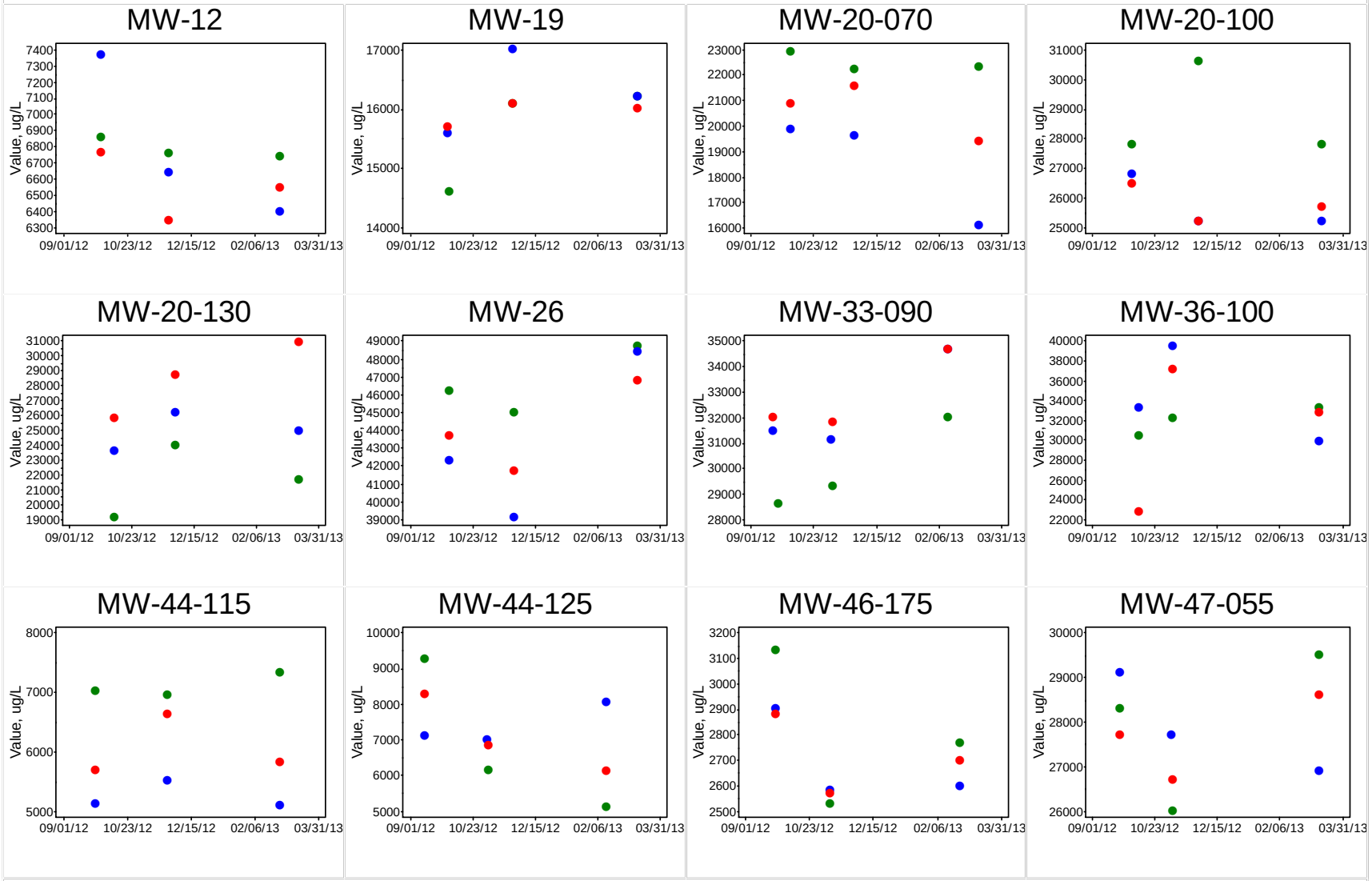
Time Plots for Iron, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

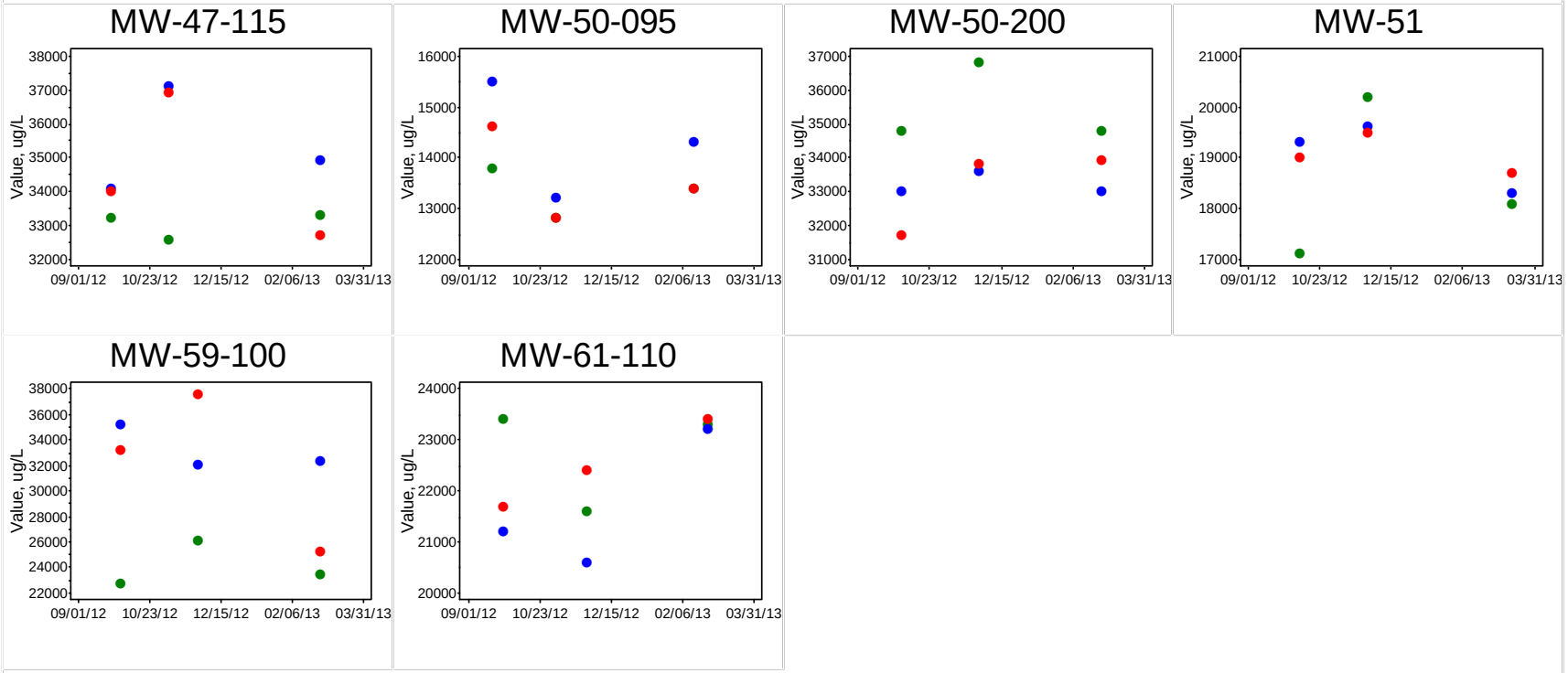
Time Plots for Magnesium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

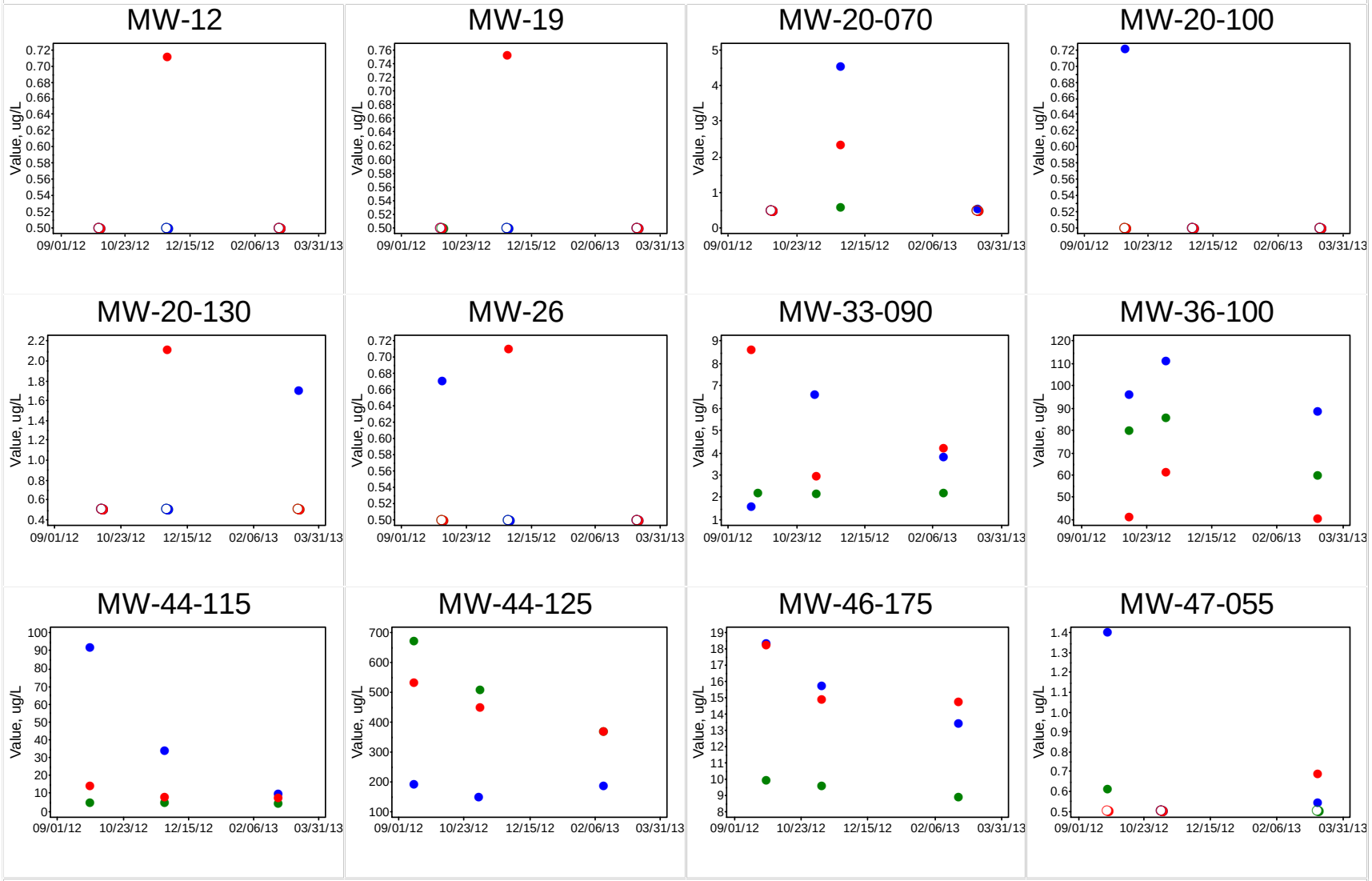
Time Plots for Magnesium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

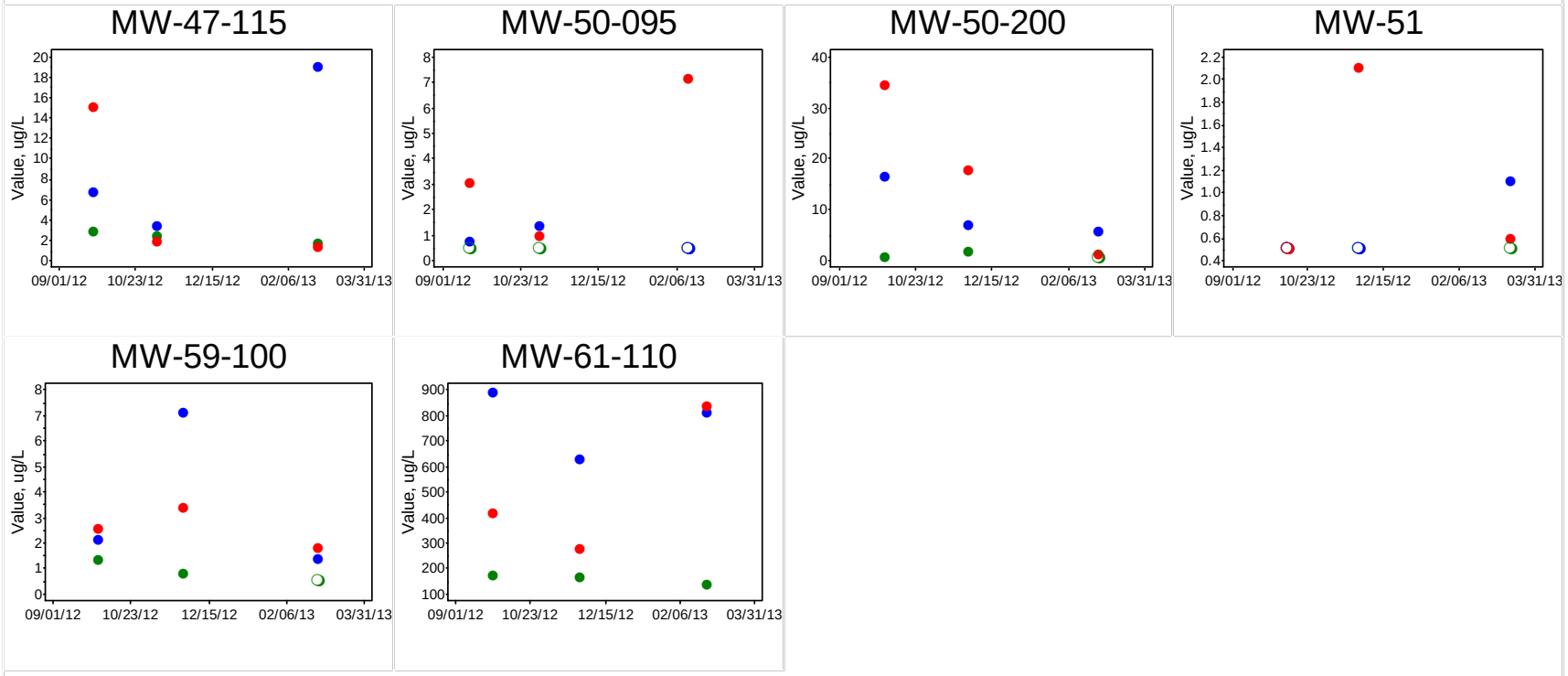
Time Plots for Manganese, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

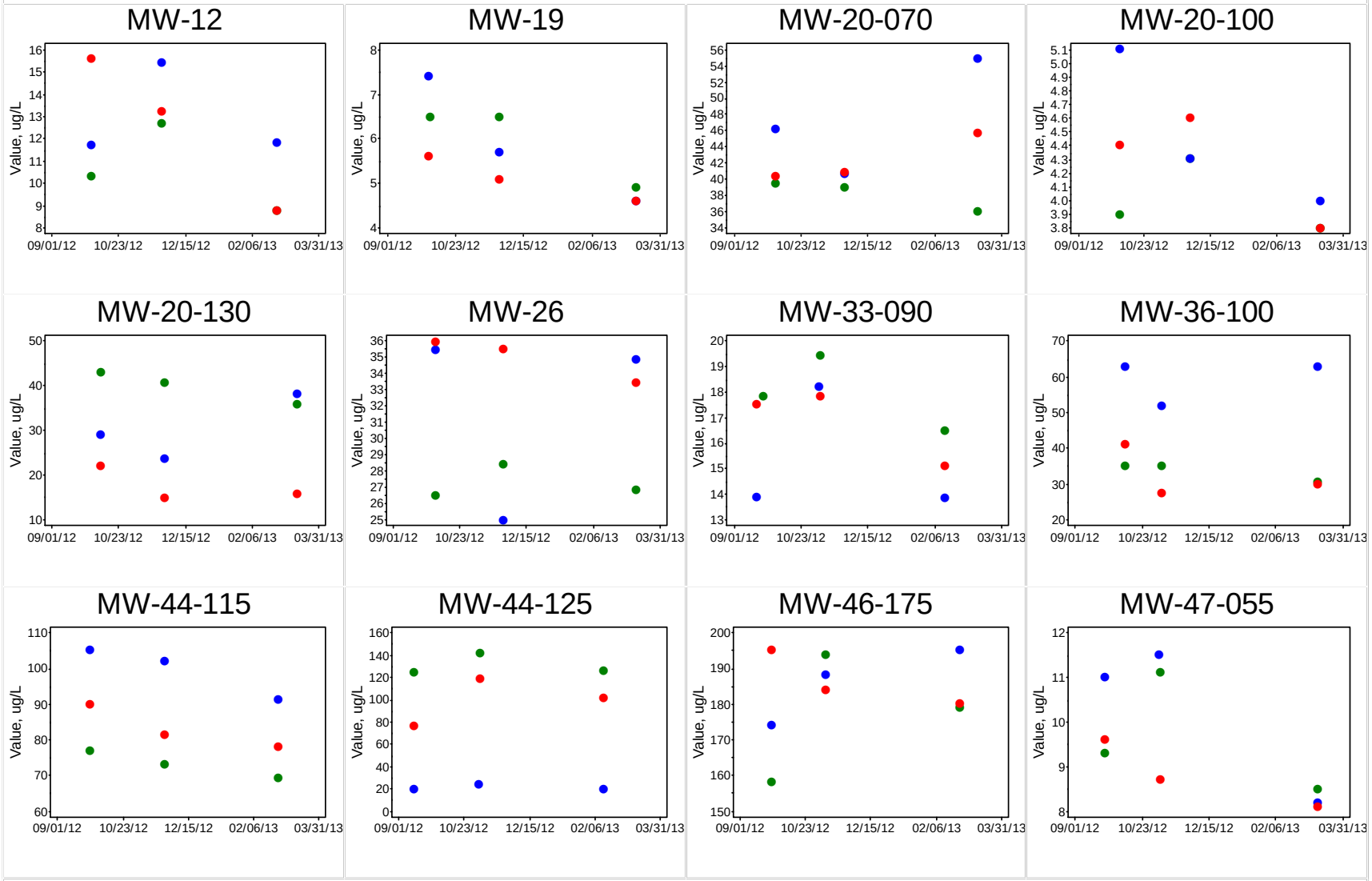
Time Plots for Manganese, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

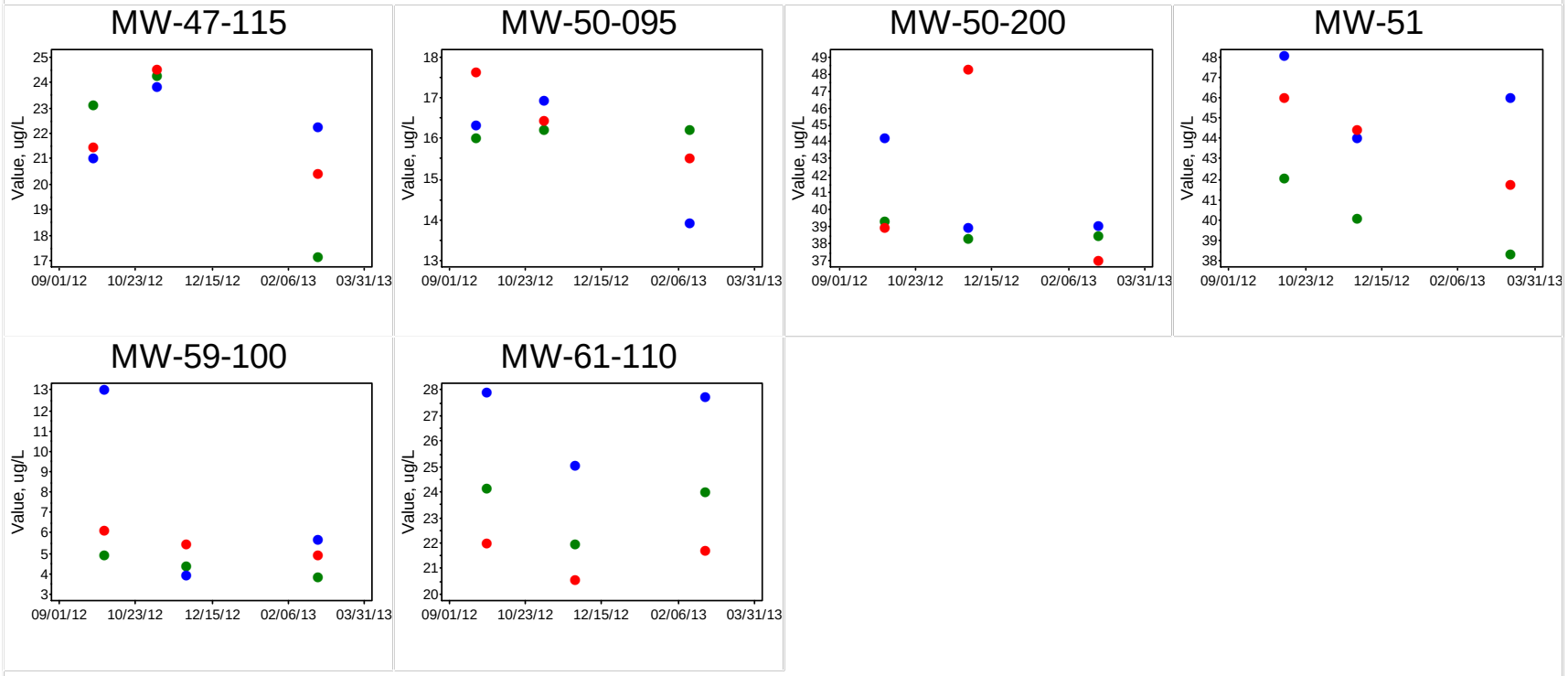
Time Plots for Molybdenum, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

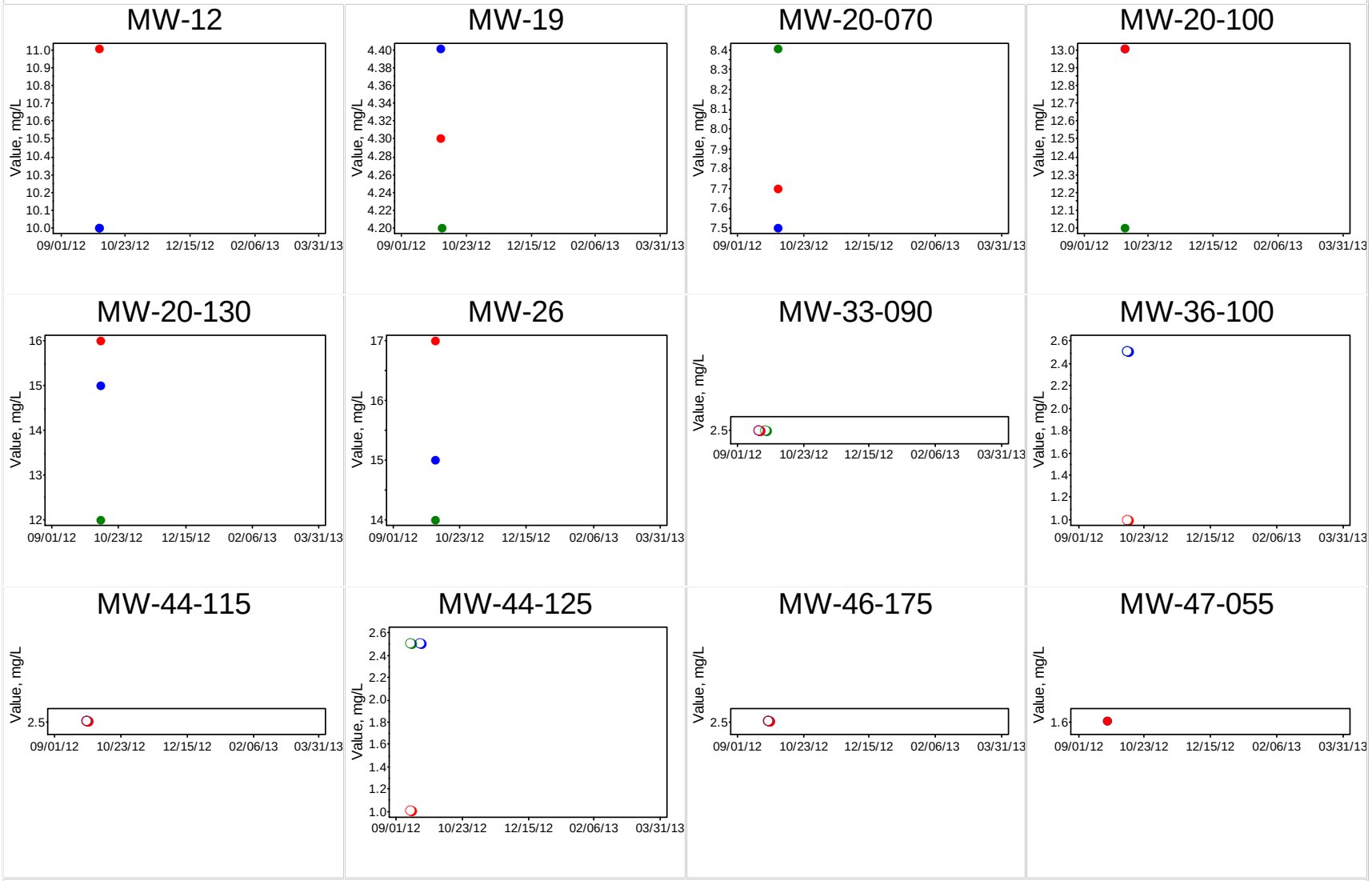
Time Plots for Molybdenum, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

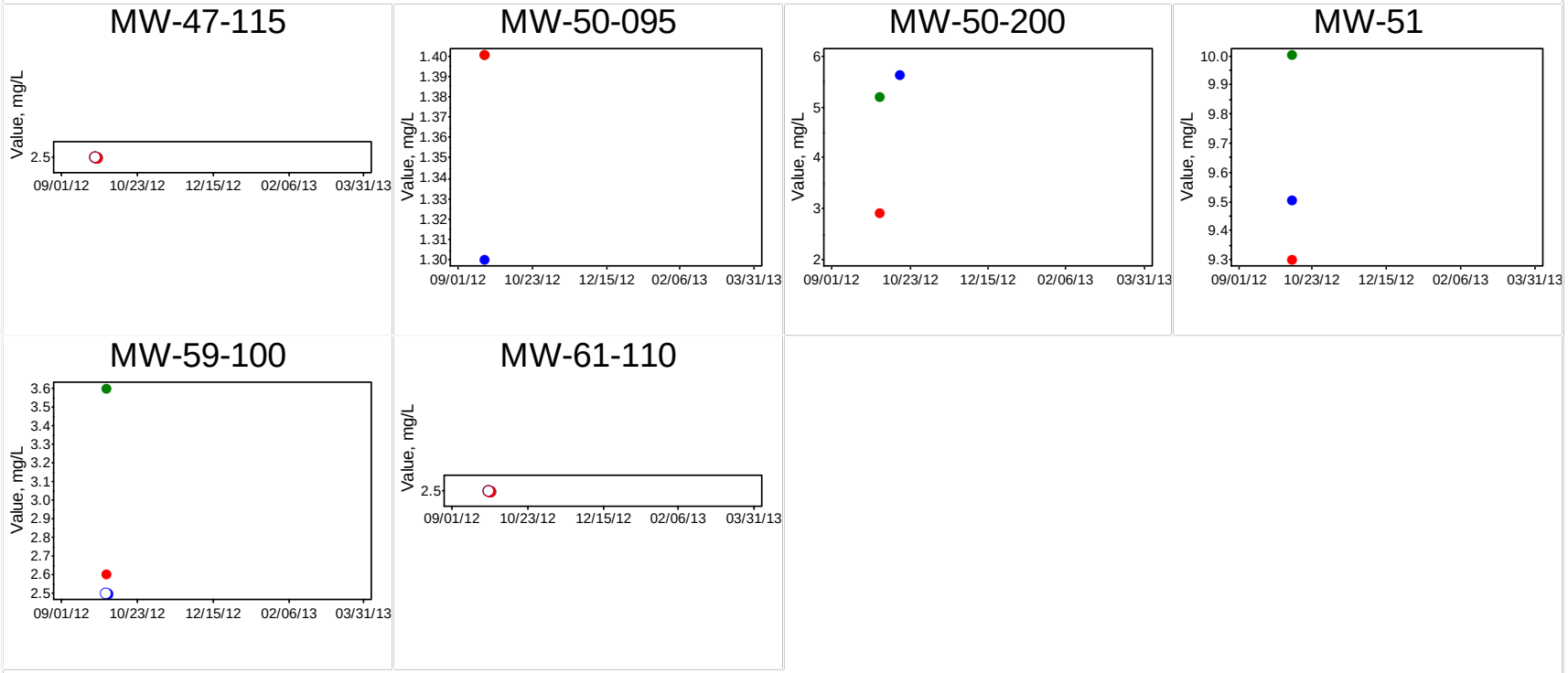
Time Plots for Nitrate as N



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

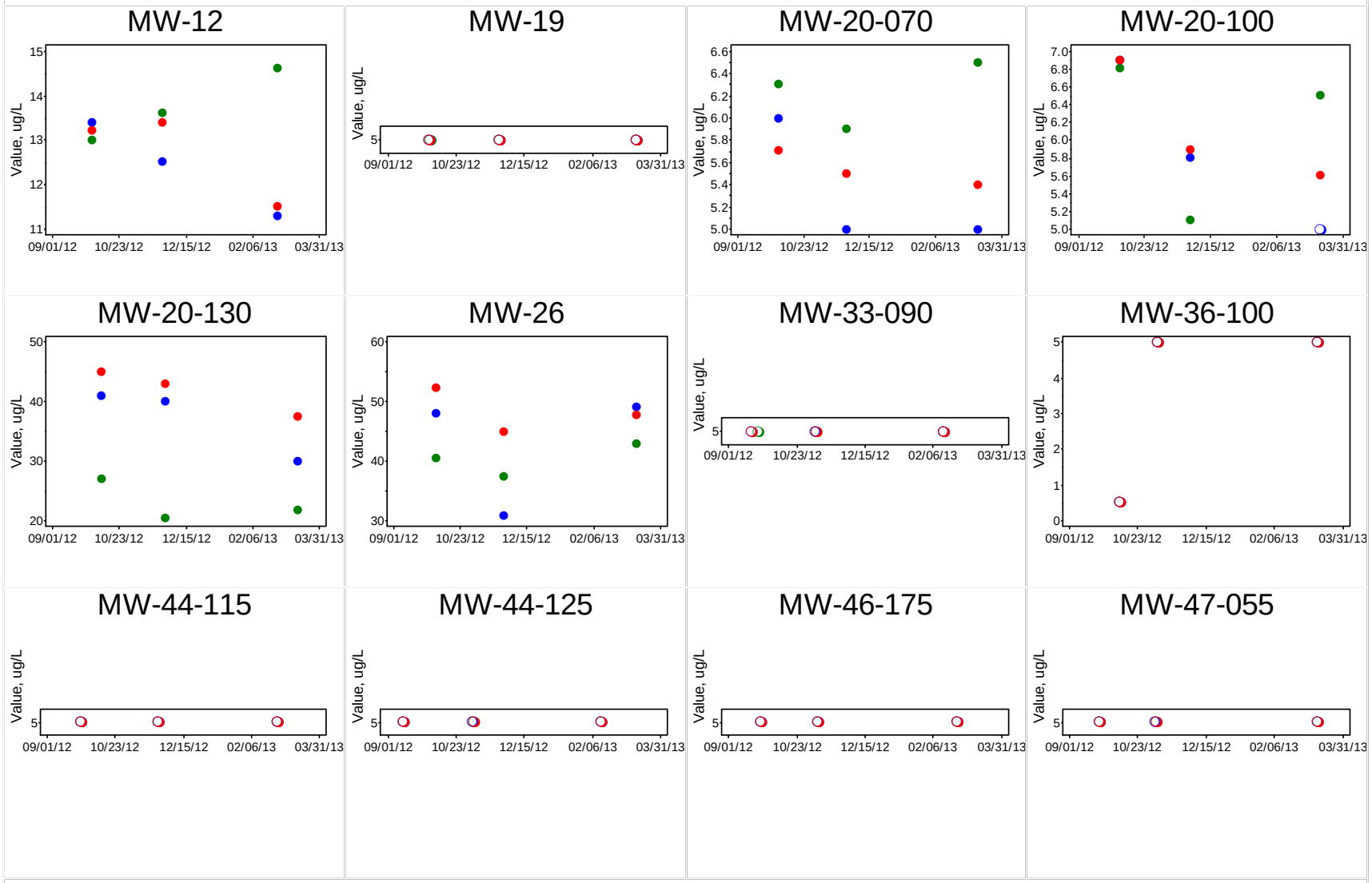
Time Plots for Nitrate as N



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

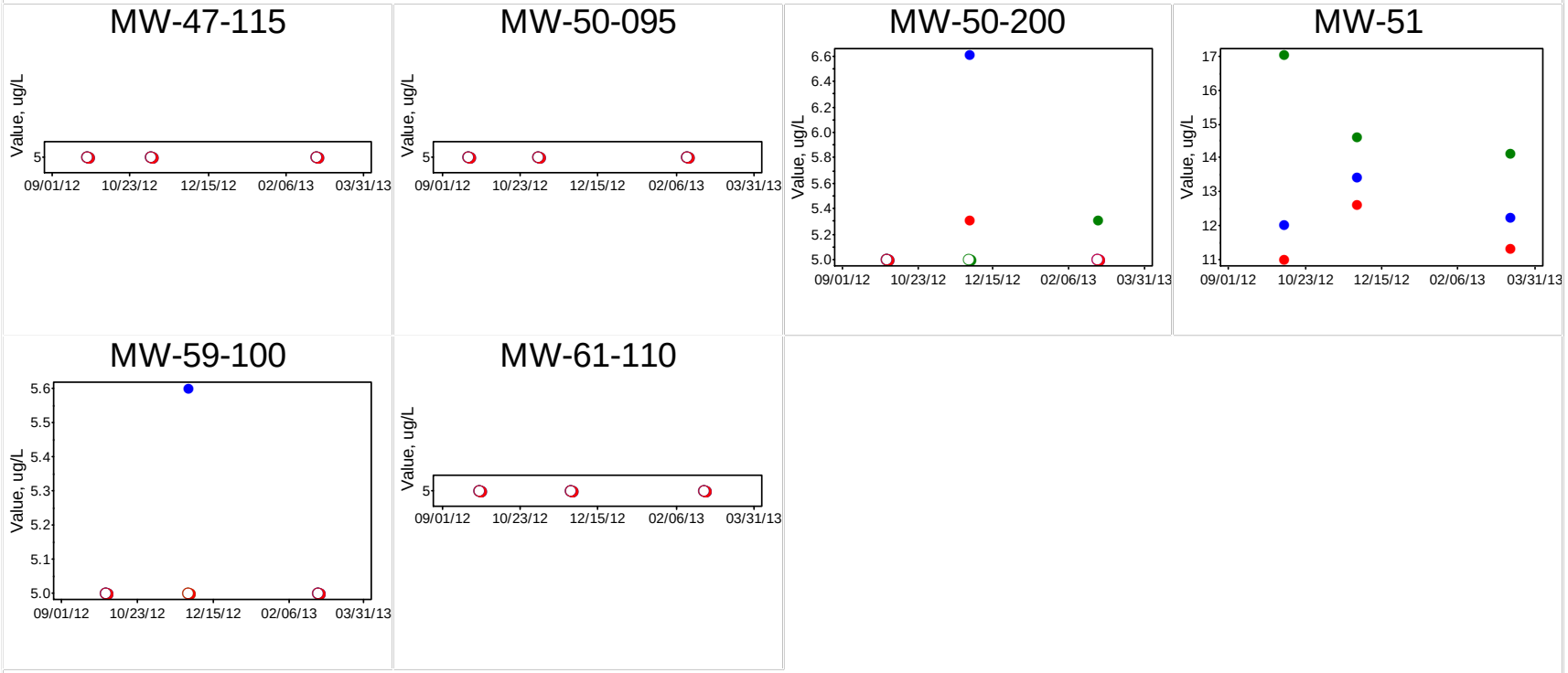
Time Plots for Selenium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

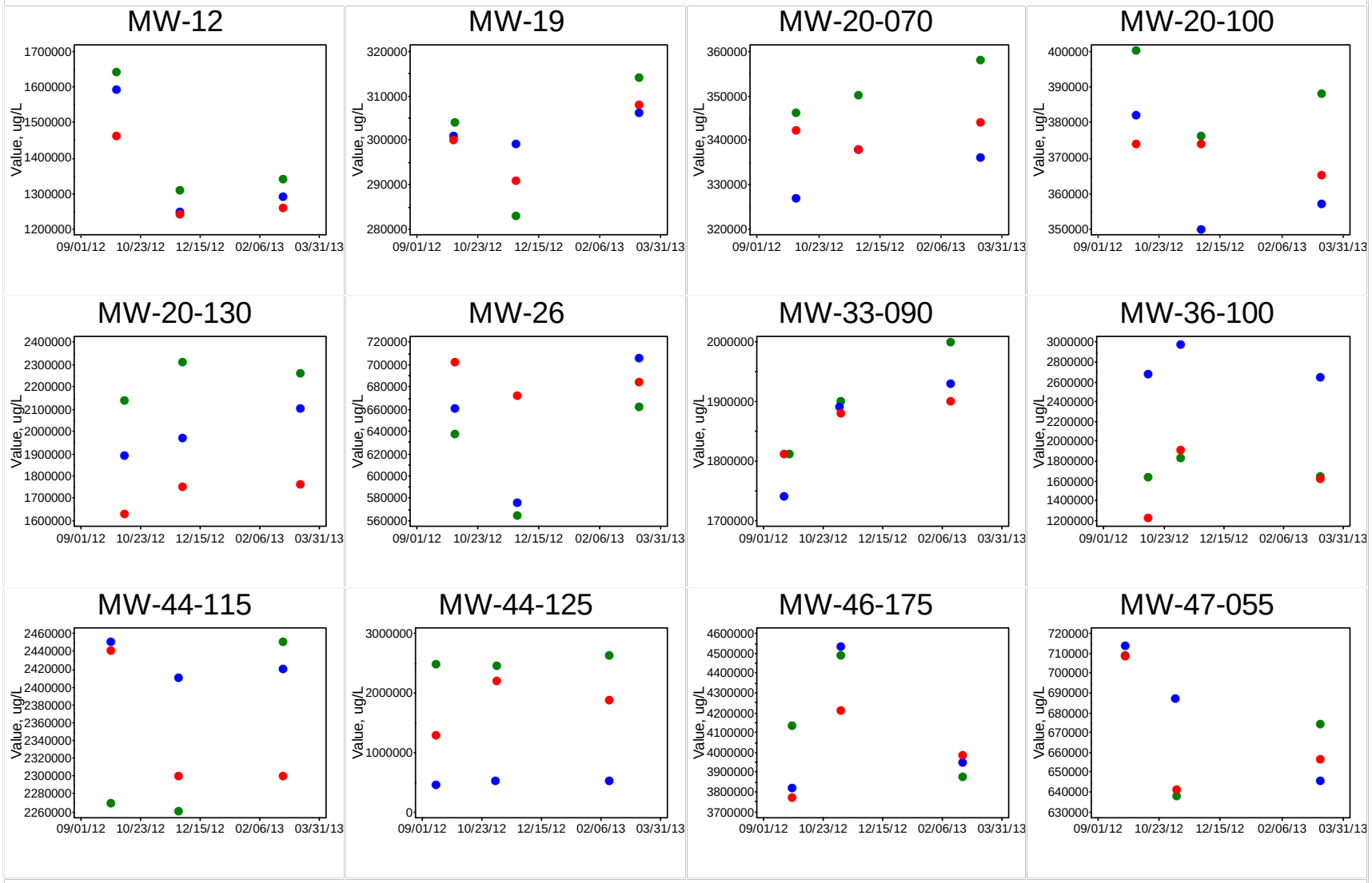
Time Plots for Selenium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

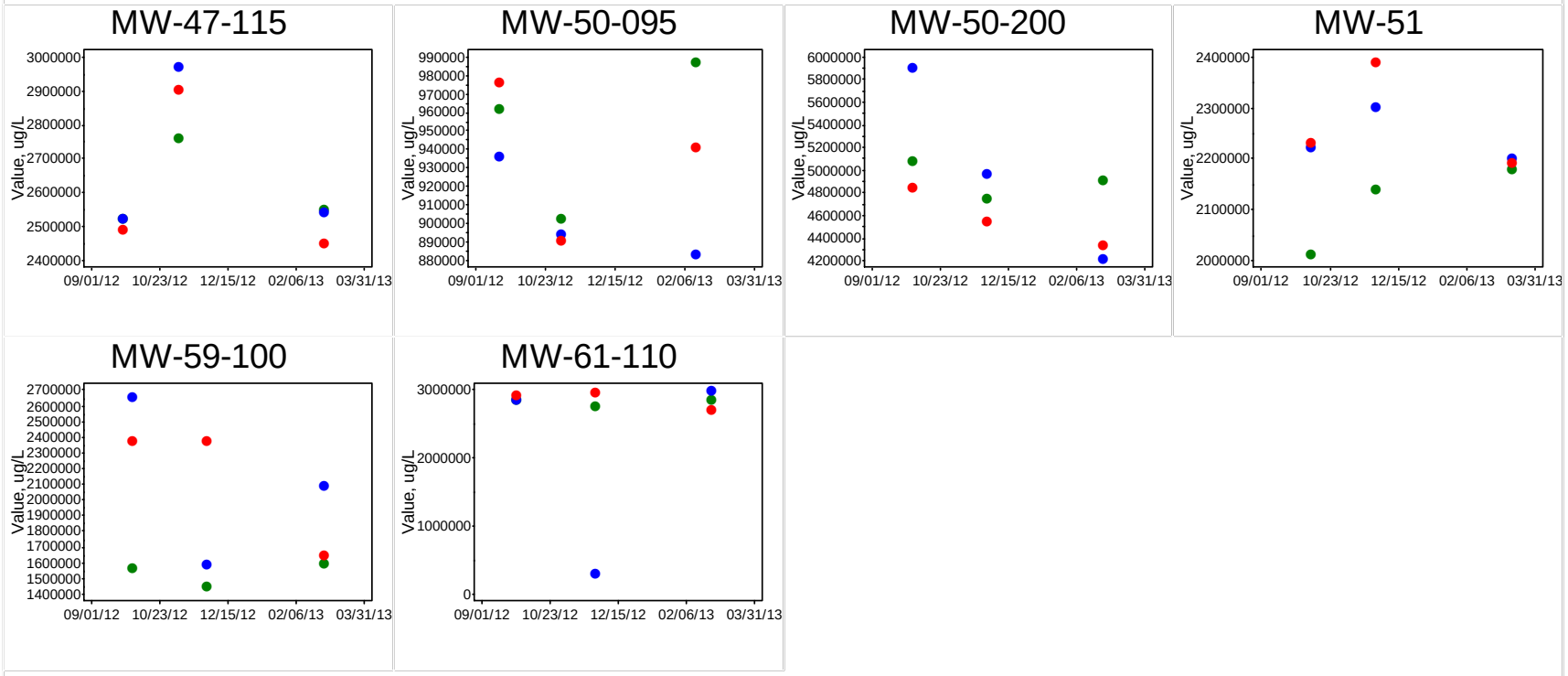
Time Plots for Sodium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

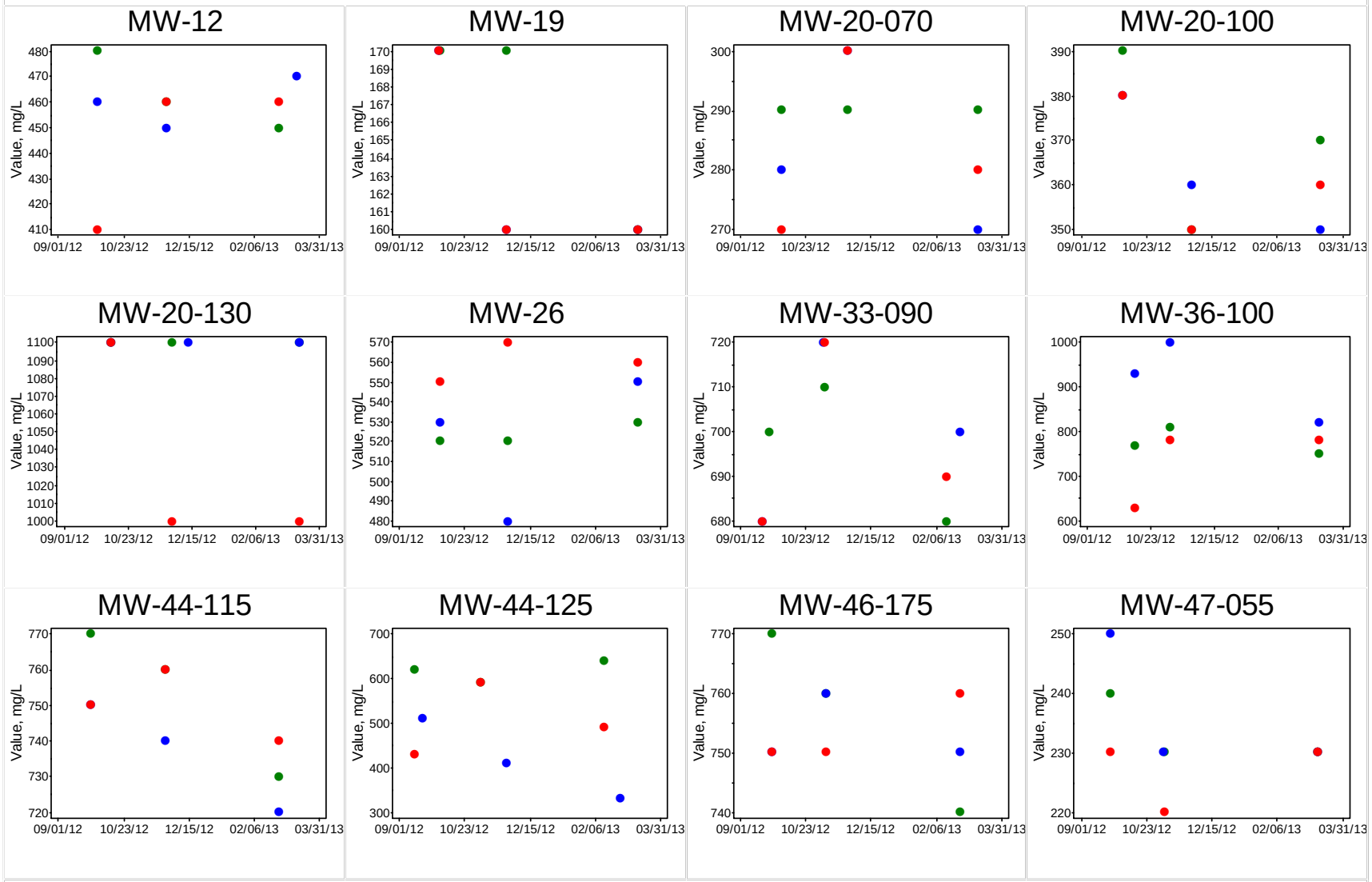
Time Plots for Sodium, dissolved



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

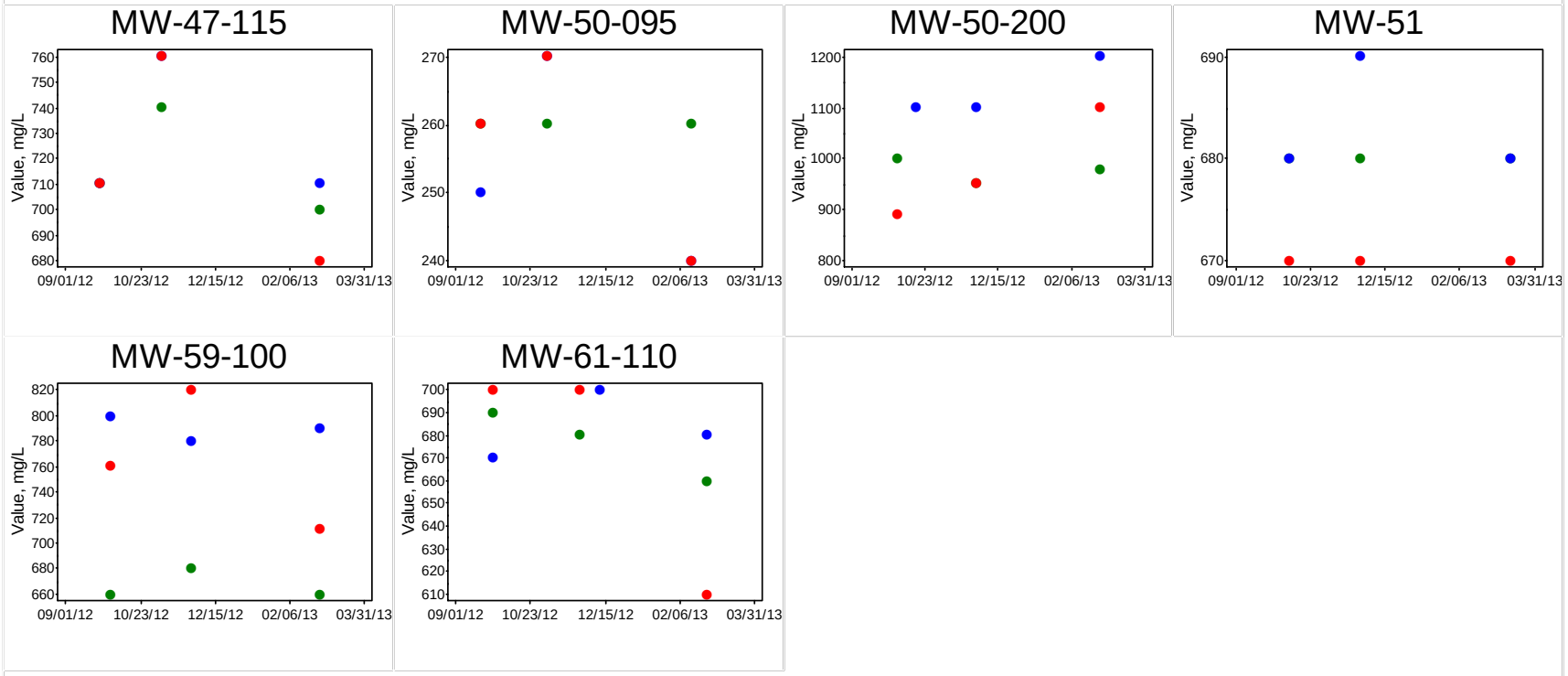
Time Plots for Sulfate



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

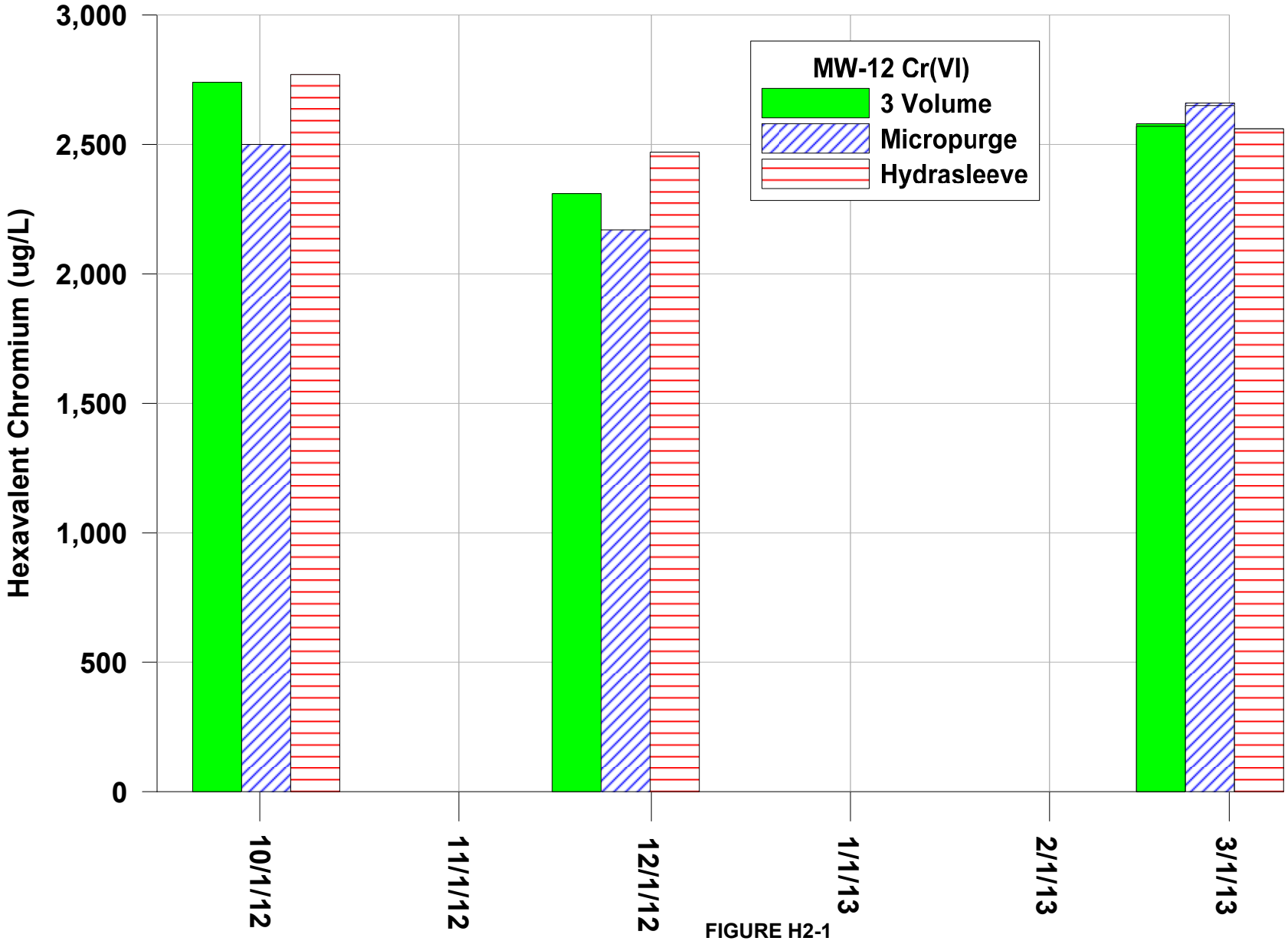
Time Plots for Sulfate



3-Volume Purge Hydrosleeve Minimum Drawdown

Filled symbols Represent Detects; Unfilled Represent 1/2 RL for NDs

Attachment H2
Hexavalent Chromium Histograms

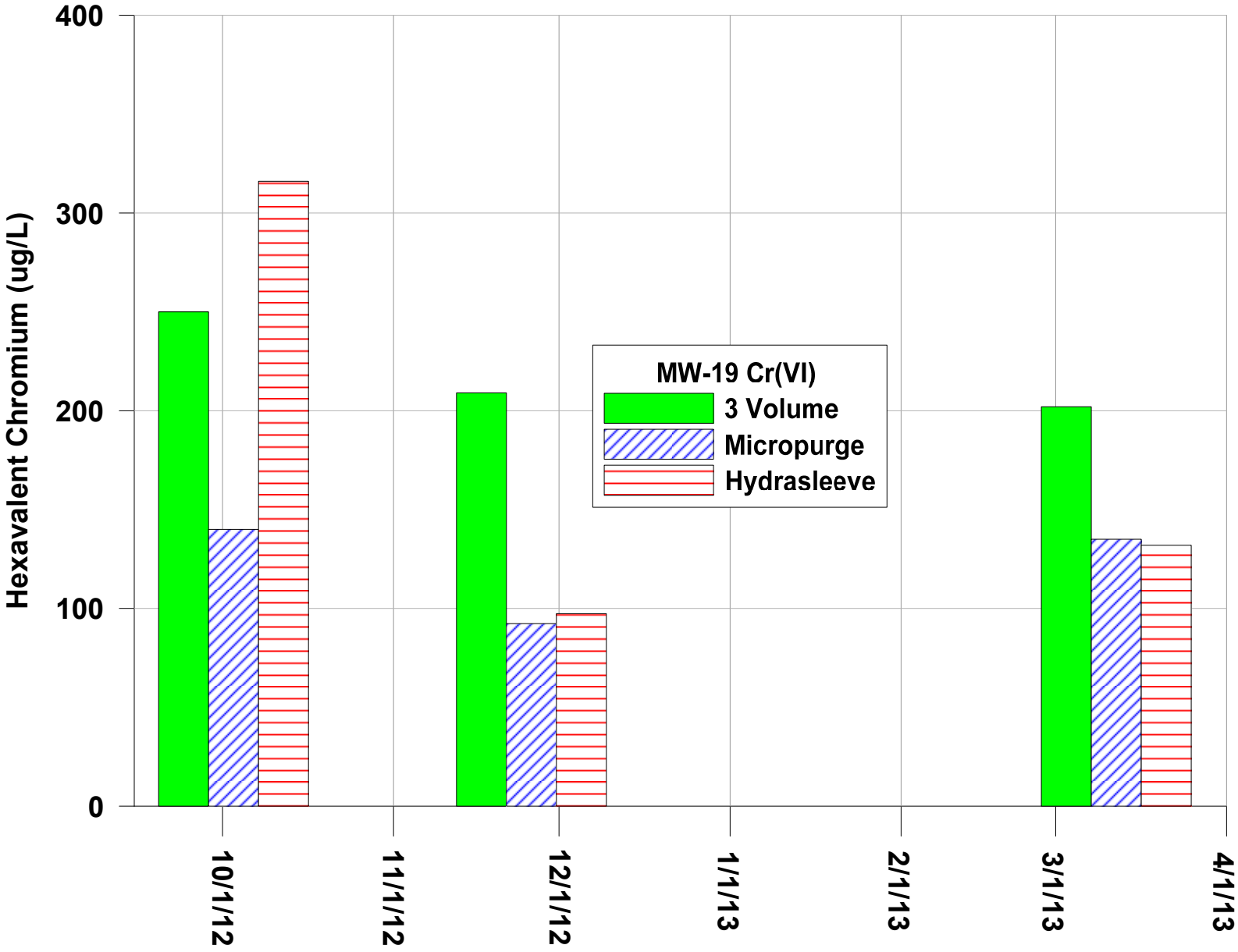


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-1
MW-12
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

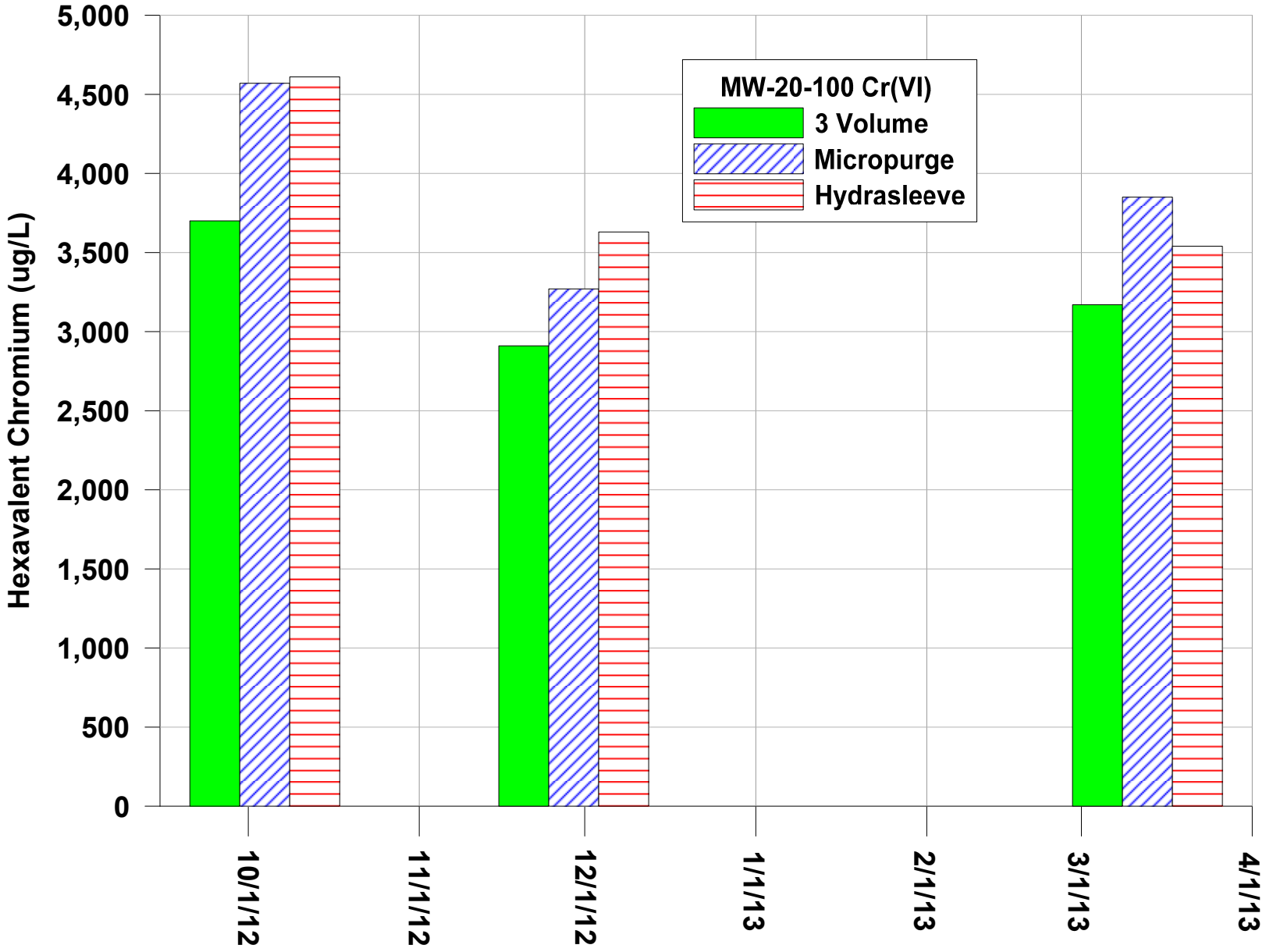


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-2
MW-19
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

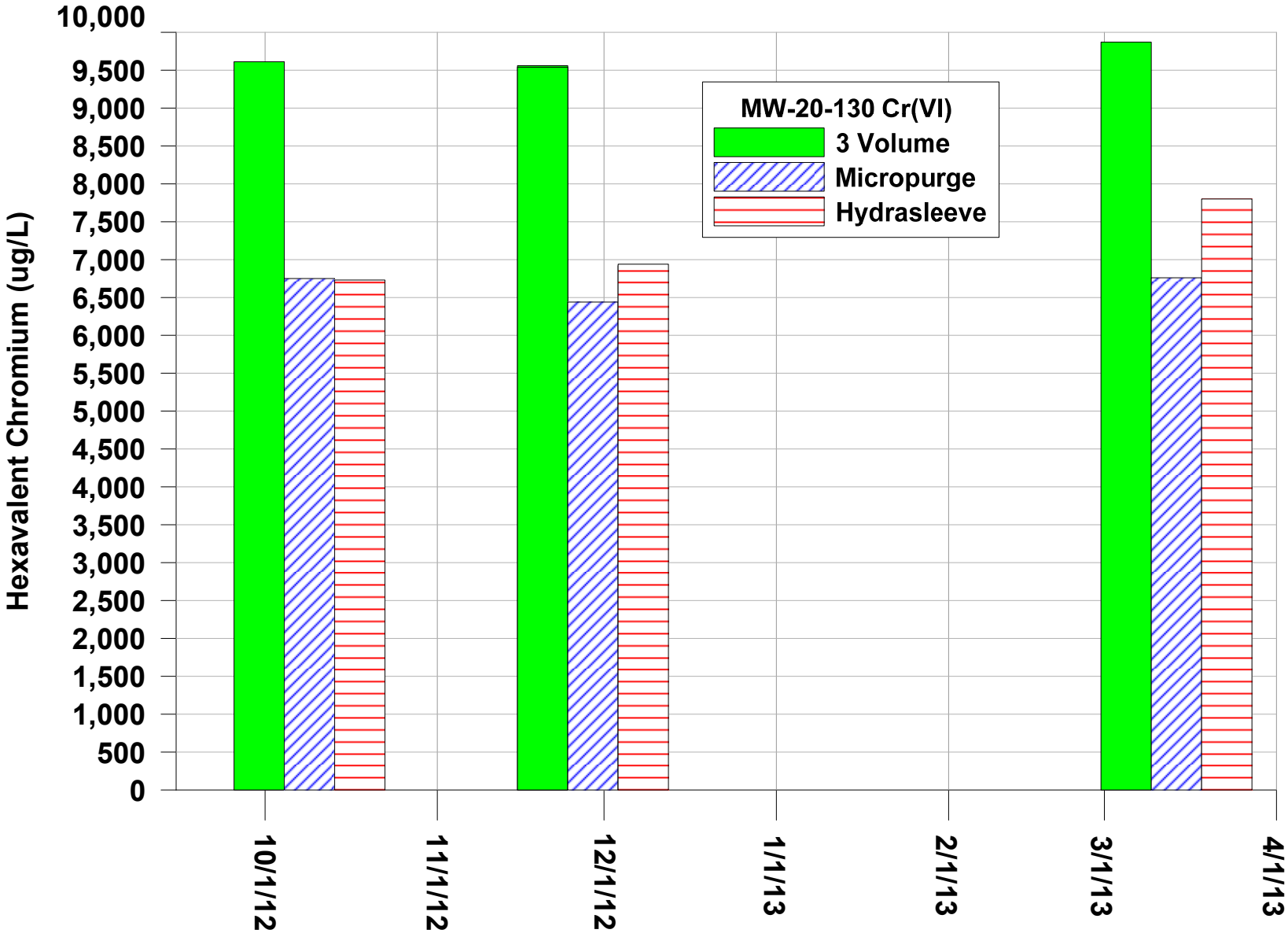


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-3
MW-20-100
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

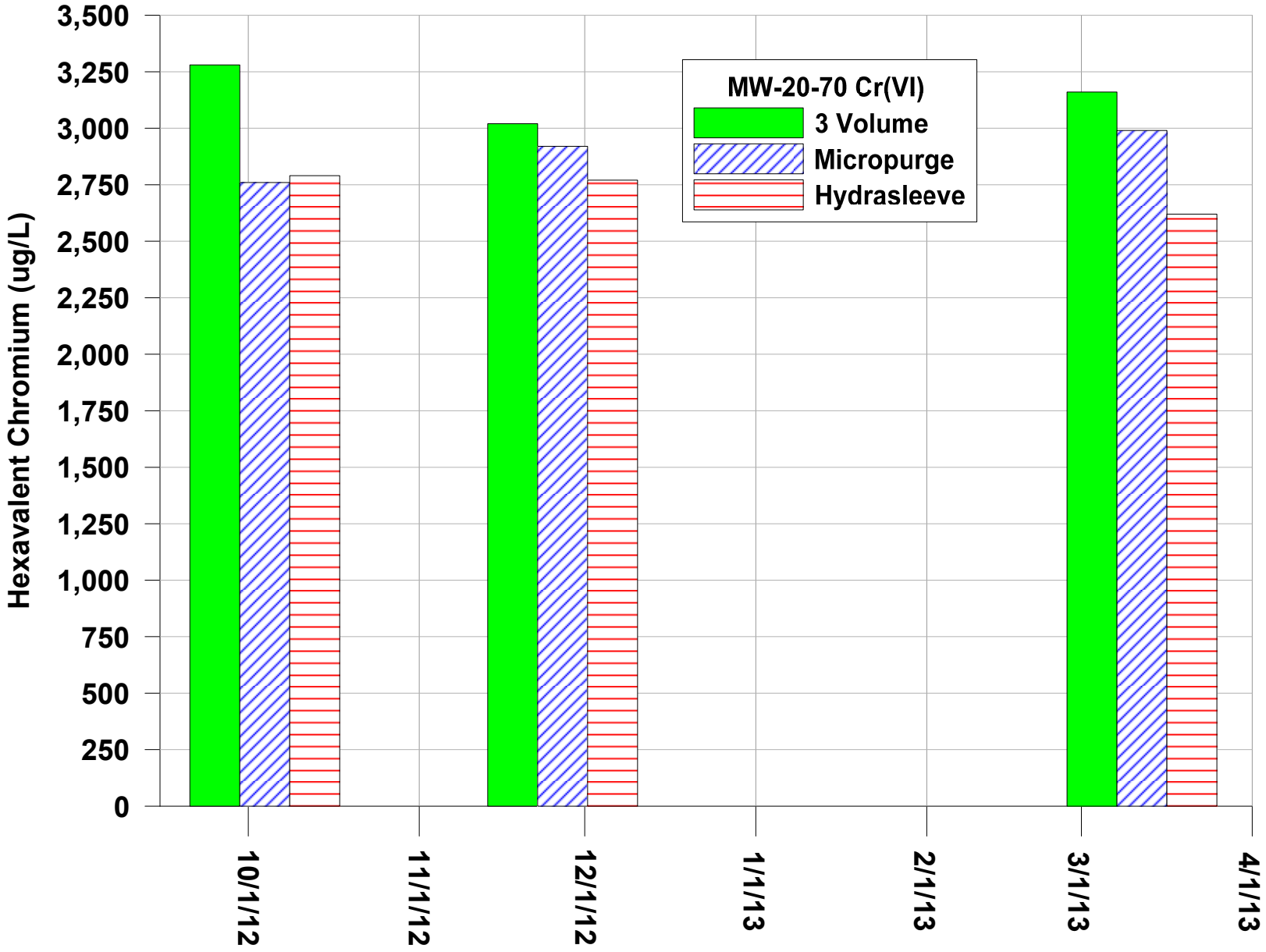


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-4
MW-20-130
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

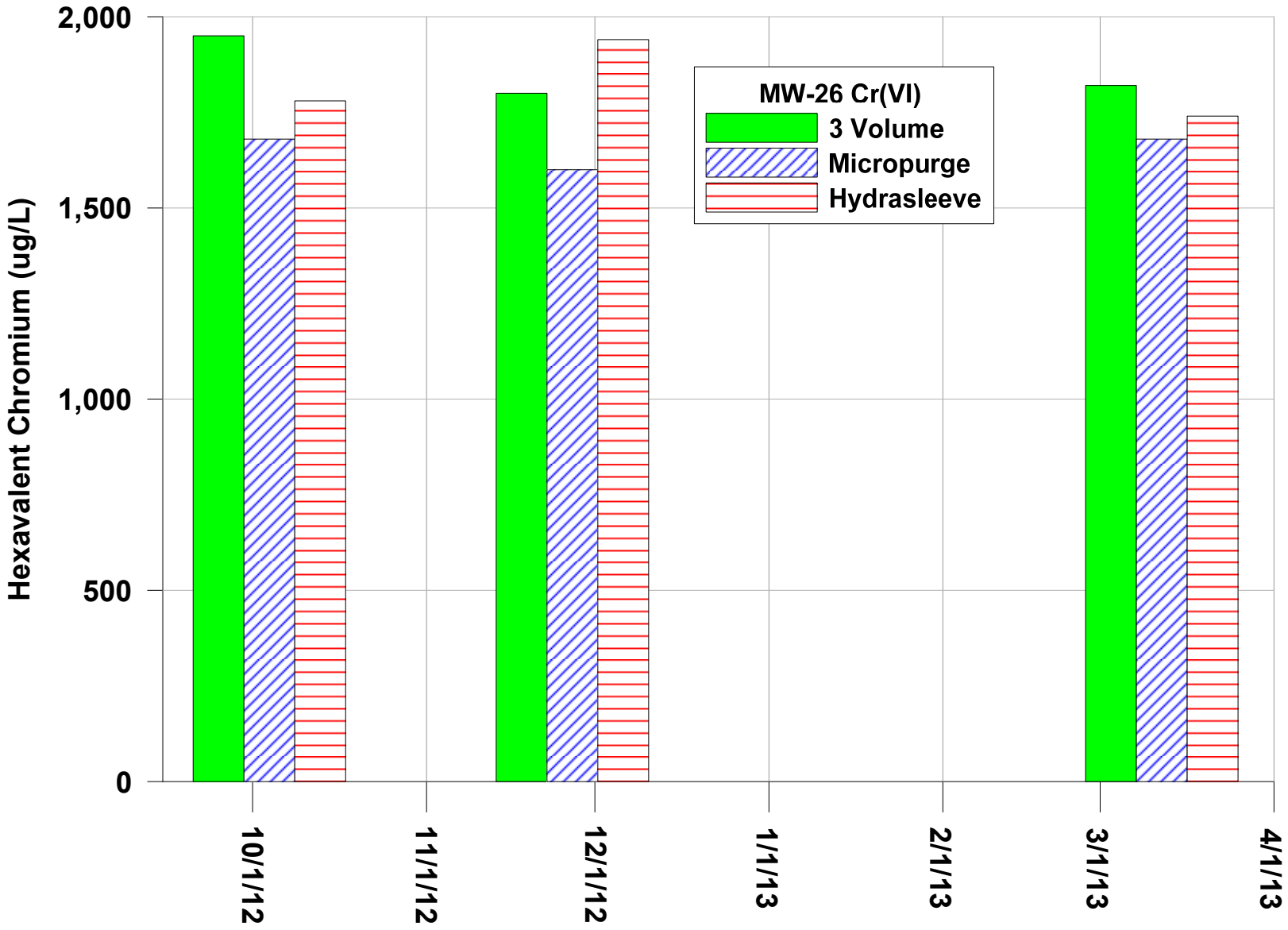


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-5
MW-20-70
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

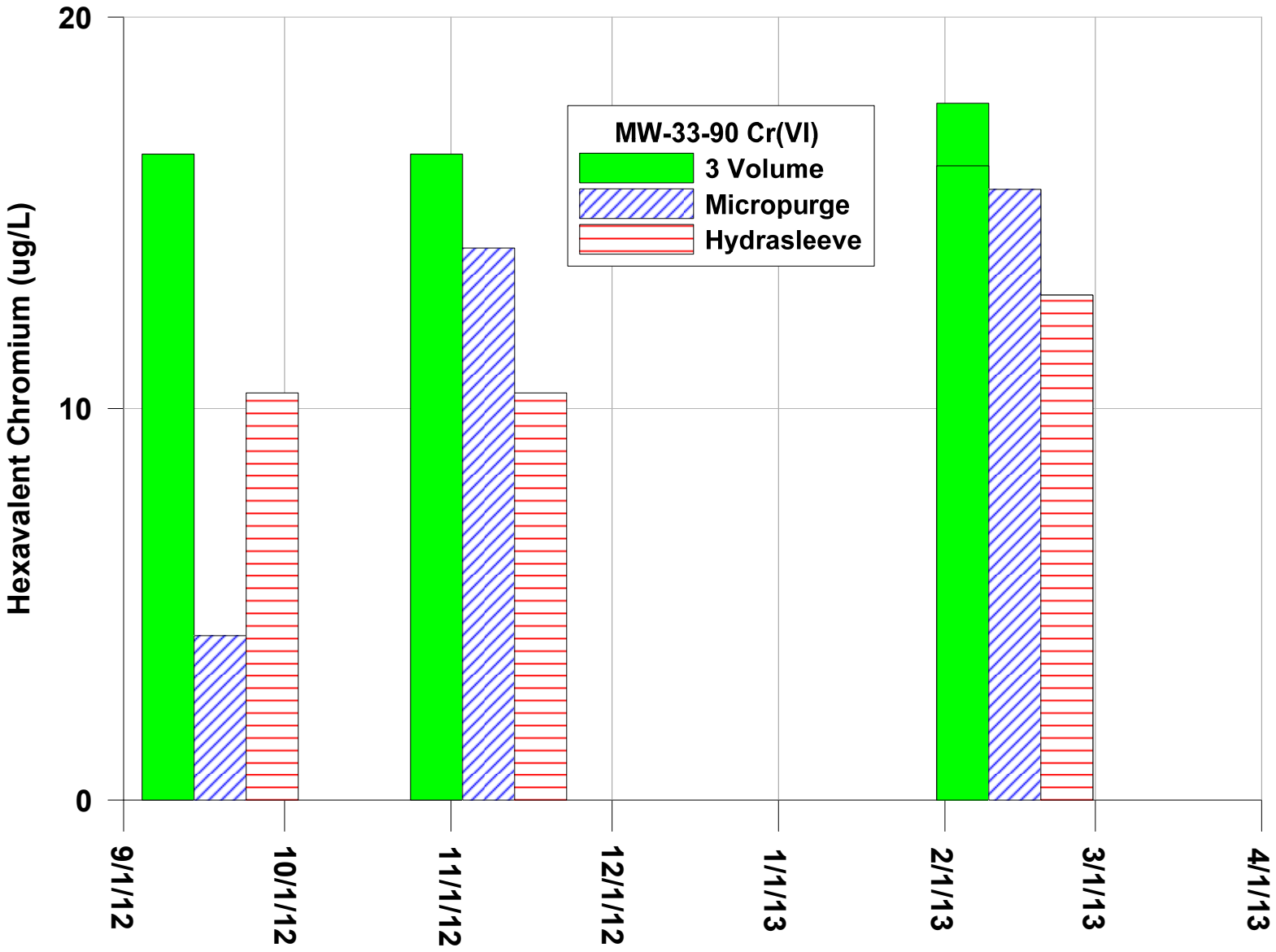


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-6
MW-26
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

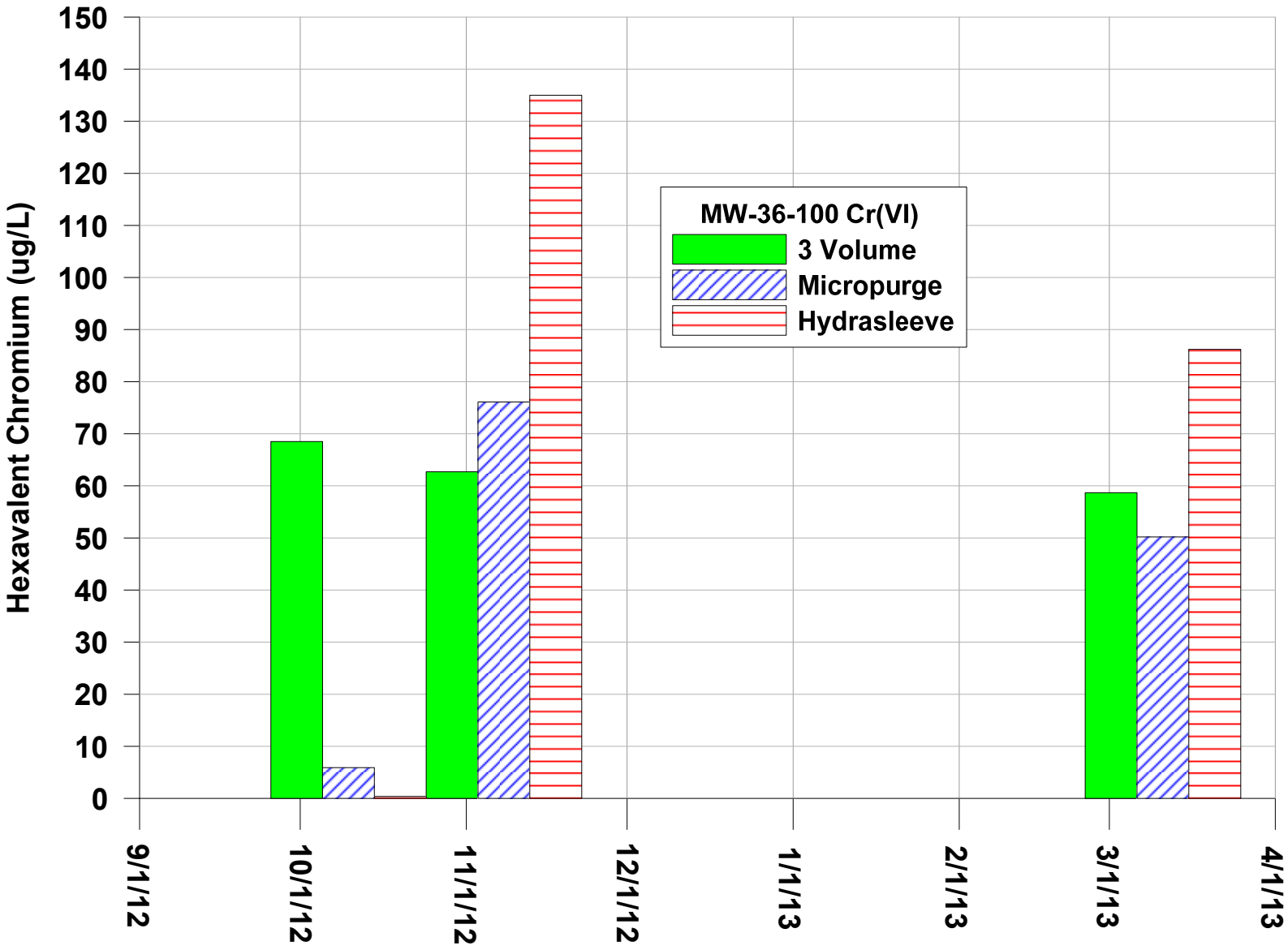


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-7
MW-33-90
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

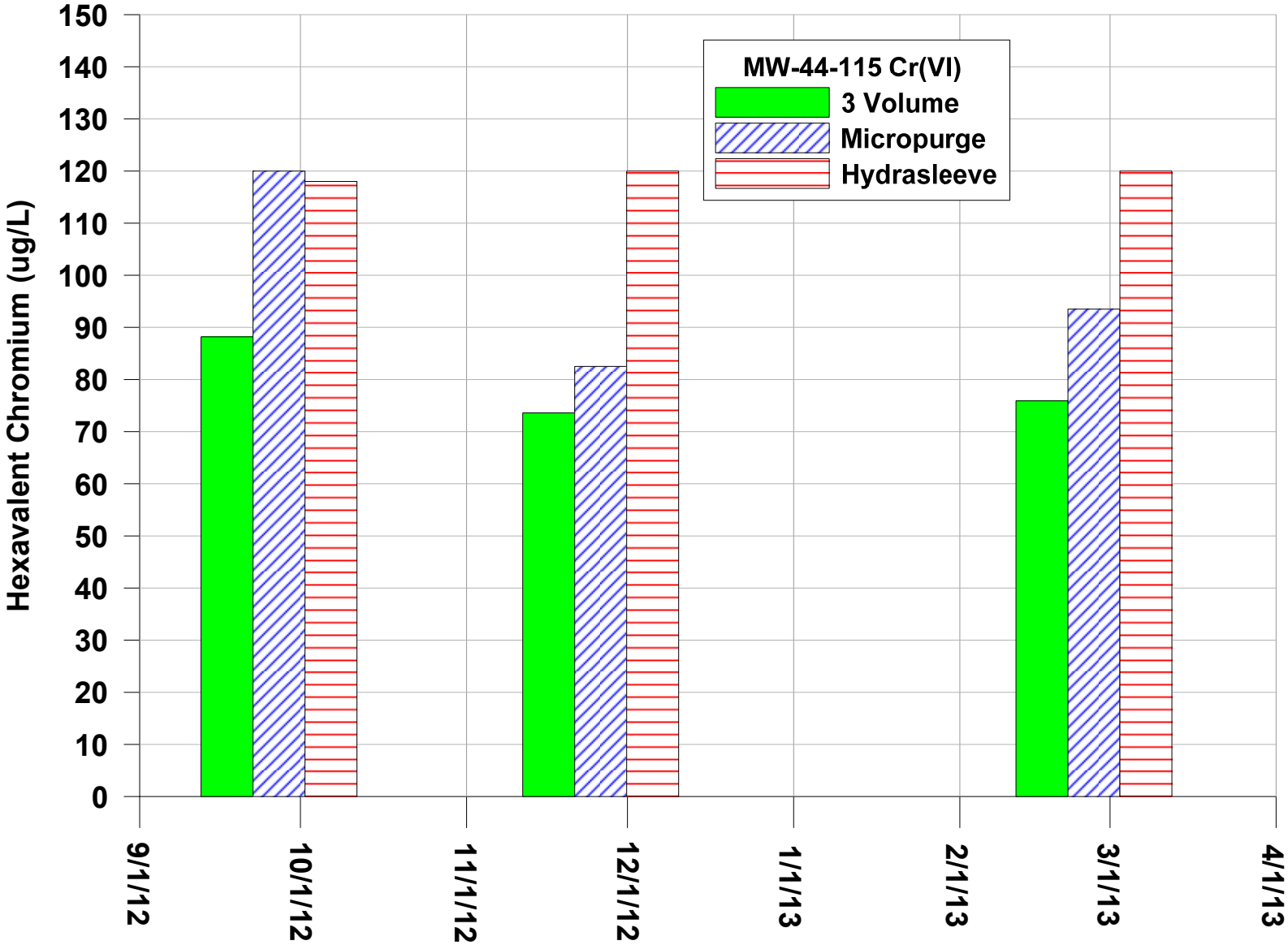


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-8
MW-36-100
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

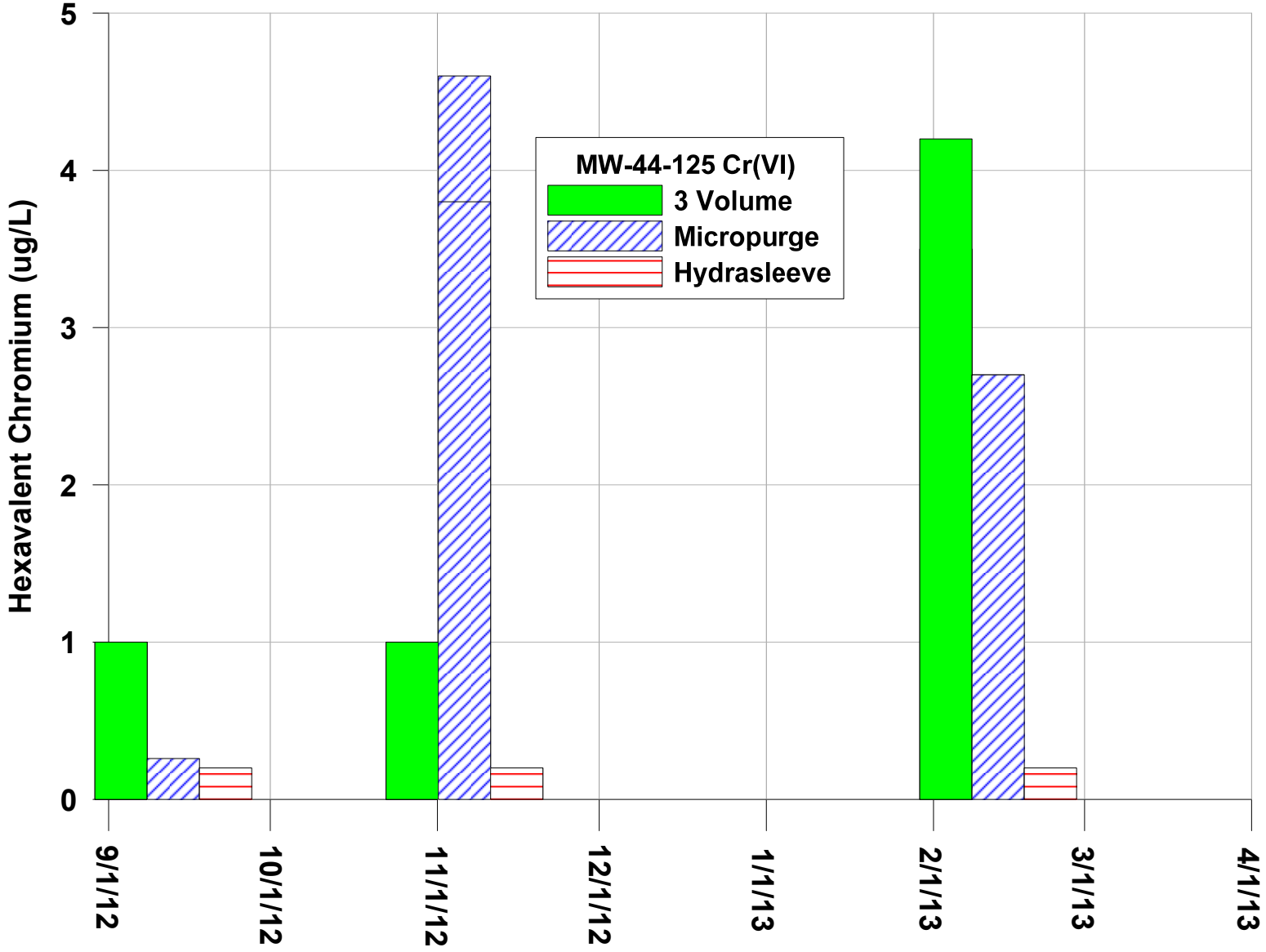


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-9
MW-44-115
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

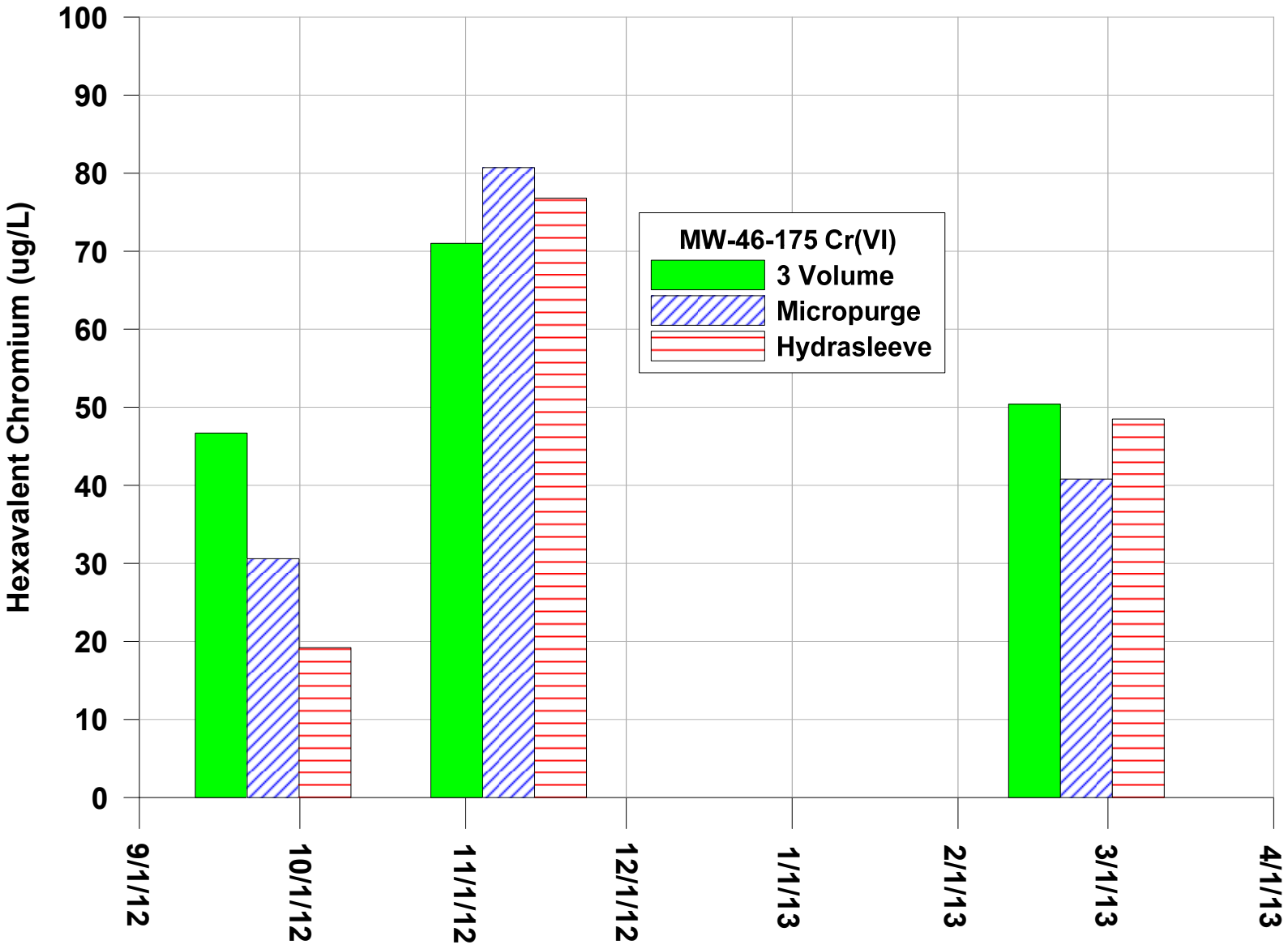


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-10
MW-44-125
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

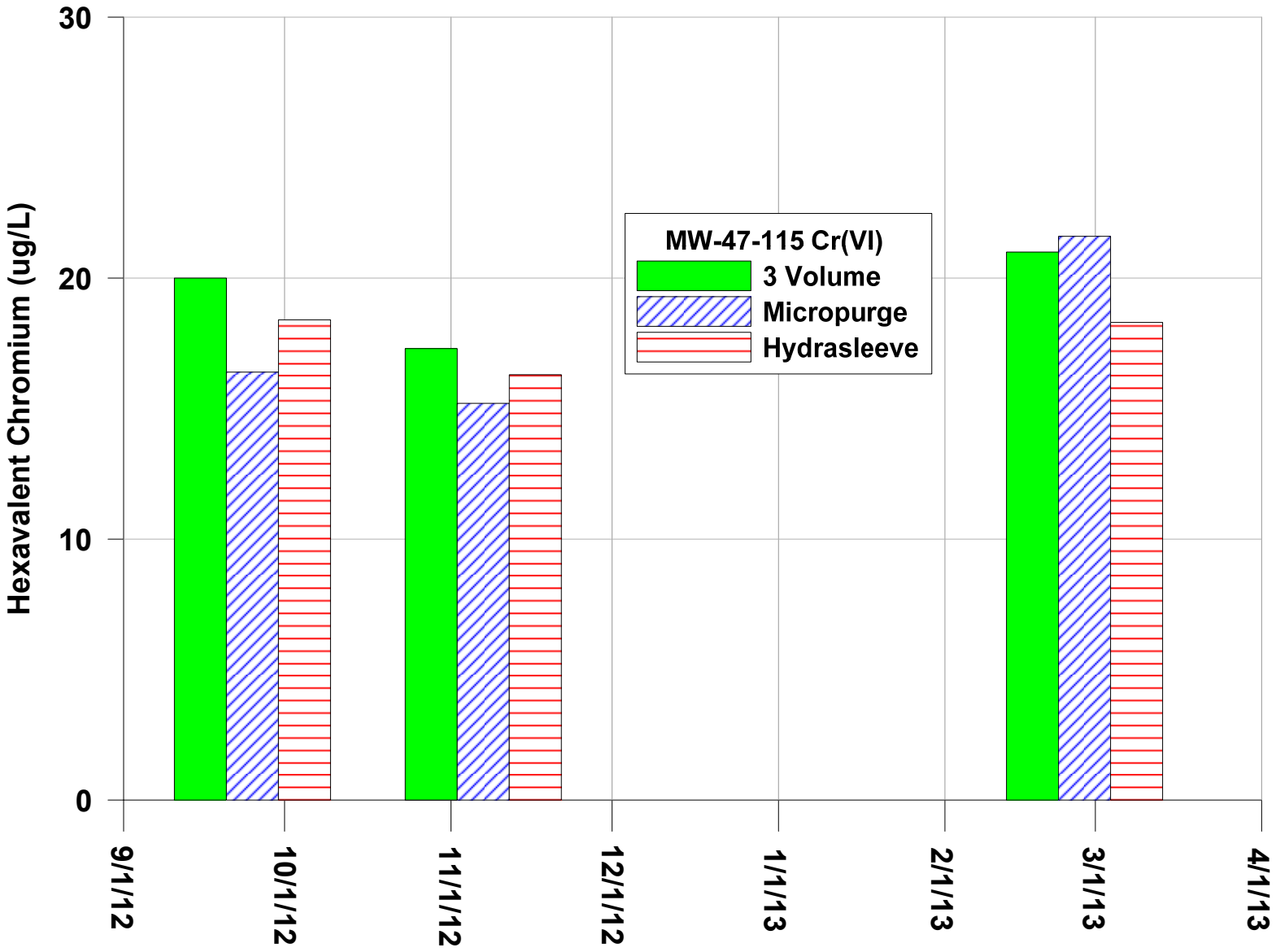


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-11
MW-46-175
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

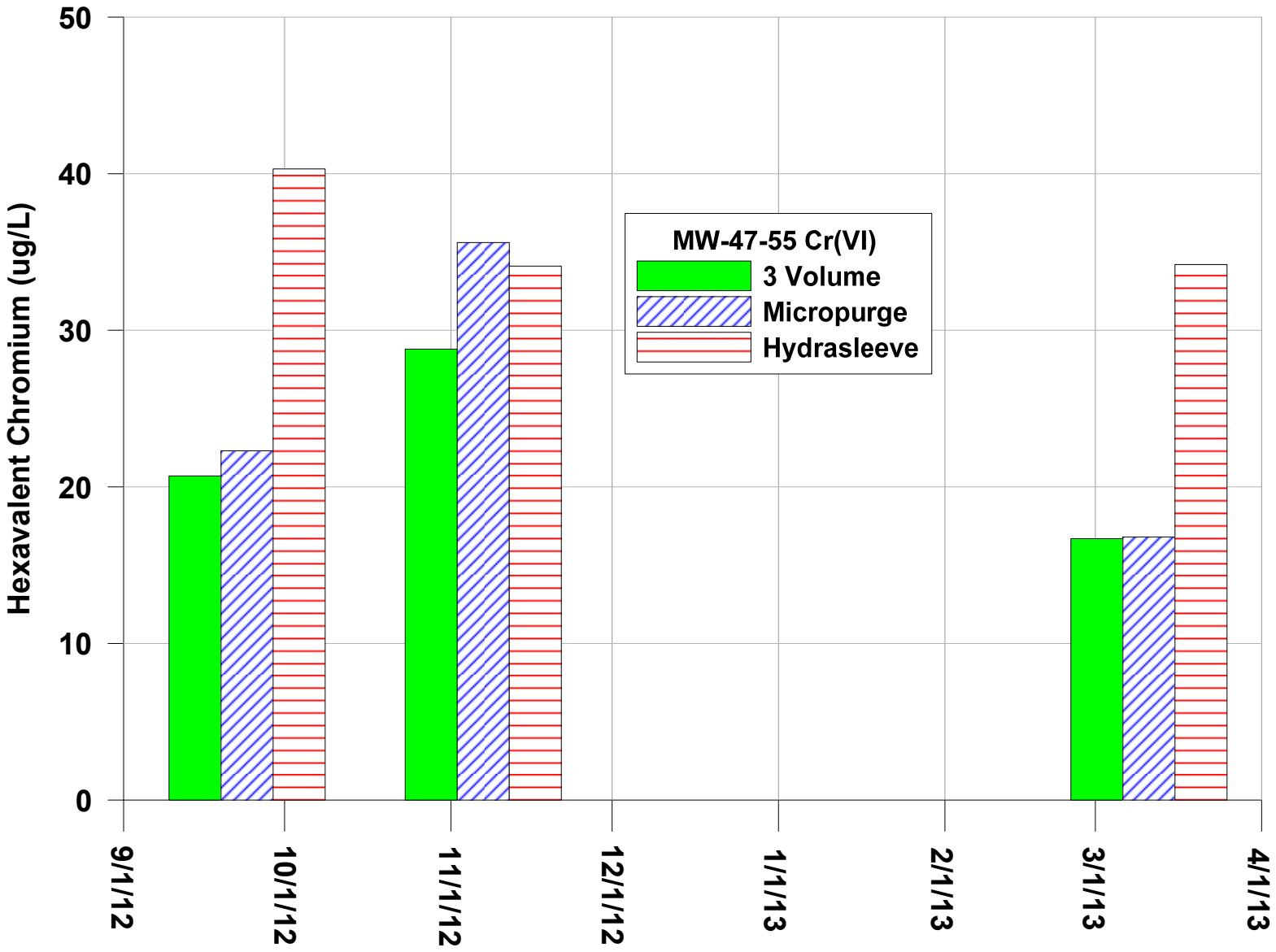


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-12
MW-47-115
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

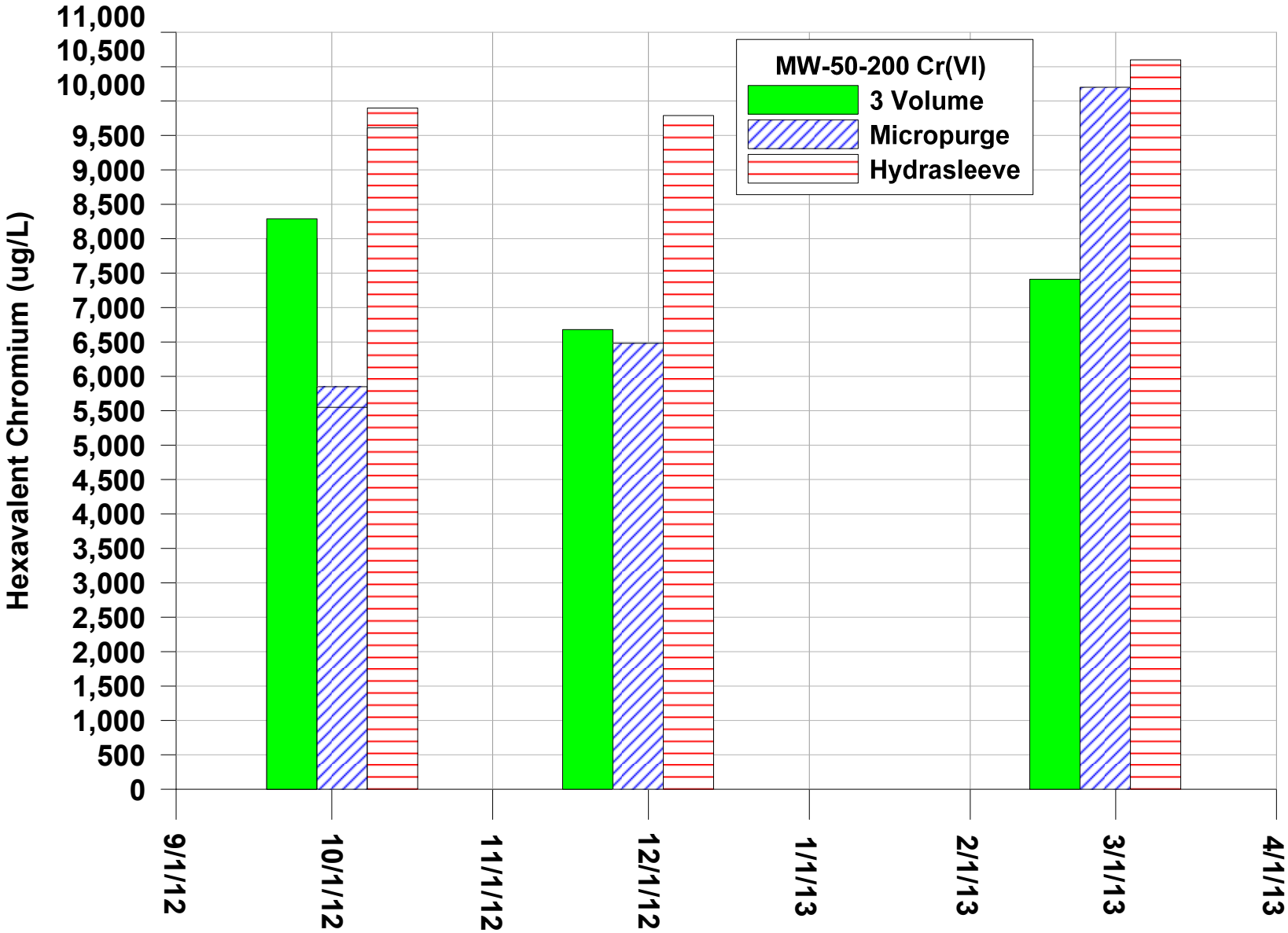


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-13
MW-47-55
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

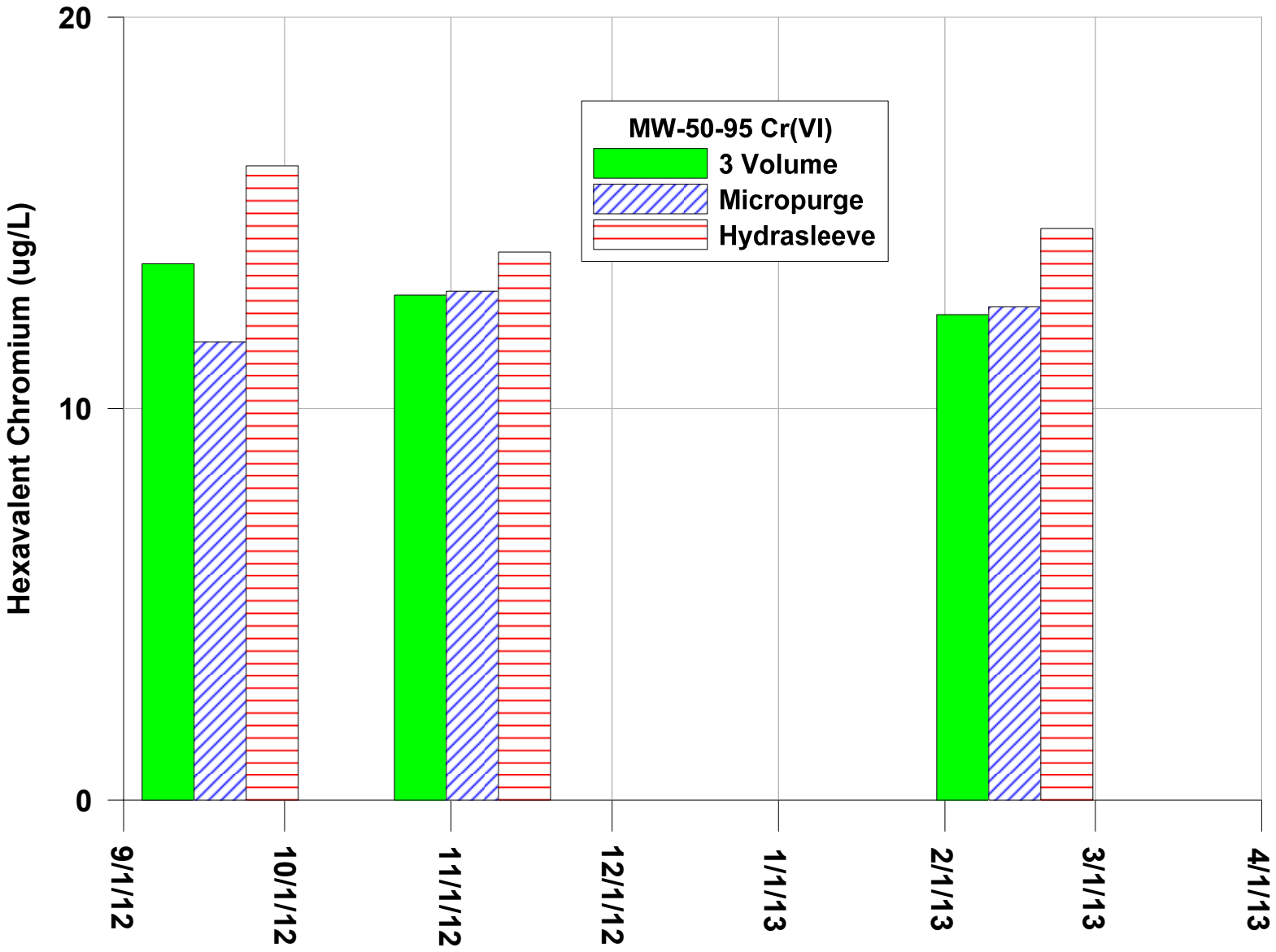


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-14
MW-50-200
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

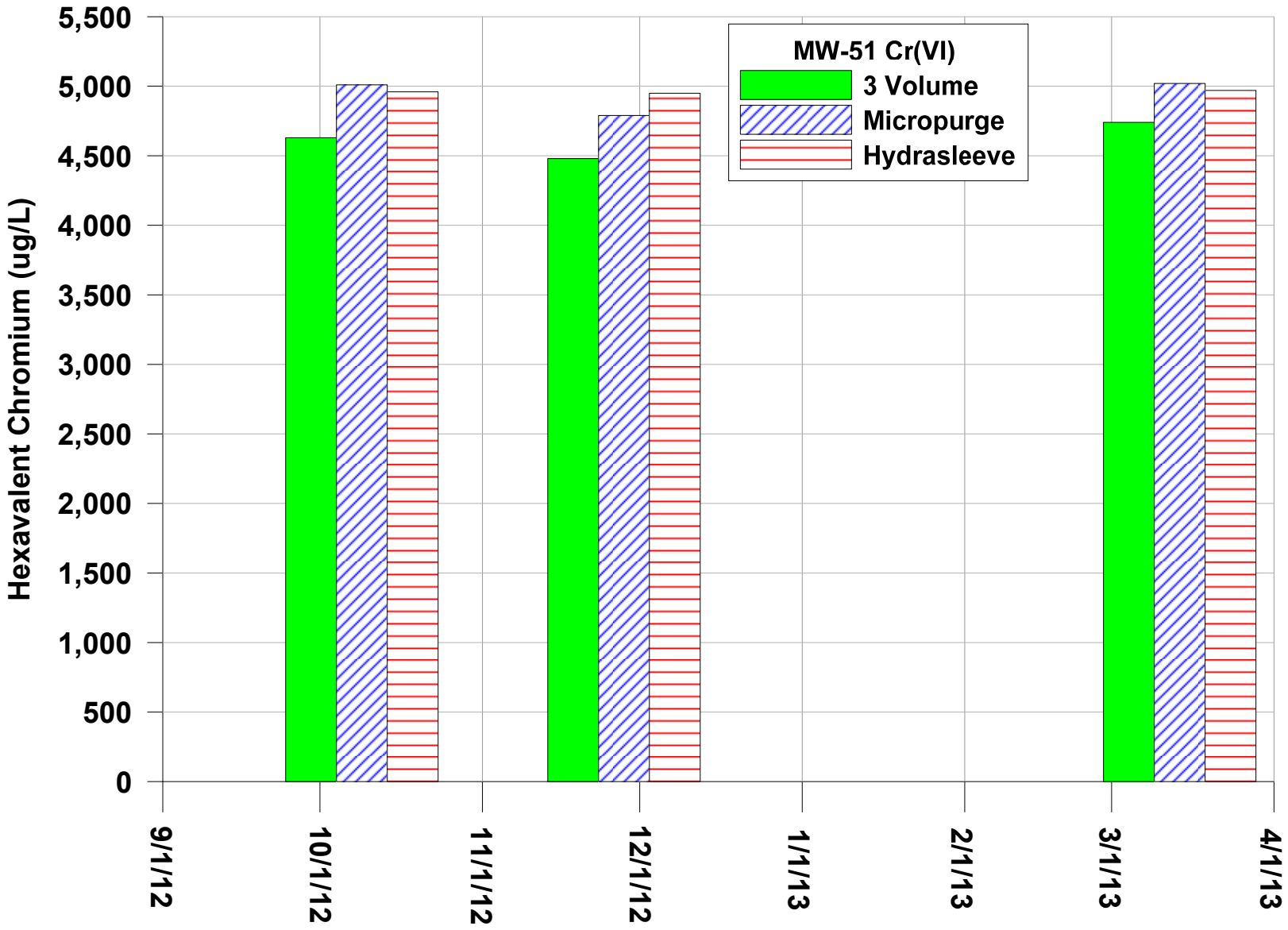


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-15
MW-50-95
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

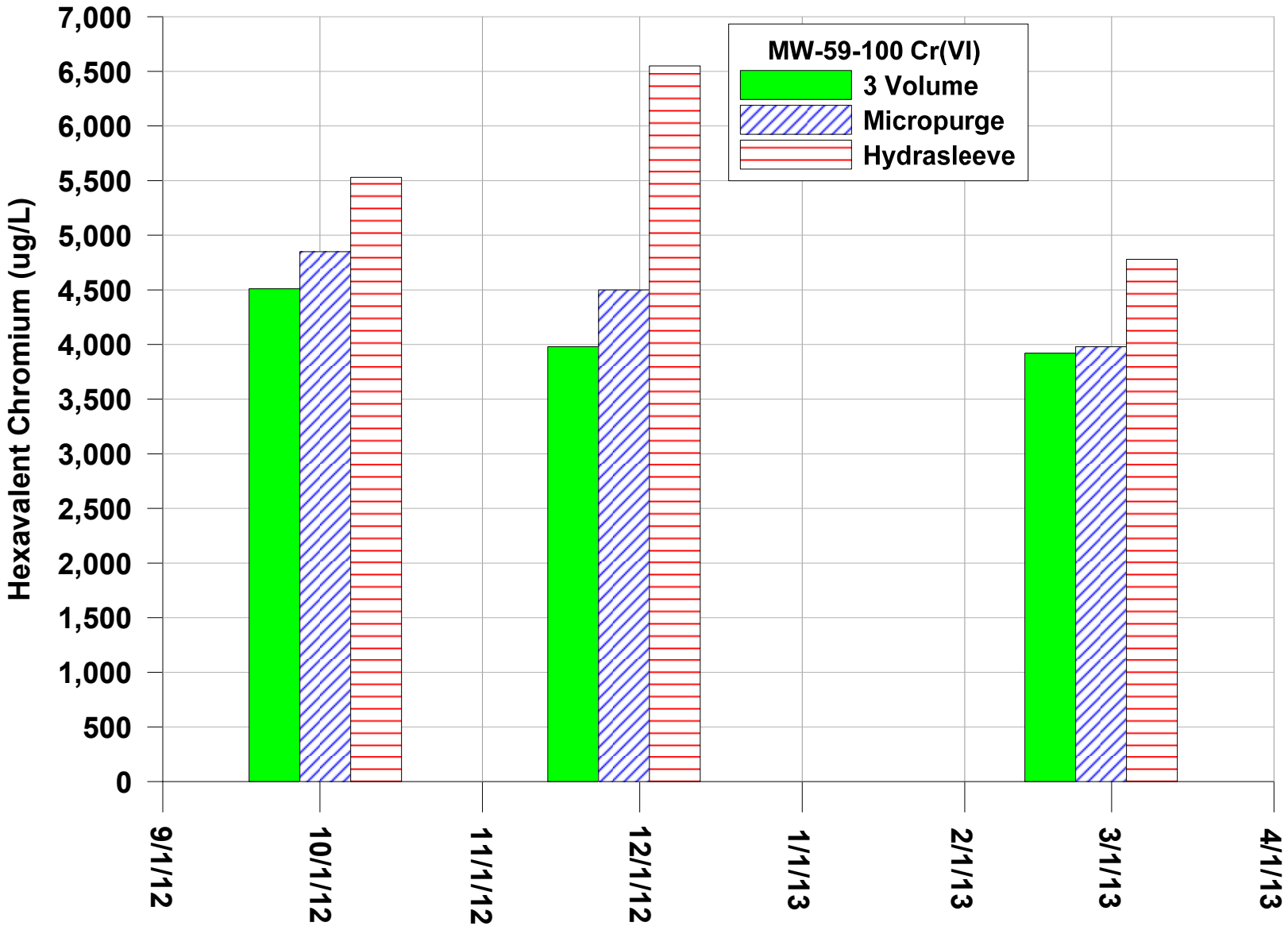


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-16
MW-51
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL

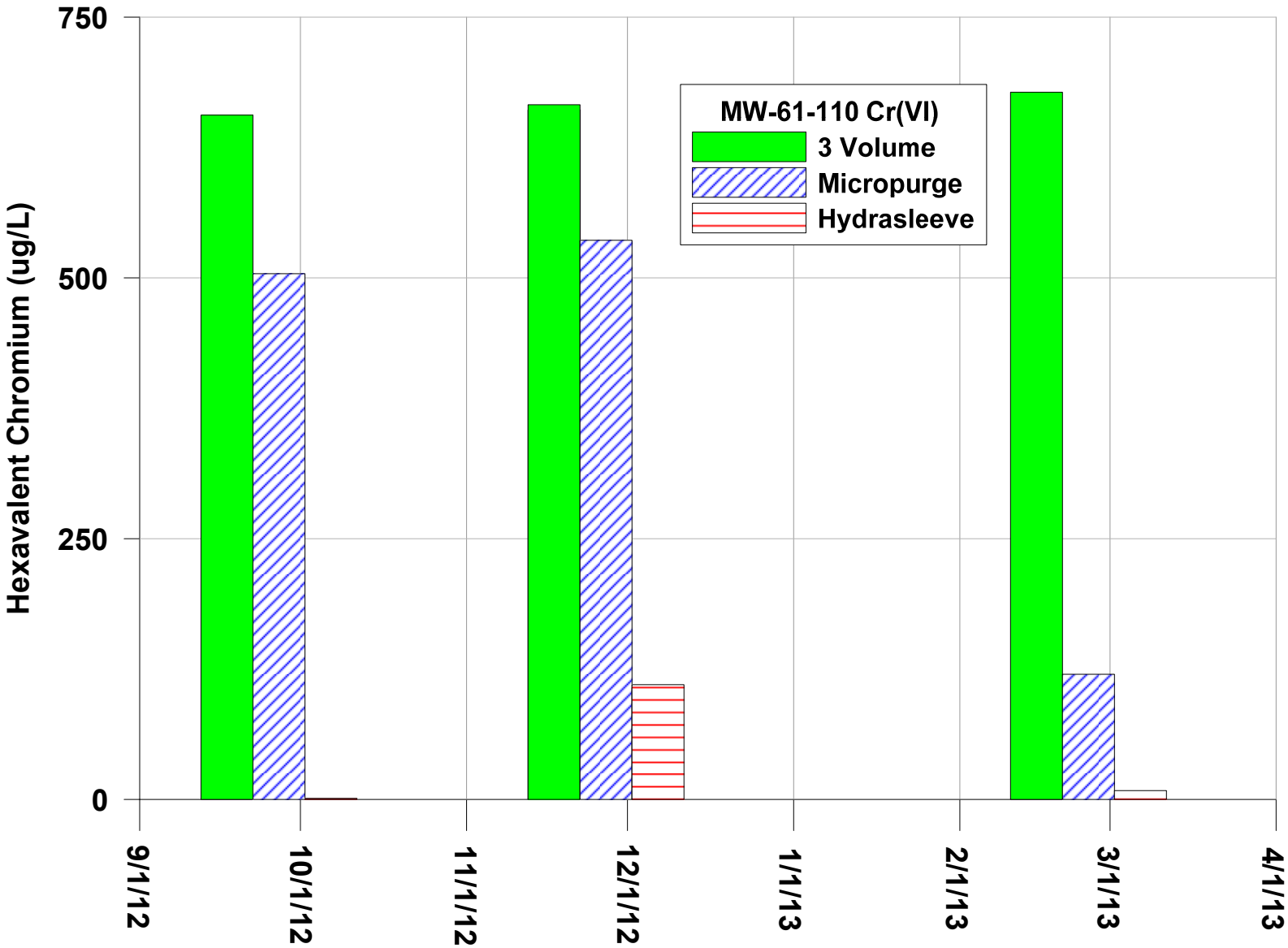


Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-17
MW-59-100
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL



Notes
1. Cr(VI) = hexavalent chromium
2. ug/L = micrograms per liter

FIGURE H2-18
MW-61-110
HEXAVALENT CHROMIUM RESULTS FOR HYDRASLEEVE AND MICRO PURGE COMPARED TO THREE VOLUME PURGE

SAMPLING TRIAL RESULTS AND RECCOMENDATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES CALIFORNIA

CH2MHILL