Topock Project Executive Abstract

Document Title: First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Submitting Agency: DTSC

Final Document? ☒ Yes ☐ No

Date of Document: 4/30/2014

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

Based on the data and evaluation presented in this report, the IM performance standard has been met for First Quarter 2014, which includes the months of January, February, and March 2014. The average pumping rate for the IM extraction system during the First Quarter 2014 was 131.9 gallons per minute. To date, the IM extraction system has removed a total of 7,870 pounds (3,570 kilograms) of chromium.

Written by: PG&E

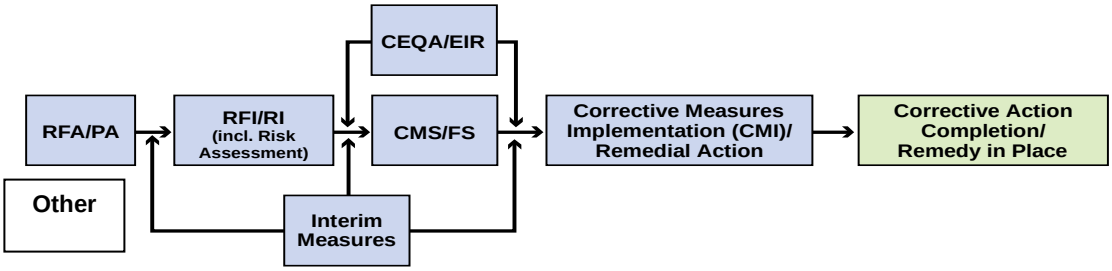
Recommendations:
This report is for information only.

How is this information related to the Final Remedy or Regulatory 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

April 30, 2014

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

Subject: *First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* (Document ID: PGE20140430A)

Dear Mr. Yue:

Enclosed is the *First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* for PG&E's Interim Measures (IM) Performance Monitoring Program and the Groundwater Monitoring Program and Surface Water Monitoring Program for the Topock project. This report presents the First Quarter (January through March 2014) performance monitoring results for the IM hydraulic containment system and summarizes the operations and performance evaluation for the reporting period. This report also presents groundwater and surface water monitoring activities, results, and analyses related to the Groundwater and Surface Water Monitoring programs during First Quarter 2014.

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
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report

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

SFO\141070003
ES041714103749BAO

Final Report

First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station,

Needles, California

Document ID: PGE20140430A

Prepared for

California Environmental Protection Agency,
Department of Toxic Substances Control

On behalf of

Pacific Gas and Electric Company

April 30, 2014

CH2MHILL®

155 Grand Avenue Suite 800
Oakland, CA 94612

First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Prepared for

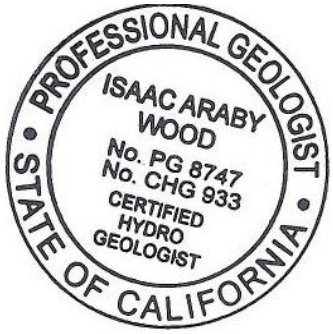
California Environmental Protection Agency, Department of Toxic Substances Control

On behalf of

Pacific Gas and Electric Company

April 30, 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 ..... **vii**

1.0 Introduction **1-1**
1.1 Site-wide Groundwater and Surface Water Monitoring Program 1-1
Groundwater Monitoring Program and Surface Water Monitoring Program Monitoring Networks 1-2
1.2 Interim Measure Performance Monitoring Program 1-2
Performance Monitoring Program Monitoring Networks 1-3

2.0 First Quarter 2014 Monitoring Activities **2-1**
2.1 Groundwater Monitoring Program 2-1
2.1.1 Monthly 2-1
2.1.2 Quarterly 2-1
2.1.3 Well Maintenance 2-1
2.2 Surface Water Monitoring Program 2-1
2.3 Performance Monitoring Program 2-1

3.0 Results for Site-wide Groundwater Monitoring and Surface Water Sampling **3-1**
3.1 Groundwater Results for Hexavalent Chromium and Chromium 3-1
3.2 Other Groundwater Monitoring Results 3-1
3.2.1 Chemicals of Potential Concern, In Situ Byproducts, and Other Analytes 3-1
3.2.2 Title 22 Metals 3-1
3.2.3 Arsenic Sampling in Monitoring Wells 3-1
3.3 Surface Water Sampling Results 3-2
3.4 Data Validation and Completeness 3-2

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

5.0 Upcoming Operation and Monitoring Events **5-1**
5.1 Groundwater Monitoring Program 5-1
5.1.1 Quarterly Monitoring 5-1
5.1.2 Monthly Monitoring 5-1
5.1.3 Well Inspections 5-1
5.2 Surface Water Monitoring Program 5-1
5.3 Performance Monitoring Program 5-1
5.3.1 Extraction 5-1
5.3.2 Transducer Download 5-1

6.0 References **6-1**

Tables

1-1 Topock Monitoring Reporting Schedule
3-1 Groundwater Sampling Results, February 2013 through March 2014
3-2 Groundwater COPCs and In Situ Byproducts Sampling Results, First Quarter 2014
3-3 Title 22 Metals Results, First Quarter 2014
3-4 Surface Water Sampling Results, First Quarter 2014
3-5 COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, First Quarter 2014
4-1 Pumping Rate and Extracted Volume for IM System, First Quarter 2014
4-2 Analytical Results for Extraction Wells, January 2013 through March 2014
4-3 Average Hydraulic Gradients Measured at Well Pairs, First Quarter 2014
4-4 Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3

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, First Quarter 2014
3-1b Cr(VI) Sampling Results, Mid-depth Wells in Alluvial Aquifer and Bedrock, First Quarter 2014
3-1c Cr(VI) Sampling Results, Deep Wells in Alluvial Aquifer and Bedrock, First Quarter 2014
4-1 Maximum Cr(VI) Concentrations in Alluvial Aquifer and Bedrock, First Quarter 2014
4-2 Cr(VI) Concentrations Floodplain Cross-section B, First Quarter 2014
4-3 Cr(VI) Concentration Trends in Selected Performance Monitoring Wells, April 2005 through March 2014
4-4a Average Groundwater Elevations in Shallow Wells and River Elevations, First Quarter 2014
4-4b Average Groundwater Elevations in Mid-depth Wells, First Quarter 2014
4-4c Average Groundwater Elevations in Deep Wells, First Quarter 2014
4-5 Average Groundwater Elevations for Wells in Floodplain Cross-section A, First Quarter 2014
4-6 Measured Hydraulic Gradients, River Elevations, and Pumping Rate, First Quarter 2014
4-7 Past and Predicted Future River Levels at Topock Compressor Station

Appendices

A Well Inspection and Maintenance Log, First Quarter 2014
B Lab Reports, First Quarter 2014 (Provided on CD-ROM only with hard copy submittal)
C Other Groundwater Monitoring Results
D Groundwater Monitoring Data for GMP and Interim Measures Monitoring Wells
E Interim Measures Extraction System Operations Log, First Quarter 2014
F Hydraulic Data for Interim Measures Reporting Period

Acronyms and Abbreviations

µg/L	micrograms per liter
COPC	chemical of potential concern
Cr(VI)	hexavalent chromium
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
ft/ft	feet per foot
GMP	Groundwater Monitoring Program
gpm	gallons per minute
IM	Interim Measure
IM-3	Interim Measure Number 3
IMCP	Interim Measures Contingency Plan
PG&E	Pacific Gas and Electric Company
PMP	Performance Monitoring Program
RCRA	Resource Conservation and Recovery Act
RMP	Surface Water Monitoring Program
RRB	Red Rock Bridge
TDS	total dissolved solids
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency

SECTION 1

Introduction

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

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

This report presents the monitoring data from PG&E's GMP, RMP, and PMP, collected from January 1, 2014 through March 31, 2014 (hereafter referred to as the reporting period). The data collected as part of the GMP and RMP are presented in Section 3. The data collected as part of the PMP are presented in Section 4. This combined PMP and GMP (including RMP) reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC, 2009). On July 23, 2010, DTSC approved a new sampling event timing and reporting schedule for the PMP, GMP, and RMP programs (DTSC, 2010a). Table 1-1 shows the current reporting schedule. (Tables are located at the end of the 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 in the *Revised Final RCRA Facility Investigation and Remedial Investigation Report, Volume 2 – Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*, dated February 11, 2009 (CH2M HILL, 2009a). Select groundwater and surface water monitoring data from November 2007 through September 2008 are presented in the *Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2 Addendum—Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California,* dated June 29, 2009 (CH2M HILL, 2009b).

Background information (including well construction details) and descriptions of the current groundwater and surface water sampling, analyses, and monitoring programs are discussed in PG&E's *Fourth Quarter 2013 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*, dated March 15, 2014 (CH2M HILL, 2014).

In compliance with the requirements for the GMP and RMP directive of April 2005 (DTSC, 2005a), this document presents the First Quarter 2014 GMP and RMP report for the monitoring activities from January 1, 2014 through March 31, 2014.

Groundwater Monitoring Program and Surface Water Monitoring Program Monitoring Networks

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

- One hundred twenty-nine monitoring wells in California, including two normally dry wells and five wells currently sampled under the in situ pilot test program.
- Eight monitoring wells in Arizona.
- Two water supply wells.
- Two active extraction wells.
- Five test wells.

Sampling frequencies for the GMP wells were updated beginning in First Quarter 2010 following the DTSC directive dated March 3, 2010 (DTSC, 2010b), and new frequencies were proposed in the Fourth Quarter and Annual 2013 report (CH2M HILL, 2014). Figure 1-2 shows the sampling frequencies that will be continued until the proposed revised frequencies in the Fourth Quarter and Annual 2013 report are approved. Sampling frequencies for the Arizona monitoring wells were updated following the April 23, 2010 approval from the Arizona Department of Environmental Quality (Arizona Department of Environmental Quality, 2010) and the April 28, 2010 directive from DTSC (DTSC, 2010c).

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

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

1.2 Interim Measure Performance Monitoring Program

In compliance with the requirements for IM monitoring and reporting outlined in the DTSC IM performance directive of February 2005 and in subsequent directives from the DTSC in 2007 (DTSC, 2005b, 2007a-c), this document presents the First Quarter 2014 PMP evaluation report for the IM monitoring activities from January 1, 2014 through March 31, 2014.

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

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

The February 2005 DTSC directive also defined the monitoring and reporting requirements for the IM (DTSC, 2005b-c). In October 2007, DTSC modified the reporting requirements for the PMP (DTSC, 2007a) to discontinue monthly performance monitoring reports (the quarterly and annual reporting requirements

were unchanged). Additional updates and modifications to the PMP were approved by DTSC in letters dated October 12, 2007; July 14, 2008; July 17, 2008; and July 23, 2010 (DTSC, 2007a, 2008a-b, and 2010a).

Performance Monitoring Program Monitoring Networks

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

- Floodplain wells: monitoring wells on the Colorado River floodplain.
- Intermediate wells: monitoring wells immediately north, west, and southwest of the floodplain.
- Interior wells: monitoring wells upgradient of IM pumping.
- Extraction wells: TW-2D, TW-3D, TW-2S, and PE-1.

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

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

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

SECTION 2

First Quarter 2014 Monitoring Activities

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

2.1 Groundwater Monitoring Program

2.1.1 Monthly

Groundwater was sampled from the active IM extraction wells (PE-1 and TW-3D) in January, February, and March 2014 and was analyzed for Cr(VI) and chromium.

2.1.2 Quarterly

Per the July 23, 2010 sampling schedule approval (DTSC, 2010a), the First Quarter 2014 GMP quarterly groundwater monitoring event was conducted from February 10, 2014 through March 6, 2014. Select field parameters recorded during well purging included oxidation-reduction potential and pH. Groundwater samples were analyzed for Cr(VI), chromium, and specific conductance.

During the First Quarter 2014 sampling event, groundwater samples were collected at select GMP wells and were submitted for laboratory analysis of Cr(VI) and other constituents, including:

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

2.1.3 Well Maintenance

In a letter from DTSC dated January 28, 2013, PG&E was directed to assess conditions at existing wells 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. Appendix A and Table A-1 provide 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 January 13, 2014 through January 14, 2014 and from March 12, 2014 through March 13, 2014 from the complete RMP monitoring network. Samples were analyzed for Cr(VI), chromium, specific conductance, and pH. Samples were also analyzed for COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and geochemical indicator parameters to develop baseline concentrations for future remedy performance evaluation.

2.3 Performance Monitoring Program

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 (January, February, and March). The transducers in the key monitoring wells (MW-27-085, MW-31-125, MW-33-150, MW-34-100, and MW-45-095a, shown on Figure 1-4) are downloaded via a cellular telemetry system.

SECTION 3

Results for Site-wide Groundwater Monitoring and Surface Water Sampling

3.1 Groundwater Results for Hexavalent Chromium and Chromium

Table 3-1 presents the results for Cr(VI), chromium, field oxidation-reduction potential, laboratory-specific conductance, and field pH in groundwater samples collected from the reporting period. During First Quarter 2014, the maximum detected Cr(VI) concentration was 22,900 µg/L at well MW-68-180. The laboratory reports for analytical results from First Quarter 2014 sampling are presented 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 First Quarter 2014. Figures 3-1a through 3-1c each show the approximate outline of Cr(VI) concentration contours greater than 32 µg/L for the Alluvial Aquifer and bedrock. These contour outlines are based on results from groundwater sampling events conducted in Fourth Quarter 2013, where a larger number of wells were sampled, and First Quarter 2014. The value of 32 µg/L is based on the calculated natural background upper tolerance limit for Cr(VI) in groundwater from the background study (CH2M HILL, 2008, 2009a).

The areas where Cr(VI) concentrations are greater than 32 µg/L in the shallow, mid-depth, and deep intervals of the Alluvial Aquifer and bedrock wells are generally similar to the previous quarterly monitoring events (CH2M HILL, 2011a-d, 2012a-d, and 2013a-d, 2014).

3.2 Other Groundwater Monitoring Results

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

Table 3-2 presents the COPCs, in situ byproducts, and other analytes results for groundwater monitoring wells sampled in First Quarter 2014. The wells where maximum concentrations of these analytes were reported are summarized as follows:

- MW-46-175 with a molybdenum concentration of 200 µg/L
- MW-67-185 with a nitrate concentration of 39.4 milligrams per liter
- MW-67-185 with a selenium concentration of 190 µg/L
- MW-42-65 with a manganese concentration of 1,100 µg/L
- MW-12 with an arsenic concentration of 42.0 µg/L (arsenic results are discussed in Section 3.2.3)
- MW-33-40 with a fluoride concentration of 12.0 milligrams per liter

3.2.2 Title 22 Metals

Table 3-3 presents the Title 22 metals results for the GMP monitoring well MW-12 sampled during First Quarter 2014. The trace metals detected in MW-12, in addition to chromium, were arsenic, barium, molybdenum, selenium, and vanadium. The dissolved concentrations of the trace metals—other than chromium and arsenic—are below the respective California maximum contaminant level drinking water standards.

3.2.3 Arsenic Sampling in Monitoring Wells

Select Alluvial Aquifer and bedrock wells were sampled for arsenic in the First Quarter 2014 event. These results are presented in Appendix C, Table C-1.

3.3 Surface Water Sampling Results

Table 3-4 presents results of Cr(VI), chromium, specific conductance, and lab pH from the surface water sampling event conducted during this reporting period. Neither Cr(VI) nor chromium was 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, and selenium); in situ byproducts (manganese, iron, and arsenic); and other geochemical indicator parameters for surface water samples. Selenium results were below laboratory reporting limits, while low arsenic (equal to or less than 3 µg/L) and low nitrate/nitrite as nitrogen (less than 1 milligram per liter) concentrations were detected at all sampled locations. Dissolved iron and manganese results were also generally low and near or below laboratory reporting limits, with the exception of the samples collected at C-MAR-S, C-MAR-D, and RRB, where moderate values were reported. The C-MAR-S and C-MAR-D sample locations are near the east side of the Colorado River at the mouth of the Topock Marsh area, and the Red Rock Bridge (RRB) location is at the mouth of Bat Cave Wash on the west side, as shown on Figure 1-3. Both locations are out of the main river channel and adjacent to areas of naturally reducing geochemical conditions in groundwater. Elevated iron and manganese concentrations are typical of reduced geochemical environments.

3.4 Data Validation and Completeness

Laboratory analytical data from the First Quarter 2014 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-one 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.
- Two samples had matrix spike recoveries outside the control limits—one for dissolved copper and one for dissolved manganese (Method USEPA 6020). The associated nondetect sample results were qualified as estimated and flagged “J.” As explained in table notes, this indicates that the reporting limit is estimated by laboratory or data validation.
- Two Cr(VI) (USEPA Method 218.6) samples were associated with an equipment blank that had a detection above the reporting limit. One sample’s result was less than five times the concentration of the equipment blank; therefore, the sample result was qualified as “not detected at the reported concentration.” The second sample’s result was greater than five times the concentration of the equipment blank; therefore, the sample is considered to be unaffected. No flags were applied.
- Two iron (USEPA Method 6010B) samples were associated with a laboratory blank that had a detection above the reporting limit. The associated sample results were less than five times the concentration of the blank; therefore, the sample result were qualified as “not detected at the reported concentration.”
- 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, samples analyzed in a certified lab by Method SM4500-HB (pH) are analyzed outside the USEPA recommended holding time. Therefore, the pH results for First Quarter 2014 sampling events analyzed in a certified lab were qualified as estimated and flagged “J.”

The only other noteworthy analytical issue, identified in the First Quarter 2014 data, was concerning the initial metal results for TW-03D and PE-01. During the normal quality assurance data review, it was noted that the total dissolved chromium (USEPA Method 200.7) concentrations reported for both samples were significantly different from historical and different from the Cr(VI) results (the Cr(VI) results—collected at the same time but in separate analyte-specific containers—were consistent with historical data). The lab was asked to review all the information related to the reported results. The samples were checked for correct

tracking in the lab, then the total dissolved chromium was reanalyzed to verify the initial results matched the specific sample container. Once the lab had proven the initial results matched the containers as received, the Cr(VI) containers were analyzed for the total dissolved chromium (USEPA Method 200.7). The total dissolved chromium results from the Cr(VI) containers confirmed that the total dissolved chromium sample containers for the two sample locations must have been inadvertently switched in the field. The lab was asked to report the total dissolved chromium results from the initial analytical run but with the well names corrected to account for the bottle switch. Additional details are provided in the data validation reports, which are kept in the project file and are available upon request.

SECTION 4

Interim Measure Performance Monitoring Program Evaluation

4.1 Water Quality Results for Performance Monitoring Program Floodplain Wells

In July 2008, DTSC approved modifications to the PMP IM chemical PMP (DTSC, 2008b). These wells are sampled annually (one well sampled biennially) during the fourth quarter sampling events. For the complete annual general chemistry results, see Table F-1 in Appendix F in 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*, dated March 15, 2014 (CH2M HILL, 2014). Figure 1-4 shows the locations of the monitoring wells sampled for the performance monitoring parameters. Water samples from the selected performance monitoring locations are analyzed for general chemistry parameters, including total dissolved solids (TDS), chloride, sulfate, nitrate, bromide, calcium, potassium, magnesium, sodium, boron, alkalinity, deuterium, and oxygen-18 to monitor the effects of IM pumping on groundwater chemistry.

4.2 Hexavalent Chromium Distribution and Trends in Performance Monitoring Program Wells

The First Quarter 2014 distribution of Cr(VI) in the upper (shallow wells), middle (mid-depth wells), and lower (deep wells) intervals of the Alluvial Aquifer is shown in plan view and cross-section on Figure 4-1.[1] Figure 4-2 presents the First Quarter 2014 Cr(VI) results for cross-section B, oriented parallel to the Colorado River. The location of cross-section B is shown on Figure 1-4. The Cr(VI) concentration contours shown for the Alluvial Aquifer on these figures are based on a combination of results for groundwater samples collected in Fourth Quarter 2013, when a larger number of wells were sampled, and First Quarter 2014.

Figure 4-3 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through March 2014. 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 D includes Cr(VI) concentration trend graphs for selected monitoring wells through March 2014.

Wells showing marked decreases in concentration are generally in the floodplain area where IM pumping is removing chromium in groundwater. Wells with historical detections near or at reporting limits (for chromium, a typical reporting limit is 0.2 to 1.0 µg/L) remained at these low levels during First Quarter 2014. A review of Figure 4-3 and Appendix D indicates that Cr(VI) concentrations have remained steady or have decreased in many wells since IM and PE-1 pumping began in 2004 and 2005, respectively.

Key Cr(VI) and chromium trends for PMP groundwater monitoring wells (see Figure 1-4) sampled during First Quarter 2014 include:

- As shown on Figure 4-3 and in Figure D-6 in Appendix D, Cr(VI) results for MW-34-100 have been variable, but generally declining, since June 2006. In addition to this primary overall downward trend in

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

Cr(VI) concentration, MW-34-100 also shows a consistent but secondary seasonal effect in concentration related to high (spring/summer) and low (winter) Colorado River levels.

- Superimposed on stable or decreasing longer-term trends for Cr(VI), the secondary trend of seasonal fluctuation in Cr(VI) is also seen in monitoring wells MW-35-60 and MW-46-175 (see Appendix D, Figures D-6 and D-11, respectively). River levels are discussed in Section 4.6.
- Cr(VI) results for MW-44-115 have shown a steady declining trend since the well was constructed in 2006, as shown on Figure 4-3 and Figure D-10 in Appendix D.

4.3 Performance Monitoring Program Contingency Plan Hexavalent Chromium Monitoring

The Topock Interim Measures Contingency Plan (IMCP) was developed to detect and control any possible migration of the Cr(VI) plume toward the Colorado River. Currently, the IMCP consists of 24 wells (CH2M HILL, 2005a, 2006; PG&E, 2007, 2008). Appendix D includes Cr(VI) concentration trend graphs for the IMCP wells. The IMCP well Cr(VI) results in First Quarter 2014 were below the trigger levels requiring contingency actions.

4.4 Extraction Systems Operations

Pumping data for the IM-3 groundwater extraction system for the reporting period of January 1 through March 31, 2014 are presented in Table 4-1. From January 1, 2014 through March 31, 2014, the volume of groundwater extracted and treated by the IM-3 system was 17,089,728 gallons. This resulted in the removal of an estimated 98.2 pounds (44.5 kilograms) of chromium from the aquifer during the period from January 1, 2014 through March 31, 2014.[2] To date, the IMs have removed approximately 7,900 pounds of chromium from the floodplain at the Topock site through March 2014.

During First Quarter 2014, 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 during the reporting period were 132.3 gpm (January), 132.7 gpm (February), and 130.7 (March). Extraction wells TW-2D and TW-2S were not operated during First Quarter 2014. The operational run-time percentage for the IM extraction system was 98.3 percent during this reporting period. The operations log for the extraction system during First Quarter 2014, including planned and unplanned downtime, is included in Appendix E.

The concentrate (saline water) from the reverse osmosis system was shipped offsite as nonhazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona for treatment and disposal. Eight containers of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada, during First Quarter 2014. Daily IM-3 inspections included general facility inspections, flow measurements, and site security monitoring. Daily logs with documentation of inspections are maintained onsite.

During the reporting period, Cr(VI) concentrations in TW-3D remained stable, ranging from a maximum value of 905 μg/L in January 2014 to a minimum value of 816 μg/L in February and March 2014, as shown in Table 4-2. TDS concentrations in TW-3D for this reporting period have also remained stable, as shown in Table 4-2.

[2] Chromium removed this reporting period includes the period of January 1 through March 31, 2014. On July 23, 2010, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from January 1, 2014 through March 31, 2014.

The Cr(VI) concentrations in the extracted groundwater at well PE-1 on the floodplain ranged from 4.8 to 5.6 µg/L during the reporting period, as shown in Table 4-2. TDS concentrations in PE-1 for this reporting period have also remained stable.

4.5 Hydraulic Gradient and River Levels during Quarterly Period

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

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

Average First Quarter 2014 groundwater elevations for the shallow, mid-depth, and deep wells are presented and contoured in plan view on Figures 4-4a through 4-4c. Average First Quarter 2014 groundwater elevations for wells on floodplain cross-section A are presented and contoured on Figure 4-5. Several monitoring wells are significantly deeper than other wells in the lower depth interval. Due to vertical gradients present at the Topock site, water levels in deeper wells tend to be higher than water levels in shallower wells.

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

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

Table 4-3 presents the average monthly hydraulic gradients measured between the gradient well pairs in First Quarter 2014. Figure 4-6 presents graphs of the hydraulic gradients, monthly average pumping rates, and river levels for the quarterly period. Strong landward gradients were measured each month. The overall average gradients for all well pairs ranged from 0.0058 to 0.0074 feet per foot (ft/ft), which is 5.8 to 7.4 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 2.0 to 2.7 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from 11.5 to 14.2 times the target gradient. The southern well pair gradients averaged 3.9 to 5.2 times the target gradient for the reporting period.

4.6 Projected River Levels during Next Quarter

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

Figure 4-7 shows river stage measured at I-3 superimposed on the projected I-3 river levels. Projected river levels for future months are based on the USBR projections of Davis Dam discharge and Lake Havasu levels from the preceding month. As an example, the projected river level for April 2014 is based on the March 2014 USBR data of Davis Dam release and Lake Havasu level, not the actual release and level values. The variability between measured and projected river levels is due to the difference between measured and actual Davis Dam release and Lake Havasu levels. The more recent data plotted on Figure 4-7 are summarized in Table 4-4. The future projections shown on Figure 4-7 are based on USBR long-range projections of Davis Dam releases and Lake Havasu levels from March 2014. There is more uncertainty in these projections at longer times in the future since water demand is based on various elements including climatic factors.

Current USBR projections, presented in Table 4-4, show that the average projected Davis Dam release for April 2014 (18,200 cubic feet per second) will be more than the actual release in March 2014 (17,473 cubic feet per second). Based on April 2014 USBR predictions, it is anticipated that the Colorado River level at the I-3 gauge location in April 2014 will be approximately 0.40 foot higher compared to the actual levels in March 2014. Current projections show that the water levels will continue to increase through April then decrease through the rest of the quarterly reporting period (May through June), as shown on Figure 4-7.

4.7 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from January 2014 through March 2014 performance monitoring indicate that the minimum landward gradient target of 0.001 ft/ft was exceeded each month during the quarterly reporting period. The overall average landward gradients during First Quarter 2014 were 5.8 to 7.4 times the required minimum magnitude. The current gradient well pairs are adequate to define the capture of the Cr(VI) plume while pumping from extraction wells TW-3D and PE-1. Based on the hydraulic and monitoring data and evaluation presented in this report, the IM performance standard has been met for the First Quarter 2014 reporting period.

A total of 17,089,728 gallons of groundwater was extracted between January and March 2014 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during First Quarter 2014, including system downtime, was 131.9 gpm. An estimated 98.2 pounds (44.5 kilograms) of chromium were removed and treated between January 1 and March 31, 2014. To date, the IMs have removed approximately 7,900 pounds of chromium from the floodplain at the Topock site through March 2014, as shown on Figure 4-1.

The wells that are monitored to detect trends in Cr(VI) in the IM pumping area (for example, MW-36-100, MW-39-100, MW-44-115, MW-44-125, and MW-46-175) continue to show overall stable or declining Cr(VI) concentrations relative to prior monitoring results, as shown in Appendix D. As shown on Figure 4-3 and in Figure D-6 in Appendix D, Cr(VI) results for MW-34-100 have been variable, but generally declining, since June 2006. In addition to this primary overall downward trend in Cr(VI) concentration, MW-34-100 also shows a consistent but secondary seasonal effect in concentration related to high (spring/summer) and low (winter) Colorado River levels.

SECTION 5

Upcoming Operation and Monitoring Events

Reporting of the IM extraction and monitoring activities will continue as described in the PMP and under direction from DTSC. Monitoring results, operations, and performance monitoring data will be reported in the Second Quarter 2014 monitoring report, which will be submitted by August 15, 2014.

5.1 Groundwater Monitoring Program

5.1.1 Quarterly Monitoring

As described in the July 23, 2010 DTSC sampling schedule approval (DTSC, 2010a), the second monitoring event is planned for April 9, 2014 through May 15, 2014.

5.1.2 Monthly Monitoring

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

5.1.3 Well Inspections

Inspection of monitoring wells will be completed during each regularly scheduled sampling event but not less than quarterly (DTSC, 2013; CH2M HILL, 2005a-b). Necessary repairs will be done in a timely manner.

5.2 Surface Water Monitoring Program

The Second Quarter 2014 surface water monitoring event will be conducted at locations in the RMP monitoring network in May 2014. Results will be reported in the Second Quarter 2014 monitoring report.

5.3 Performance Monitoring Program

5.3.1 Extraction

Per DTSC direction, PG&E will continue to operate wells TW-3D and PE-1 at a target combined pumping rate of 135 gpm during Second Quarter 2014, except for periods when planned and unplanned downtime occur. Extracted groundwater treated at the IM-3 facility will be discharged into the IM-3 injection wells in accordance with compliance requirements of the waste discharge applicable, relevant, and appropriate requirements. Saline water and solids generated as byproducts of the treatment process will continue to be transported for offsite disposal.

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

5.3.2 Transducer Download

Downloads of the transducers in the key gradient control wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, and MW-45-095) will continue to be conducted via telemetry during Second Quarter 2014. Downloads of the remainder of the transducers will occur during the first week of each month during Second Quarter 2014.

SECTION 6

References

Arizona Department of Environmental Quality. 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. "Criteria for Evaluating Interim Measures Performance Requirements to Hydraulically Contain Chromium Plume in Floodplain Area, Pacific Gas & Electric Company, Topock Compressor Station." 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.

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

_____. 2010d. Email. "Topock GMP Monitoring Frequency Modification, Topock Compressor Station, Needles, California." March 3.

_____. 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.

CH2M HILL. 2005a. *Draft 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.

_____. 2006. *Contingency Plan for IM Performance Monitoring, Revision 1*, dated August 2006. August 28

_____. 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.

_____. 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. *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.

_____. 2014. *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*. March 14.

Pacific Gas and Electric Company (PG&E). 2007. *Interim Measures Performance Monitoring Program, PG&E Topock Compressor Station, Needles, California*. July 27.

_____. 2008. *Approved Modifications to the Topock IM Performance Monitoring Program PG&E Topock Compressor Station, Needles, California*. August 4.

Tables

Table 1-1

Topock Monitoring Reporting Schedule
First Quarter 2014 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, February 2013 through March 2014
First Quarter 2014 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	09-Dec-13	240	236	2,600	31	7.5
MW-10	SA	14-May-13	267	269	10,000	240	7.4
		12-Dec-13	380	367	2,500	-26	7.5
MW-12	SA	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
		25-Feb-14	2,560	2,480	7,000	84	8.0
MW-13	SA	13-Nov-13	19.4	16.9	2,000	140	7.5
MW-14	SA	19-Dec-13	17.2	17.3	1,700	5.0	7.5
MW-15	SA	11-Nov-13	10.7	10.3	1,400	280	7.7
MW-16	SA	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	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	11-Nov-13	18.6	17.5	1,200	230	7.6
MW-19	SA	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	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	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	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	07-Feb-13	2.6	4.6	8,500	200	6.9
		24-Apr-13	1.5	1.9	11,000	210	7.1

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-21	SA	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
		19-Feb-14	2.6	3.5	---	8.0	7.1
MW-22	SA	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	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
		13-Feb-14	34.9	38.0	---	70	9.4
MW-23-080	BR	18-Feb-13	11.2	10.6	17,000	50	10.7
		23-Apr-13	14.0	15.0	20,000	63	10.3
		17-Sep-13	13.7	14.3	15,000	140	9.9
		11-Nov-13	11.0	11.2	15,000	81	10.2
		13-Feb-14	8.4	9.0	---	16	10.2
MW-24BR	BR	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
		20-Feb-14	ND (1.0)	ND (1.0)	---	-250	8.0
MW-25	SA	09-Dec-13	191	188	1,600	-4	7.4
MW-26	SA	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	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	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
		10-Feb-14	ND (0.2)	ND (1.0)	860	-180	7.6
MW-27-85	DA	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

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-27-85	DA	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
		10-Feb-14	ND (1.0)	ND (1.0)	9,600	-280	7.3
MW-28-25	SA	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
MW-28-90	DA	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
		12-Feb-14	ND (0.2)	ND (1.0)	7,000	-54	7.3
MW-29	SA	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	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	04-Nov-13	ND (0.2)	ND (1.0)	1,100	-120	7.6
MW-31-60	SA	07-May-13	275	271	3,600	130	7.5
		03-Dec-13	422	383	3,100	20	7.5
MW-31-135	DA	07-Nov-13	11.5	11.3	12,000	-110	7.7
MW-32-20	SA	16-Dec-13	ND (1.0)	ND (1.0)	40,000	-100	6.7
MW-32-35	SA	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	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
		03-Dec-13	ND (1.0)	ND (1.0)	9,600	110	7.9
		12-Feb-14	0.28	ND (1.0)	7,100	120	8.0
MW-33-90	MA	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

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-33-90	MA	16-Sep-13	13.6	13.6	8,800	230	7.4
		03-Dec-13	13.1	12.6	9,600	120	7.4
		12-Feb-14	13.3	15.5	9,900	140	7.4
MW-33-150	DA	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
		12-Feb-14	9.7	10.6	16,000	170	7.5
		12-Feb-14 FD	9.4	10.8	16,000	FD	FD
MW-33-210	DA	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
		12-Feb-14	11.6	13.5	18,000	130	7.4
MW-34-55	MA	20-Nov-13	ND (0.2)	ND (1.0)	780	-65	7.7
MW-34-80	DA	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
		10-Feb-14	ND (0.2)	ND (1.0)	---	-290	7.4
MW-34-100	DA	26-Feb-13	76.8	71.9	17,000	110	7.5
		26-Feb-13 FD	77.1	71.2	17,000	FD	FD
		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
		22-Jan-14	263	270	---	-220	6.8
		10-Feb-14	159	170	---	-160	7.7
MW-35-60	SA	19-Feb-13	24.3	25.3	6,500	140	7.8
		23-Apr-13	25.4	24.4	7,000	260	7.5

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-35-60	SA	10-Sep-13	21.9	21.2	7,000	200	7.2
		12-Nov-13	20.5	17.2	6,600	-11	7.4
		17-Feb-14	21.1	21.8	6,200	98	6.9
		17-Feb-14 FD	21.4	20.4	6,400	FD	FD
MW-35-135	DA	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	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	11-Nov-13	ND (0.2)	ND (1.0)	1,300	-280	7.8
MW-36-50	MA	11-Nov-13	ND (0.2)	ND (1.0)	920	-57	7.3
MW-36-70	MA	11-Nov-13	ND (0.2)	ND (1.0)	930	-17	7.9
MW-36-90	DA	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	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	06-Nov-13	9.8	9.3	5,000	140	7.7
MW-37D	DA	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	12-Nov-13	ND (0.2)	ND (1.0)	1,100	-34	7.8
MW-39-60	MA	12-Nov-13	ND (0.2)	ND (1.0)	1,500	30	7.9
MW-39-70	MA	12-Nov-13	ND (0.2)	ND (1.0)	1,800	200	7.6
MW-39-80	DA	12-Nov-13	ND (0.2)	ND (1.0)	5,600	27	7.3
MW-39-100	DA	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	11-Nov-13	8.2	8.1	1,300	270	7.7

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-40D	DA	01-May-13	134	137	14,000	250	7.4
		02-Dec-13	153	148	14,000	240	7.4
MW-41S	SA	04-Nov-13	17.4	15.3	4,900	180	7.9
MW-41M	DA	04-Nov-13	9.7	9.6	14,000	210	7.7
MW-41D	DA	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	05-Nov-13	ND (0.2)	ND (1.0)	2,600	-160	7.8
MW-42-55	MA	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
		11-Feb-14	ND (0.2)	2.3	---	-290	8.1
MW-42-65	MA	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
		11-Feb-14	ND (0.2)	ND (1.0)	---	-350	7.3
MW-43-25	SA	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	06-Nov-13	ND (1.0)	ND (1.0)	9,700	-110	7.1
MW-43-90	DA	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	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	26-Feb-13	75.9	78.9	11,000	110	7.8
		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
		11-Feb-14	41.6	42.9	11,000	-370	7.9
MW-44-125	DA	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

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-44-125	DA	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
		11-Feb-14		ND (1.0)	5.5	11,000	-150	7.8
		11-Feb-14	FD	ND (1.0)	5.6	11,000	FD	FD
MW-45-095a	DA	02-Dec-13		13.7	14.2	8,400	-58	7.6
MW-46-175	DA	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
		22-Jan-14		46.3	46.1	---	-150	7.8
		11-Feb-14		35.6	38.0	18,000	-400	8.3
		11-Feb-14	FD	35.4	39.7	18,000	FD	FD
MW-46-205	DA	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	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	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	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
		20-Feb-14		ND (1.0)	ND (1.0)	---	130	7.5
MW-49-135	DA	06-Nov-13		1.3	2.0	12,000	24	7.6
MW-49-275	DA	06-Nov-13		2.0	2.9	24,000	100	7.8
MW-49-365	DA	07-Nov-13		ND (0.2)	ND (1.0)	40,000	-150	7.8
MW-50-095	MA	14-Feb-13		12.4	13.7	4,600	150	7.5
		24-Apr-13		13.6	12.4	5,800	230	7.6

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-50-095	MA	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	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
		26-Feb-14	7,010	6,940	---	-70	7.3
MW-51	MA	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
MW-52S	MA	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	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	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	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	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	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	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	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	21-Nov-13	ND (0.2)	ND (1.0)	1,450	30	7.8
MW-55-120	DA	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	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

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-56M	DA	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	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	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
		24-Feb-14	394	409	---	61	7.2
MW-57-185	BR	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
		13-Feb-14	9.2	10.5	18,000	11	8.8
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
		25-Feb-14	2.3	3.1	---	-160	7.5
MW-59-100	SA	27-Feb-13	3,920	4,030	9,800	170	6.8
		13-May-13	4,110	4,150	8,800	150	6.8
		25-Sep-13	4,180	4,120	9,800	320	6.8
		10-Dec-13	3,860	3,960	9,100	28	6.9
		25-Feb-14	3,740	3,780	9,900	36	6.4
MW-60-125	BR	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
		25-Feb-14	1,030	1,070	9,100	---	---
MW-60BR-245	BR	14-Mar-13	90.6	125	16,000	120	8.0
		14-Mar-13 FD	93.9	110	16,000	FD	FD

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-60BR-245	BR	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
		19-Feb-14	ND (1.0)	2.0	17,000	-260	8.1
MW-61-110	BR	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
		19-Feb-14	588	619	15,000	-76	7.2
MW-62-065	BR	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
		20-Feb-14	469	474	---	63	7.3
MW-62-110	BR	26-Feb-13	1,050	969	8,400	-51	7.8
		08-May-13	733	782	7,800	170	7.1
		18-Sep-13	808	857	8,100	220	7.3
		13-Nov-13	910	1,040	7,600	190	7.5
		19-Feb-14	976	927	8,600	110	7.6
MW-62-190	BR	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
		19-Feb-14	ND (1.0)	ND (1.0)	17,000	-82	7.1
MW-63-065	BR	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
		12-Feb-14	1.2	1.5	6,700	130	7.2
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
		26-Feb-14	ND (1.0)	ND (1.0)	---	16	7.4

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-65-160	SA	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
		19-Feb-14	125	126	4,000	11	7.0
MW-65-225	DA	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
		19-Feb-14	513	529	11,000	-59	7.1
MW-66-165	SA	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
		19-Feb-14	594	638	4,400	70	7.0
MW-66-230	DA	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
		26-Feb-14	5,730	6,570	20,000	67	7.6
MW-66BR-270	BR	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
		26-Feb-14	ND (1.0)	ND (1.0)	18,000	-120	9.7
MW-67-185	SA	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
		24-Feb-14	1,960	2,150	5,600	150	7.2
MW-67-225	MA	21-Feb-13	3,310	3,110	7,000	140	7.4
		09-May-13	3,140	3,280	6,800	150	7.4

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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-67-225	MA	25-Sep-13	3,100	2,920	6,800	310	7.5
		09-Dec-13	3,070	3,010	7,000	43	7.4
		24-Feb-14	2,890	3,120	7,500	120	7.3
MW-67-260	DA	21-Feb-13	2,130	2,060	17,000	170	8.1
		09-May-13	2,120	2,220	16,000	120	8.1
		09-May-13 FD	2,140	2,250	16,000	FD	FD
		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
		24-Feb-14	1,940	2,010	18,000	-90	7.9
MW-68-180	SA	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
		27-Feb-14	22,900	23,800	4,300	28	7.3
MW-68-240	DA	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
		25-Feb-14	2,020	2,050	17,000	-40	7.1
MW-68BR-280	BR	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
		27-Feb-14	ND (1.0)	ND (1.0)	22,000	-120	8.5
MW-69-195	BR	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
		19-Feb-14	893	905	3,500	67	7.2
MW-70-105	BR	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
		04-Dec-13	163	164	3,400	11	7.8

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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	17-Feb-14	145	136	3,500	-180	7.9
MW-70BR-225	BR	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
		25-Feb-14	1,900	2,080	14,000	-90	7.1
MW-71-035	SA	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
		18-Feb-14	0.32	ND (1.0)	8,400	-28	8.7
MW-72-080	BR	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
		18-Feb-14	121	125	16,000	14	7.7
MW-72BR-200	BR	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
		17-Feb-14	7.1	7.5	15,000	-95	8.2
		17-Feb-14 FD	7.1	7.0	15,000	FD	FD
MW-73-080	BR	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
		18-Feb-14	48.5	49.2	11,000	4.0	7.2
MW-74-240	BR	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
		26-Feb-14	ND (0.2)	ND (1.0)	880	-81	8.6
OW-3S	SA	13-Nov-13	22.3	22.5	1,400	160	7.7

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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
OW-3M	MA	13-Nov-13	15.0	14.0	5,400	130	7.9
OW-3D	DA	05-Nov-13	8.6	8.3	9,000	49	7.9
PE-1	DA	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	---	---
		07-Jan-14	5.5	5.6	3,960	---	---
		04-Feb-14	5.6	6.0	3,820	---	---
		04-Mar-14	4.8	4.8	3,680	---	---
PGE-7BR	BR	10-Dec-13	ND (1.0)	ND (1.0)	16,000	-170	7.1
PGE-8	BR	18-Dec-13	ND (1.0)	ND (1.0)	18,000	-300	8.1
Park Moabi-3	MA	19-Dec-13	4.1	7.9 UF	1,200	-61	7.7
Park Moabi-4	MA	19-Dec-13	12.6	18.0 UF	2,000	-64	7.5
TW-1	SA-MA-DA	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
		20-Feb-14	2,500	2,620	7,200	72	7.1
TW-2S	SA-MA	19-Dec-13	545	492	5,400	-40	7.7
TW-2D	DA	19-Dec-13	162	156	8,000	-38	7.3
TW-3D	DA	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	---	---

Refer to table footnotes for data qualifier explanation.

TABLE 3-1
Groundwater Sampling Results, February 2013 through March 2014
First Quarter 2014 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
TW-3D	DA	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	---	---
		07-Jan-14	905	761	7,290	---	---
		04-Feb-14	816	804	7,570	---	---
		04-Mar-14	816	752	7,980	---	---
TW-4	DA	12-Nov-13	7.4	6.5	19,000	130	7.6
TW-5	DA	06-Nov-13	10.3	11.3	13,000	160	7.8

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 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, First Quarter 2014

First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-12	SA	25-Feb-14	42.0	---	12.0	15.0	---	13.2
MW-23-060	BR	13-Feb-14	3.6	---	---	---	ND (0.5)	---
MW-23-080	BR	13-Feb-14	3.6	---	---	---	ND (0.5)	---
MW-27-60	MA	10-Feb-14	6.5	0.70	4.1	ND (0.5)	170	ND (0.01)
MW-27-85	DA	10-Feb-14	1.4	ND (0.5)	22.0	ND (0.5)	21.0	ND (0.01)
MW-28-90	DA	12-Feb-14	1.7	4.10	20.0	ND (0.5)	100	ND (0.01)
MW-33-40	SA	12-Feb-14	13.0	12.0	170	0.55	ND (0.5)	0.13
MW-33-90	MA	12-Feb-14	1.3	5.20	17.0	0.55	ND (0.5)	1.70
MW-33-150	DA	12-Feb-14	1.6	ND (1.0)	36.0	ND (2.5)	3.9	1.64
		12-Feb-14 FD	1.7	ND (1.0)	40.0	ND (2.5)	4.1	1.65
MW-33-210	DA	12-Feb-14	1.1	ND (1.0)	18.0	ND (2.5)	4.8	1.77
MW-34-80	DA	10-Feb-14	1.3	---	---	---	---	---
MW-34-100	DA	22-Jan-14	1.8	---	---	---	---	---
		10-Feb-14	1.6	---	---	---	---	---
MW-35-60	SA	17-Feb-14	1.1	---	9.5	1.1	ND (0.5)	2.34
		17-Feb-14 FD	1.0	---	9.9	1.1	ND (0.5)	2.33
MW-42-55	MA	11-Feb-14	13.0	---	---	---	---	---
MW-42-65	MA	11-Feb-14	2.2	---	---	---	1100	---
MW-44-115	DA	11-Feb-14	5.5	---	81.0	ND (0.5)	ND (0.5)	0.244
MW-44-125	DA	11-Feb-14	3.4	---	160	ND (0.5)	410	0.297
		11-Feb-14 FD	3.5	---	160	ND (0.5)	420	0.296
MW-46-175	DA	11-Feb-14	---	---	190	ND (2.5)	---	1.17
		11-Feb-14 FD	---	---	200	ND (2.5)	---	1.19
MW-57-185	BR	13-Feb-14	13.0	---	87.0	ND (2.5)	180	ND (0.01)
MW-58BR	BR	25-Feb-14	1.2	---	---	---	---	---
MW-59-100	SA	25-Feb-14	2.3	---	5.8	4.0	ND (0.5)	4.16
MW-60-125	BR	25-Feb-14	1.4	---	18.0	5.8	ND (0.5)	4.74
MW-60BR-245	BR	19-Feb-14	6.4	---	61.0	ND (2.5)	25.0	0.109
MW-61-110	BR	19-Feb-14	3.5	---	22.0	ND (2.5)	120	0.95
MW-62-110	BR	19-Feb-14	5.6	---	47.0	3.4	59.0	3.85
MW-62-190	BR	19-Feb-14	4.9	---	80.0	ND (2.5)	500	0.0153
MW-63-065	BR	12-Feb-14	1.5	---	20.0	1.0	ND (0.5)	1.09
MW-64BR	BR	26-Feb-14	3.1	---	---	---	---	---
MW-65-160	SA	19-Feb-14	0.89	---	24.0	8.6	ND (0.5)	11.7
MW-65-225	DA	19-Feb-14	2.4	---	36.0	6.6	ND (0.5)	8.13

TABLE 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, First Quarter 2014

First Quarter 2014 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-66-165	SA	19-Feb-14	1.2	---	5.8	38.0	ND (0.5)	35.3
MW-66-230	DA	26-Feb-14	9.5	---	90.0	12.0	ND (2.5) J	16.1
MW-66BR-270	BR	26-Feb-14	ND (0.5)	---	16.0	ND (2.5)	ND (2.5)	0.0594
MW-67-185	SA	24-Feb-14	1.4	---	9.9	190	ND (0.5)	39.4
MW-67-225	MA	24-Feb-14	3.2	---	35.0	72.0	ND (0.5)	23.9
MW-67-260	DA	24-Feb-14	13.0	---	82.0	ND (2.5)	37.0	1.38
MW-68-180	SA	27-Feb-14	2.6	---	52.0	17.0	ND (0.5)	30.1
MW-68-240	DA	25-Feb-14	1.9	---	22.0	4.9	ND (2.5)	4.97
MW-68BR-280	BR	27-Feb-14	1.5	---	83.0	ND (2.5)	83.0	ND (0.01)
MW-69-195	BR	19-Feb-14	2.4	---	81.0	12.0	ND (0.5)	18.0
MW-70-105	BR	17-Feb-14	5.0	---	94.0	4.0	140	3.67
MW-70BR-225	BR	25-Feb-14	1.9	---	18.0	ND (2.5)	ND (0.5)	4.13
MW-71-035	SA	18-Feb-14	1.5	---	62.0	3.9	16.0	2.89
MW-72-080	BR	18-Feb-14	12.0	---	80.0	ND (2.5)	36.0	1.17
MW-72BR-200	BR	17-Feb-14	15.0	---	79.0	ND (2.5)	7.2	0.132
		17-Feb-14 FD	15.0	---	78.0	ND (2.5)	7.1	0.127
MW-73-080	BR	18-Feb-14	1.5	---	21.0	5.5	ND (0.5)	4.71
MW-74-240	BR	26-Feb-14	13.0	---	73.0	1.4	ND (0.5)	0.028
PE-1	DA	07-Jan-14	---	---	---	---	51.0	ND (0.5)
		04-Feb-14	---	---	---	---	7.1	ND (0.5)
		04-Mar-14	---	---	---	---	56.0	ND (0.5)
TW-1	SA-MA-DA	20-Feb-14	---	---	15.0	20.0	---	21.6
TW-3D	DA	07-Jan-14	---	---	---	---	6.9	3.84
		04-Feb-14	---	---	---	---	54.5	3.93
		04-Mar-14	---	---	---	---	8.7	3.69

TABLE 3-2
Groundwater COPCs and In Situ Byproducts Sampling Results, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Notes:

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

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 3-3
Title 22 Metals Results, First Quarter 2014
First Quarter 2014 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-12	02/25/2014	ND (0.5)	42.0	57.0	ND (0.5)	ND (0.5)	ND (0.5)	2,480	ND (5.0) J	ND (5.0)	ND (0.2)	12.0	ND (1.0)	15.0	ND (0.5)	ND (2.5)	18.0	ND (10)

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 SW6020A or SW7470A.

TABLE 3-4
Surface Water Sampling Results, First Quarter 2014
First Quarter 2014 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	01/14/2014	ND (0.2)	ND (1.0)	832	8.3 J
C-BNS-D	03/12/2014	ND (0.2)	ND (1.0)	868	8.1 J
C-CON-S	01/15/2014	ND (0.2)	ND (1.0)	790	8.4 J
C-CON-S	03/13/2014	ND (0.2)	ND (1.0)	843	8.3 J
C-CON-D	01/15/2014	ND (0.2)	ND (1.0)	830	8.5 J
C-CON-D	03/13/2014	ND (0.2)	ND (1.0)	840	8.3 J
C-I-3-S	01/14/2014	ND (0.2)	ND (1.0)	845	8.3 J
C-I-3-S	03/12/2014	ND (0.2)	ND (1.0)	849	8.2 J
C-I-3-D	01/14/2014	ND (0.2)	ND (1.0)	843	8.3 J
C-I-3-D	03/12/2014	ND (0.2)	ND (1.0)	853	8.2 J
C-MAR-S	01/15/2014	ND (0.2)	ND (1.0)	814	8.2 J
C-MAR-D	03/12/2014	ND (0.2)	ND (1.0)	911	7.9 J
C-NR1-S	01/15/2014	ND (0.2)	ND (1.0)	786	8.2 J
C-NR1-S	03/13/2014	ND (0.2)	ND (1.0)	855	8.3 J
C-NR1-D	01/15/2014	ND (0.2)	ND (1.0)	796	8.4 J
C-NR1-D	03/13/2014	ND (0.2)	ND (1.0)	847	8.3 J
C-NR3-S	01/15/2014	ND (0.2)	ND (1.0)	812	8.3 J
C-NR3-S	03/13/2014	ND (0.2)	ND (1.0)	852	8.1 J
C-NR3-D	01/15/2014	ND (0.2)	ND (1.0)	781	8.3 J
C-NR3-D	03/13/2014	ND (0.2)	ND (1.0)	851	8.3 J
C-NR4-S	01/15/2014	ND (0.2)	ND (1.0)	795	8.3 J
C-NR4-S	03/13/2014	ND (0.2)	ND (1.0)	832	8.3 J
C-NR4-D	01/15/2014	ND (0.2)	ND (1.0)	804	8.3 J
C-NR4-D	03/13/2014	ND (0.2)	ND (1.0)	847	8.2 J
C-R22a-S	01/14/2014	ND (0.2)	ND (1.0)	873	8.3 J
C-R22a-S	03/12/2014	ND (0.2)	ND (1.0)	853	8.2 J
C-R22a-D	01/14/2014	ND (0.2)	ND (1.0)	872	8.3 J
C-R22a-D	03/12/2014	ND (0.2)	ND (1.0)	862	8.3 J
C-R27-S	01/14/2014	ND (0.2)	ND (1.0)	878	8.3 J
C-R27-S	03/12/2014	ND (0.2)	ND (1.0)	848	8.2 J
C-R27-D	01/14/2014	ND (0.2)	ND (1.0)	876	8.3 J
C-R27-D	03/12/2014	ND (0.2)	ND (1.0)	852	8.3 J
C-TAZ-S	01/14/2014	ND (0.2)	ND (1.0)	877	8.3 J
C-TAZ-S	03/12/2014	ND (0.2)	ND (1.0)	857	8.3 J
C-TAZ-D	01/14/2014	ND (0.2)	ND (1.0)	878	8.3 J
C-TAZ-D	03/12/2014	ND (0.2)	ND (1.0)	851	8.3 J

TABLE 3-4
Surface Water Sampling Results, First Quarter 2014
First Quarter 2014 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					
R-19	01/14/2014	ND (0.2)	ND (1.0)	856	8.3 J
R-19	03/13/2014	ND (0.2)	ND (1.0)	823	8.3 J
R-28	01/14/2014	ND (0.2)	ND (1.0)	863	8.3 J
R-28	03/13/2014	ND (0.2)	ND (1.0)	822	8.3 J
R63	01/14/2014	ND (0.2)	ND (1.0)	893	8.3 J
R63	03/12/2014	ND (0.2)	ND (1.0)	853	8.2 J
RRB	01/15/2014	ND (0.2)	ND (1.0)	927	8.5 J
RRB	03/13/2014	ND (0.2)	ND (1.0)	827	8.2 J
Other Surface Water Monitoring Locations					
SW1	01/14/2014	ND (0.2)	ND (1.0)	1150	7.8 J
SW1	03/12/2014	ND (0.2)	ND (1.0)	896	7.5 J
SW2	03/12/2014	ND (0.2)	ND (1.0)	864	7.8 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, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location	Sample Date	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/Nitrite as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations										
C-BNS-D	01/14/2014	3.0	104	190	ND (20.0)	1.6	4.2	0.322	ND (5.0)	4.30
C-BNS-D	03/12/2014	2.4	102	48.3	ND (20.0)	0.98	3.9	0.412	ND (5.0)	ND (4.00)
C-CON-S	01/15/2014	2.9	99.2	69.8	42.7	1.6	4.0	0.318	ND (5.0)	ND (4.00)
C-CON-S	03/13/2014	2.4	94.5	27.4	ND (20.0)	0.91	3.7	0.409	ND (5.0)	ND (4.00)
C-CON-D	01/15/2014	2.9	102	113	ND (20.0)	1.2	4.0	0.318	ND (5.0)	4.30
C-CON-D	03/13/2014	2.5	95.0	52.0	ND (20.0)	0.98	3.8	0.410	ND (5.0)	10.4
C-I-3-S	01/14/2014	2.9	101	148	35.2	1.5	4.0	0.312	ND (5.0)	ND (4.00)
C-I-3-S	03/12/2014	2.5	107	38.3	ND (20.0)	1.0	4.1	0.406	ND (5.0)	6.10
C-I-3-D	01/14/2014	3.0	98.3	144	26.3	1.8	4.0	0.307	ND (5.0)	8.10
C-I-3-D	03/12/2014	2.6	106	58.6	ND (20.0)	1.2	4.0	0.407	ND (5.0)	11.6
C-MAR-S	01/15/2014	2.7	104	1920	58.7	40.7	4.1	0.317	ND (5.0)	79.1
C-MAR-D	03/12/2014	2.4	98.8	463	63.8	24.8	4.0	0.505	ND (5.0)	81.2
C-NR1-S	01/15/2014	2.9	102	66.8	22.9	1.4	4.0	0.312	ND (5.0)	ND (4.00)
C-NR1-S	03/13/2014	2.4	93.8	36.7	ND (20.0)	0.93	3.7	0.414	ND (5.0)	ND (4.00)
C-NR1-D	01/15/2014	3.0	102	63.4	ND (20.0)	1.2	4.0	0.318	ND (5.0)	ND (4.00)
C-NR1-D	03/13/2014	2.5	95.6	46.9	ND (20.0)	0.98	3.8	0.427	ND (5.0)	6.10
C-NR3-S	01/15/2014	2.9	100	28.3	ND (20.0)	1.0	3.9	0.315	ND (5.0)	ND (4.00)
C-NR3-S	03/13/2014	2.4	90.0	28.2	ND (20.0)	0.86	3.6	0.411	ND (5.0)	ND (4.00)
C-NR3-D	01/15/2014	3.0	106	104	38.3	1.4	4.5	0.318	ND (5.0)	ND (4.00)
C-NR3-D	03/13/2014	2.5	96.6	45.8	ND (20.0)	1.4	3.9	0.402	ND (5.0)	4.40
C-NR4-S	01/15/2014	3.0	104	61.3	ND (20.0)	1.1	4.1	0.319	ND (5.0)	ND (4.00)
C-NR4-S	03/13/2014	2.5	93.9	22.8	ND (20.0)	0.78	3.8	0.413	ND (5.0)	ND (4.00)
C-NR4-D	01/15/2014	2.8	99.0	28.8	ND (20.0)	0.98	3.9	0.321	ND (5.0)	ND (4.00)
C-NR4-D	03/13/2014	2.4	93.4	29.3	ND (20.0)	0.81	3.8	0.407	ND (5.0)	7.60
C-R22a-S	01/14/2014	2.9	99.0	276	23.8	3.3	4.0	0.325	ND (5.0)	9.60
C-R22a-S	03/12/2014	2.2	98.4	48.8	ND (20.0)	1.4	6.0	0.401	ND (5.0)	ND (4.00)
C-R22a-D	01/14/2014	2.9	100	215	32.0	3.3	3.9	0.319	ND (5.0)	9.40
C-R22a-D	03/12/2014	2.5	103	38.4	ND (20.0)	1.4	3.9	0.398	ND (5.0)	5.10
C-R27-S	01/14/2014	3.0	99.8	178	21.2	2.8	4.0	0.311	ND (5.0)	4.60
C-R27-S	03/12/2014	2.3	100	34.3	ND (20.0)	1.1	3.8	0.401	ND (5.0)	ND (4.00)
C-R27-D	01/14/2014	2.9	97.3	169	40.2	2.0	3.9	0.310	ND (5.0)	5.30
C-R27-D	03/12/2014	2.3	98.8	44.9	ND (20.0)	0.85	3.7	0.407	ND (5.0)	5.40
C-TAZ-S	01/14/2014	2.9	99.6	70.7	ND (20.0)	2.0	4.0	0.312	ND (5.0)	ND (4.00)
C-TAZ-S	03/12/2014	2.3	98.4	49.5	26.0	1.2	3.8	0.408	ND (5.0)	5.60
C-TAZ-D	01/14/2014	2.9	99.5	98.8	22.8	2.2	4.0	0.305	ND (5.0)	5.60
C-TAZ-D	03/12/2014	2.2	93.5	64.8	ND (20.0)	0.94	3.5	0.487	ND (5.0)	10.4
Shoreline Samples										
R-19	01/14/2014	2.9	102	1720	ND (20.0)	9.2	4.0	0.309	ND (5.0)	75.6
R-19	03/13/2014	2.4	92.6	42.4	ND (20.0)	1.2	3.7	0.421	ND (5.0)	ND (4.00)
R-28	01/14/2014	2.9	102	1410	45.9	7.9	4.0	0.315	ND (5.0)	79.1
R-28	03/13/2014	2.3	99.3	41.3	ND (20.0)	1.3	4.0	0.410	ND (5.0)	ND (4.00)

TABLE 3-5
COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	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/Nitrite as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
Shoreline Samples										
R63	01/14/2014	3.0	106	251	27.1	4.8	4.2	0.519	ND (5.0)	7.90
R63	03/12/2014	2.2	96.8	71.1	ND (20.0)	1.7	3.6	0.418	ND (5.0)	5.40
RRB	01/15/2014	3.0	123	278	ND (20.0)	91.0	3.8	0.134	ND (5.0)	13.9
RRB	03/13/2014	2.4	94.5	116	29.0	5.5	3.8	0.387	ND (5.0)	7.60

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, First Quarter 2014
First Quarter 2014 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Extraction Well ID	January 2014		February 2014		March 2014		First Quarter 2014	
	Average Pumping Rate[a] (gpm)	Volume Pumped (gal)	Average Pumping Rate[a] (gpm)	Volume Pumped (gal)	Average Pumping Rate[a] (gpm)	Volume Pumped (gal)	Average Pumping Rate[a] (gpm)	Volume Pumped (gal)
TW-02S	0.00	0	0.00	0	0.00	0	0.00	0
TW-02D	0.00	0	0.00	0	0.00	0	0.00	0
TW-03D	105.90	4,727,337	106.07	4,276,887	103.24	4,608,719	105.07	13,612,943
PE-01	26.39	1,177,881	26.59	1,072,255	27.48	1,226,649	26.82	3,476,785
TOTAL	**132.3**	**5,905,218**	**132.7**	**5,349,142**	**130.7**	**5,835,368**	**131.9**	**17,089,728**

Chromium Removed This Quarter (kg)	44.5
Chromium Removed Project to Date (kg)	3580
Chromium Removed This Quarter (lb)	98.2
Chromium Removed Project to Date (lb)	7900

Notes:
DTSC = Department of Toxic Substances Control.
gal = gallons.
GMP = Groundwater Monitoring Program.
gpm = gallons per minute.
kg = kilograms.
lb = pounds.

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

Chromium removed includes the period of January 1, 2014 through March 31, 2014. DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from January 1, 2014 through March 31, 2014.

TABLE 4-2
Analytical Results for Extraction Wells, January 2013 through March 2014
First Quarter 2014 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
	07-Jan-14	761 LF	905	5,140	7.41 J
	04-Feb-14	804 LF	816	5,190	7.60 J
	04-Mar-14	752 LF	816	5,050	7.53 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
	07-Jan-14	5.60 LF	5.50	2,680	7.44 J
	04-Feb-14	6.00 LF	5.60	2,630	7.57 J
	04-Mar-14	4.80 LF	4.80	2,510	7.50 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 4-3

Average Hydraulic Gradients Measured at Well Pairs, First Quarter 2014

First Quarter 2014 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
Overall Average	January	0.0058	NA
	February	0.0060	NA
	March	0.0074	NA
Northern Gradient Pair MW-31-135 / MW-33-150	January	0.0020	31 / 31
	February	0.0022	28 / 28
	March	0.0027	31 / 31
Central Gradient Pair MW-45-95 / MW-34-100	January	0.0115	31 / 31
	February	0.0116	28 / 28
	March	0.0142	31 / 31
Southern Gradient Pair MW-45-95 / MW-27-85	January	0.0039	31 / 31
	February	0.0042	28 / 28
	March	0.0052	31 / 31

Notes:

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

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

Table 4-4
Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3
First Quarter 2014 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 2012	9,800	10,378	-578	453.7	453.99	0.3
February 2012	12,300	12,614	-314	454.8	455.25	0.4
March 2012	14,800	15,134	-334	455.8	455.88	0.1
April 2012	18,300	18,330	-30	457.1	457.33	0.2
May 2012	15,900	15,938	-38	456.4	456.63	0.2
June 2012	15,900	15,996	-96	456.4	456.59	0.2
July 2012	14,500	13,087	1,413	456.0	455.72	-0.3
August 2012	12,200	12,104	96	455.2	455.45	0.3
September 2012	13,000	12,147	853	455.2	455.31	0.1
October 2012	8,400	9,037	-637	453.6	453.95	0.3
November 2012	8,500	8,390	110	453.6	NA	NA
December 2012	6,300	6,427	-127	452.6	452.17	-0.4
January 2013	8,300	8,299	1	453.2	453.28	0.04
February 2013	10,600	10,972	-372	454.3	454.63	0.4
March 2013	15,200	15,545	-345	456.0	456.29	0.3
April 2013	17,600	17,090	510	456.9	456.74	-0.1
May 2013	15,800	15,592	208	456.4	456.44	0.0
June 2013	15,700	15,588	112	456.5	456.47	0.0
July 2013	14,400	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	8,970	-670	452.8	453.27	0.5
February 2014	11,600	11,850	-250	454.3	454.67	0.3
March 2014	16,600	17,473	-873	456.4	456.70	0.3
April 2014	18,200			457.1		

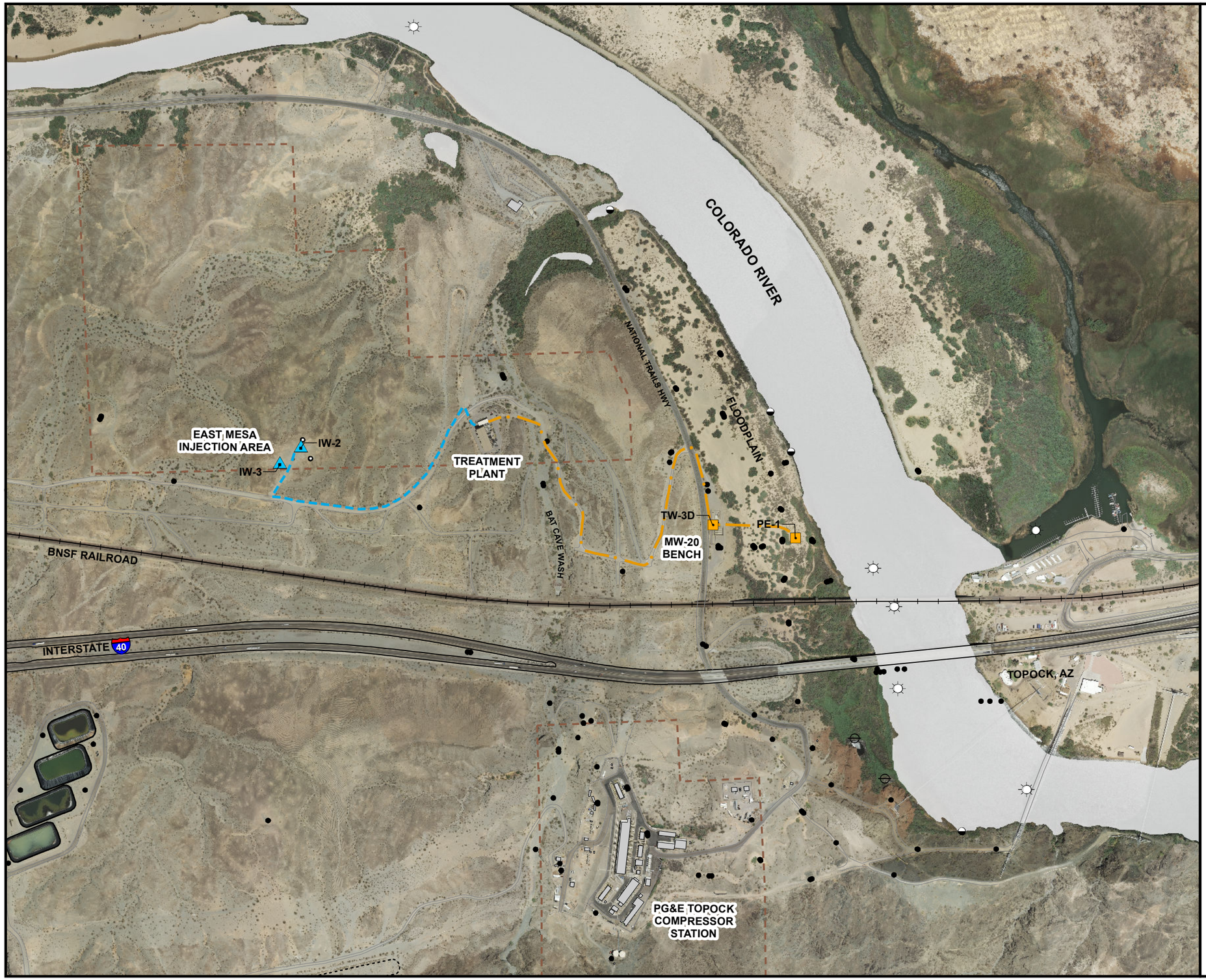
NOTES:
cfs = cubic feet per second; ft amsl = feet above mean sea level.
NA = Data unavailable during this time period.

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 April 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 2012 please see: *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, 2014a)

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

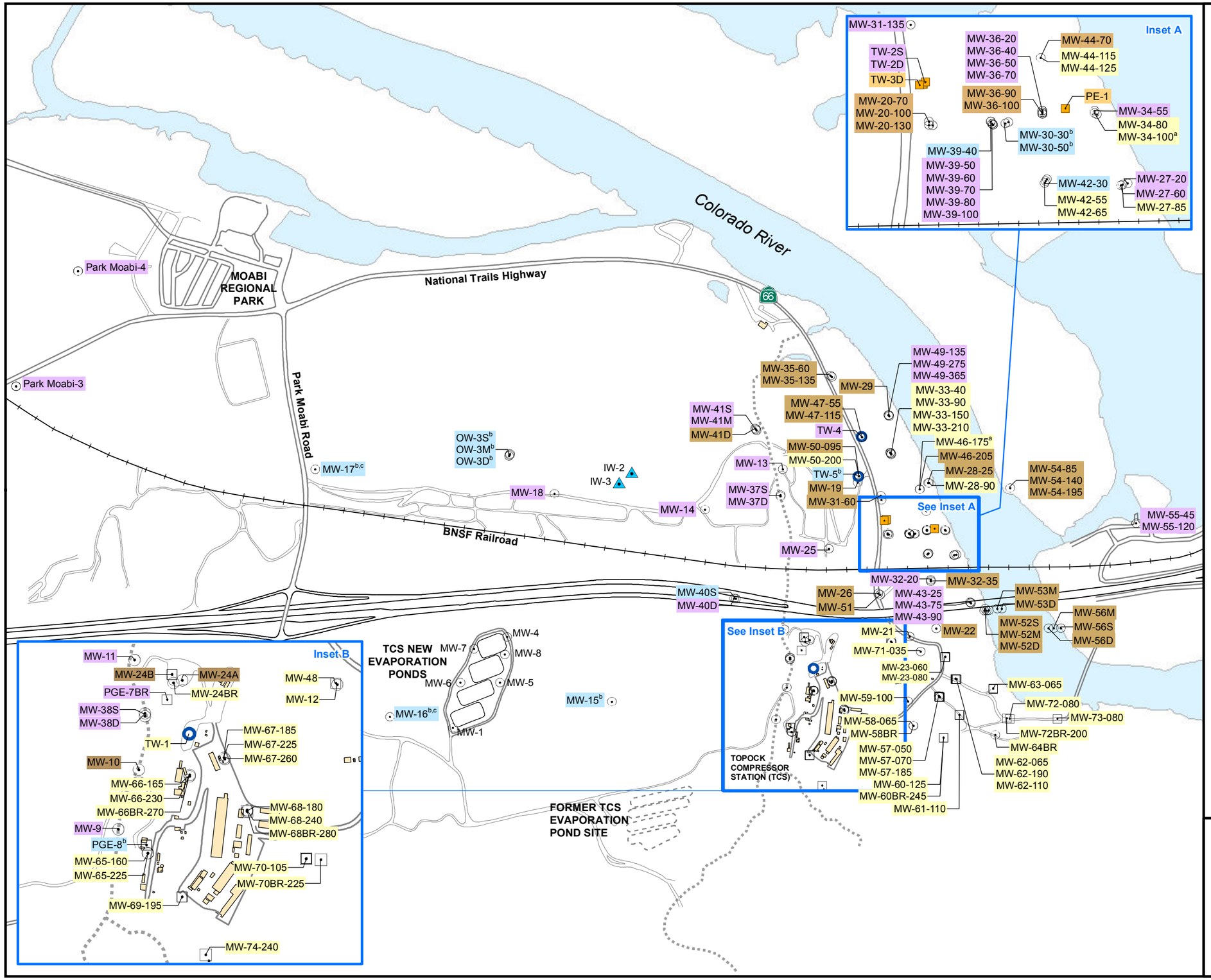
0 600 1,200 Feet

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

FIRST QUARTER 2014 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\2014Q1\FIGURE1-1_IM3_GMP_LOCS_2014Q1.MXD ECLARK1 4/3/2014 12:02:21 PM



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

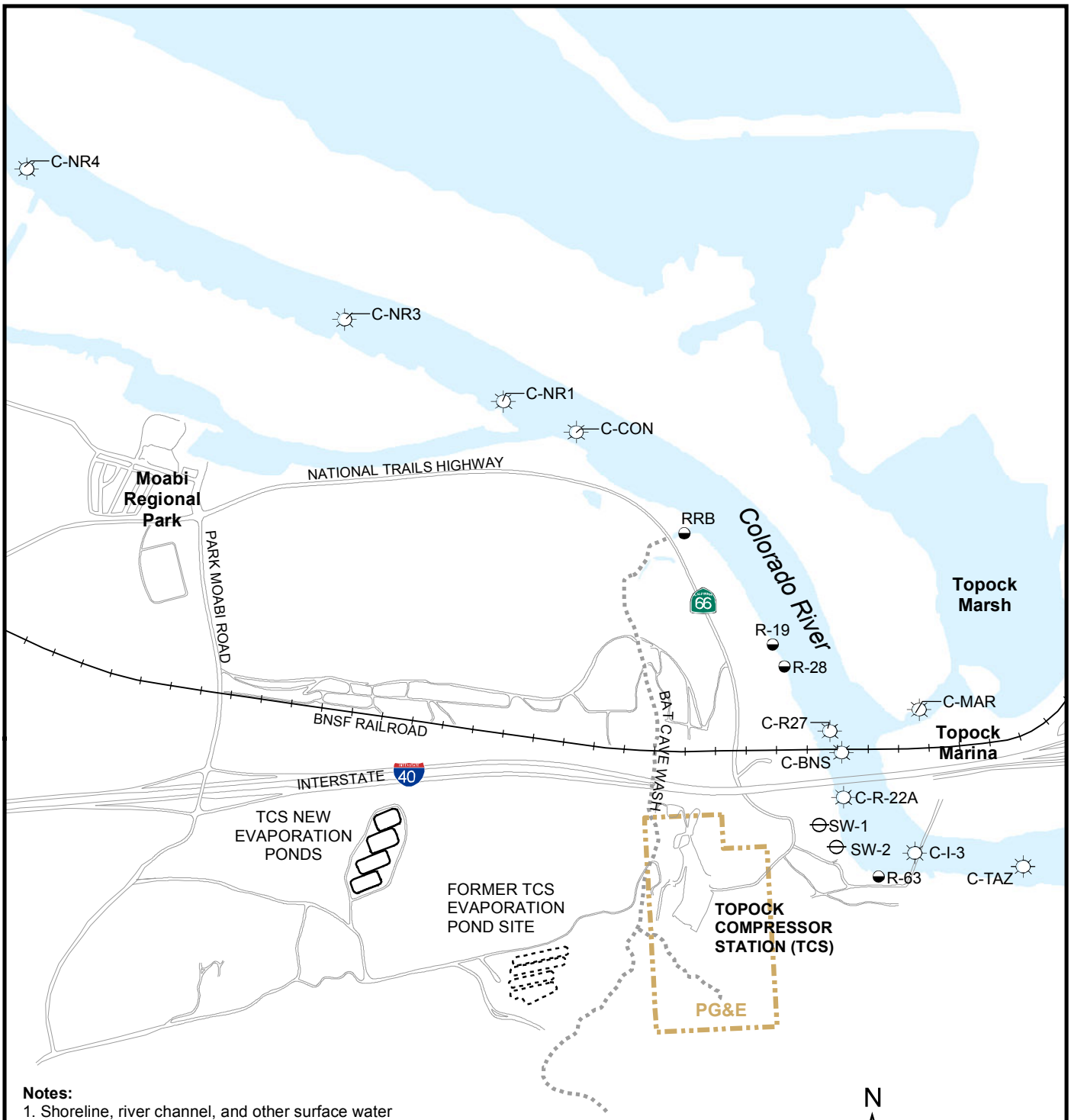
California State Plane NAD83 Zone 5 US Feet

FIGURE 1-2
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR GMP

FIRST QUARTER 2014 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\2014Q1\FIGURE1-2_GMP_SAMPLING_FREQUENCY.MXD ECLARK1 4/16/2014 8:37:51 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

FIRST QUARTER 2014 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\2014Q1\FIGURE1-3_GMP_RIVER_SWLOCS_2014Q1.MXD ECLARK1 4/3/2014 12:05:54 PM

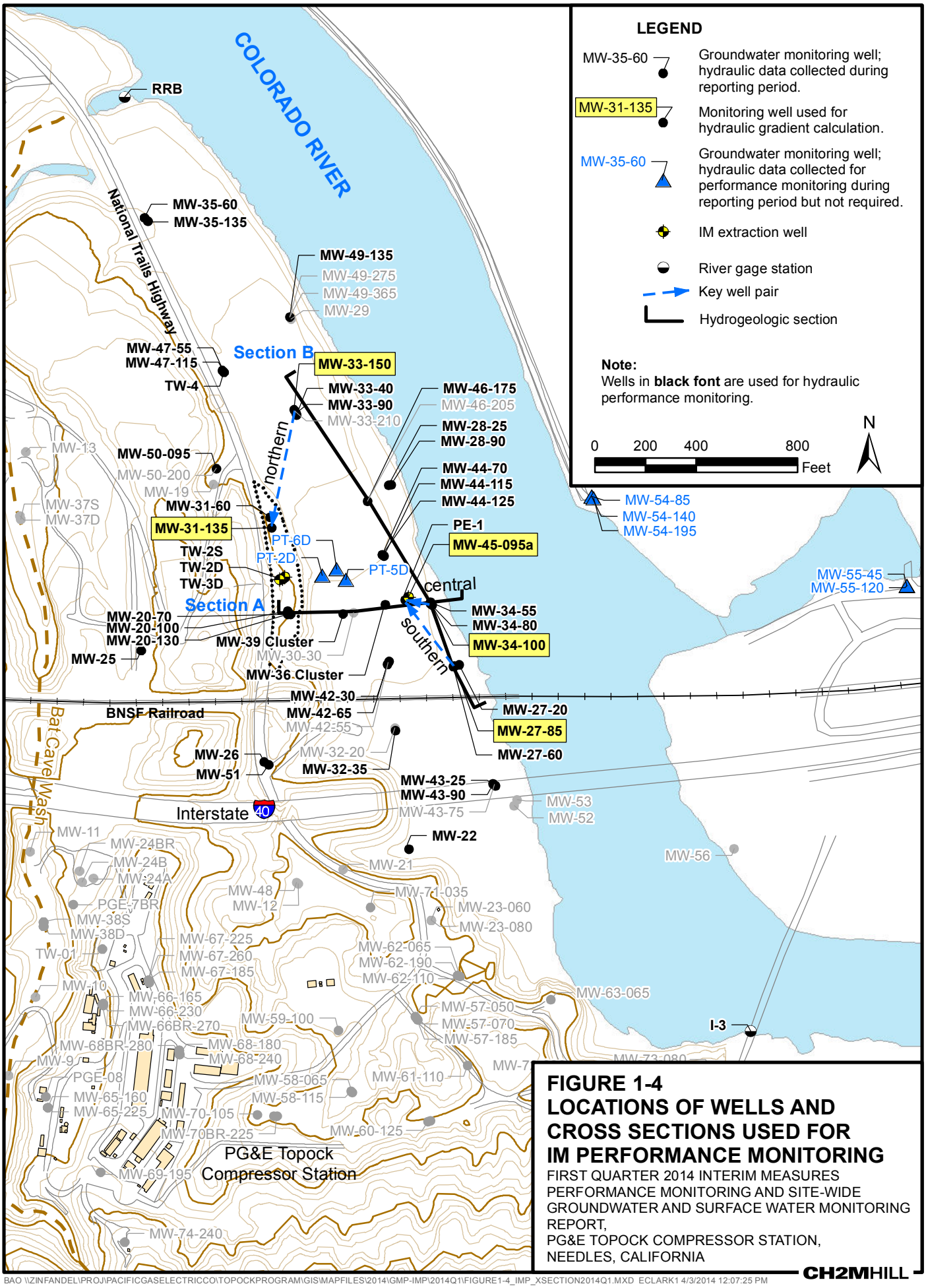
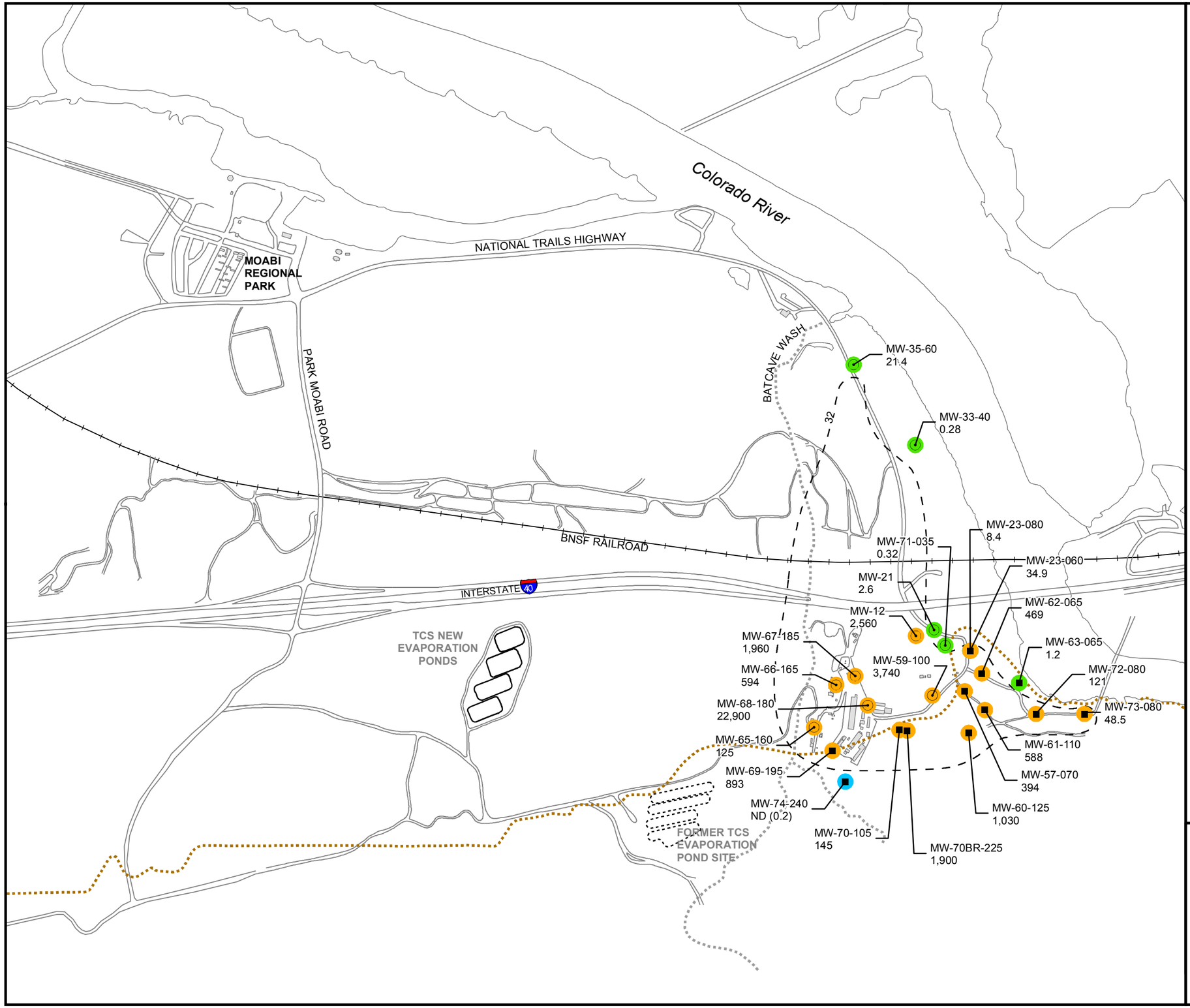


FIGURE 1-4
LOCATIONS OF WELLS AND CROSS SECTIONS USED FOR IM PERFORMANCE MONITORING

FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



LEGEND

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

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

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

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

Cr(VI) Concentrations – First Quarter 2014

- 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, where a larger number of wells were sampled, and First Quarter 2014 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.

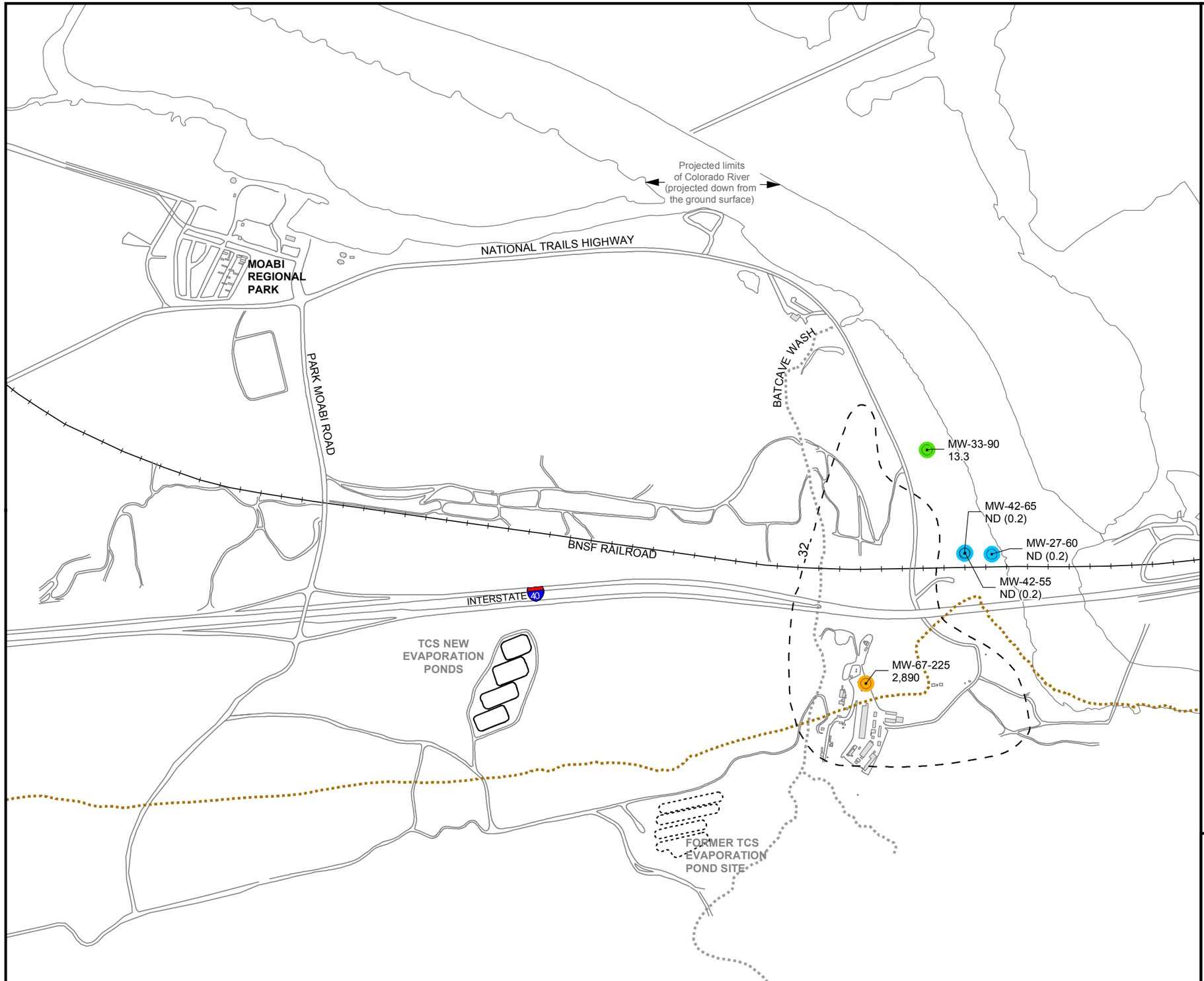
N

0 500 1,000 Feet

FIGURE 3-1a
Cr(VI) SAMPLING RESULTS, SHALLOW WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FIRST QUARTER 2014
FIRST QUARTER 2014 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\2014Q1\FIGURE3-1A_IMP_CR6_2014Q1_SHALLOW.MXD ECLARK1 4/16/2014 8:40:32 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 – First Quarter 2014

- 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, where a larger number of wells were sampled, and First Quarter 2014 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.

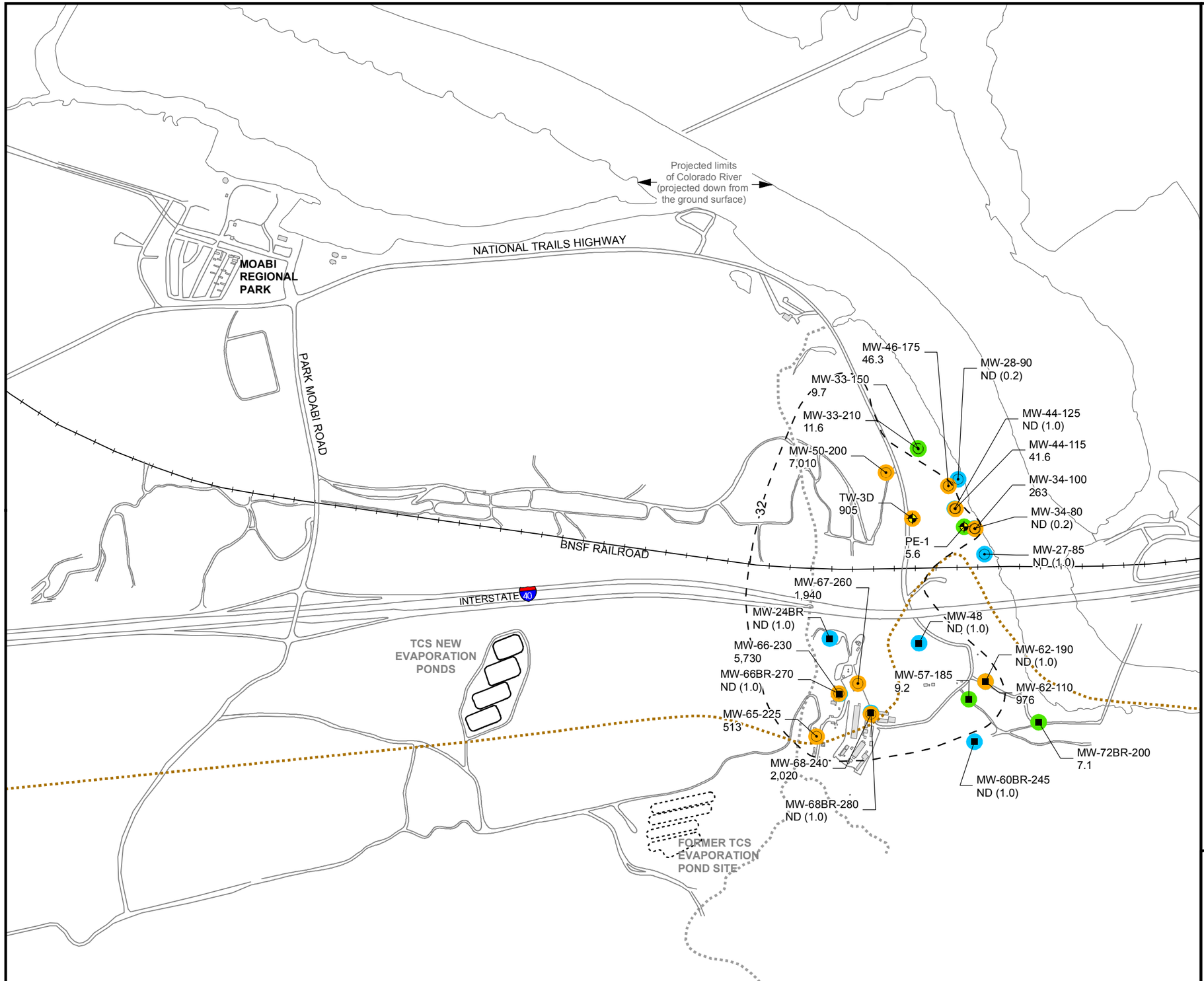
N

0 500 1,000 Feet

FIGURE 3-1b
Cr(VI) SAMPLING RESULTS, MID-DEPTH WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FIRST QUARTER 2014
FIRST QUARTER 2014 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\2014Q1\FIGURE3-1B_IMP_CR6_2014Q1_MID.MXD ECLARK1 4/16/2014 8:41:09 AM



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 – First Quarter 2014

- 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, where a larger number of wells were sampled, and First Quarter 2014 groundwater sampling results.
- Approximate bedrock contact at 395 feet above mean sea level.

Notes:

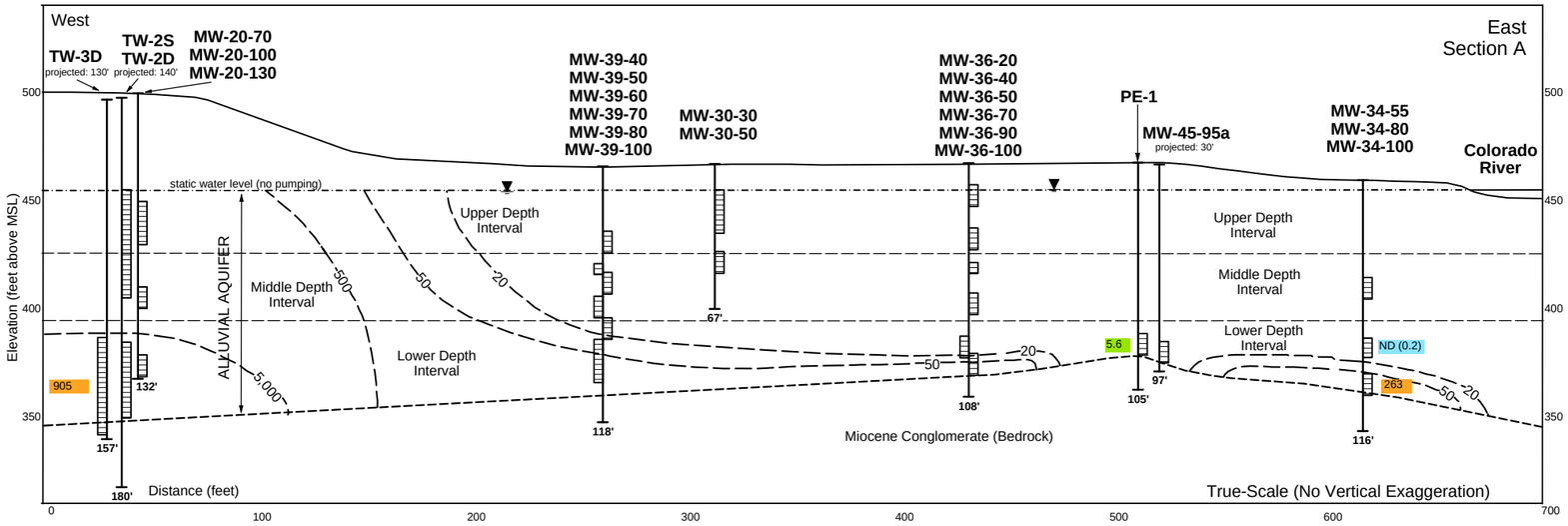
1. Results plotted are maximum concentration from primary and duplicate samples, see Table 3-1 for complete results.
2. In the floodplain area, the 32µg/L line for Cr(VI) in deep zone (80-90 feet below Colorado River) is estimated based on available groundwater sampling, hydrogeologic and geochemical 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

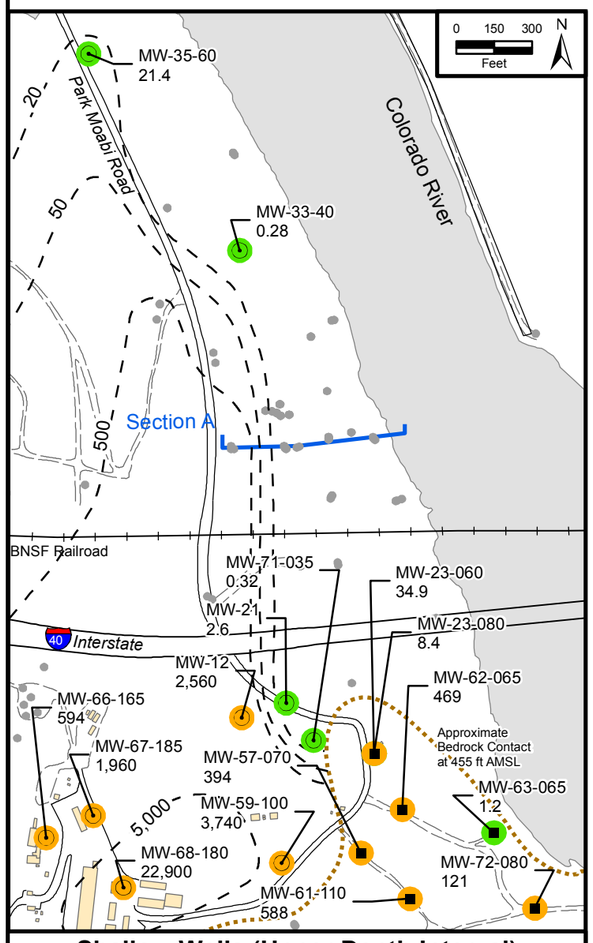
N

0 500 1,000 Feet

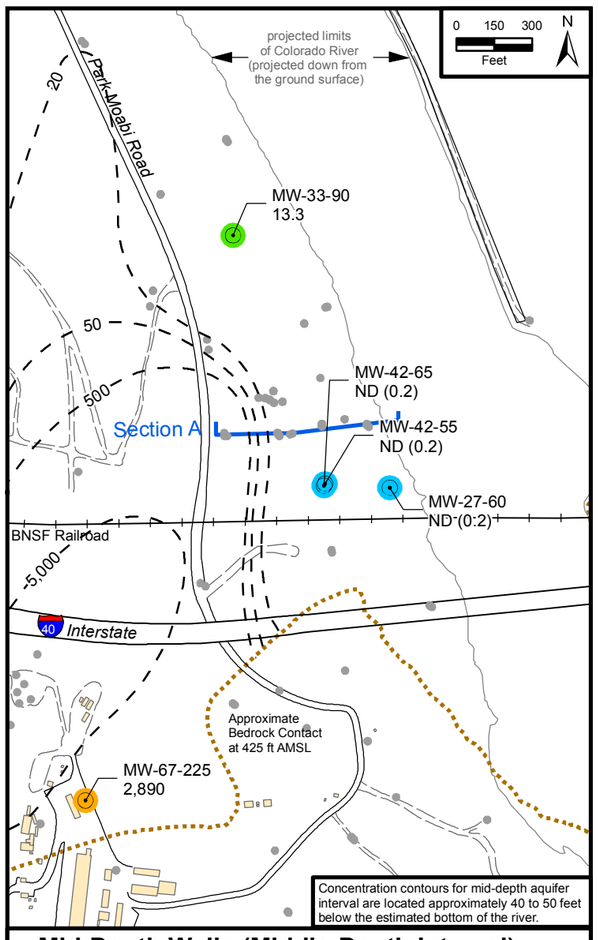
FIGURE 3-1c
Cr(VI) SAMPLING RESULTS, DEEP WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FIRST QUARTER 2014
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

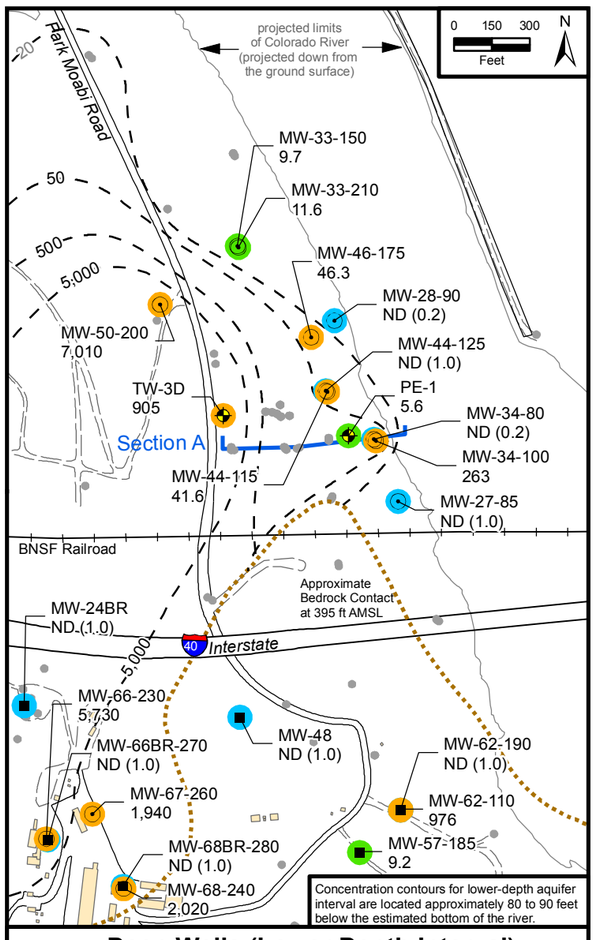




Shallow Wells (Upper Depth Interval)



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 – First Quarter 2014

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L
- 50 — Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations > 32 ug/L based on Fourth Quarter 2013, where a larger number of wells were sampled, and First Quarter 2014 groundwater sampling results.
- Hydrogeologic Section A
- Approximate bedrock contact

Notes:

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

FIGURE 4-1
MAXIMUM Cr(VI) CONCENTRATIONS IN ALLUVIAL AQUIFER AND BEDROCK, FIRST QUARTER 2014

FIRST QUARTER 2014 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\2014Q1\FIGURE4-1_IMP_CR6_PPB_2014Q1_MAX.MXD ECLARK1 4/16/2014 8:51:49 AM

North

South
Section B

Cross-Section Parallel to the Colorado River

BNSF
Railroad

MW-33-40
MW-33-90
MW-33-150
MW-33-210

MW-46-175
MW-46-205

MW-28-25
MW-28-90
projected: 110'

MW-44-70
MW-44-115
MW-44-125

MW-34-55
MW-34-80
MW-34-100

MW-27-20
MW-27-60
MW-27-85

Elevation (feet AMSL)

700
600
500
400
300
200
100
0

water table (average 455' AMSL)

ALLUVIAL AQUIFER

Oldest Alluvium

Fluvial Deposits

Upper Depth Interval
Middle Depth Interval
Lower Depth Interval

0.28
13.3
9.7
11.6

ND (0.2)
46.3
41.6
ND (1.0)
263
ND (0.2)
ND (0.2)
ND (1.0)

20
50

Approximate geologic contact
between alluvial fan
and fluvial deposits

237'
216'
134'
116'
107'

Miocene Conglomerate (Bedrock)

True-Scale (No Vertical Exaggeration)

-100 0 100 200 300 400 500 600 700 800 900 1,000 1,100 1,200 1,300 1,400
Distance (feet)

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, where a larger number of wells were sampled, or First Quarter 2014.

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

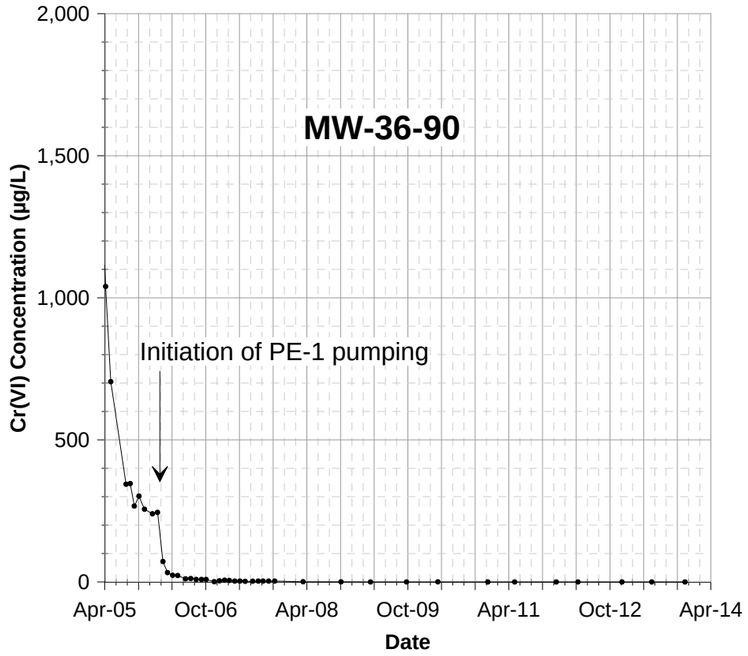
ND (0.2)	Not detected at listed reporting limit
24.2	Concentration between reporting limit and 32 µg/L
203	Concentration greater than or equal to 32 µg/L

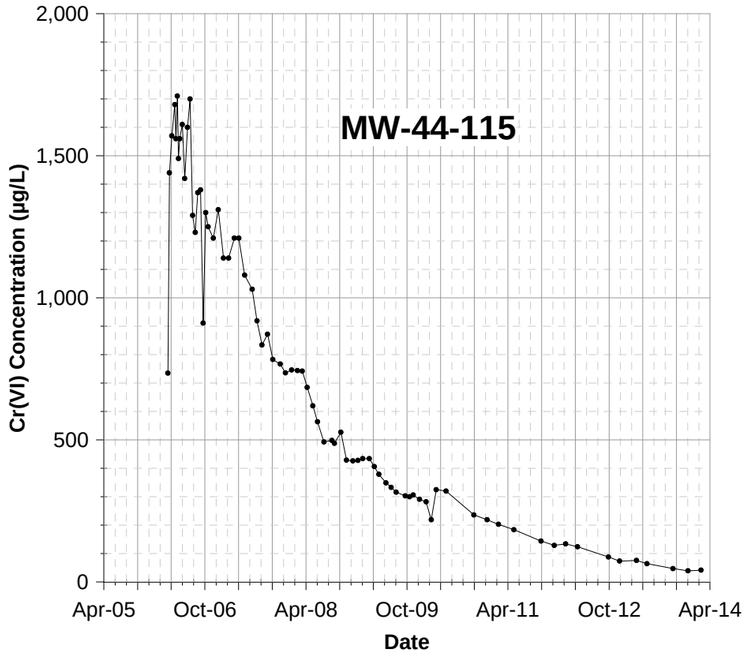
FIGURE 4-2
Cr(VI) CONCENTRATIONS
FLOODPLAIN CROSS-SECTION B,
FIRST QUARTER 2014

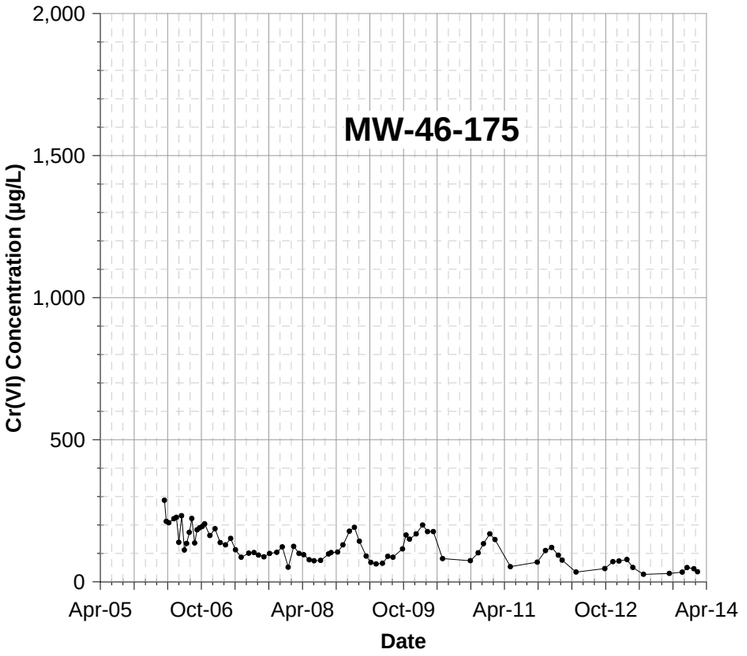
FIRST QUARTER 2014 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

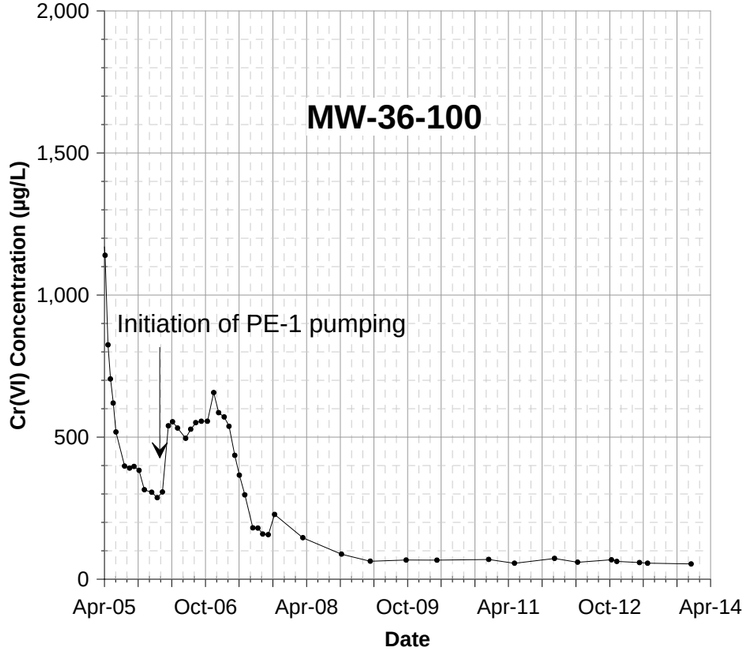
CH2MHILL

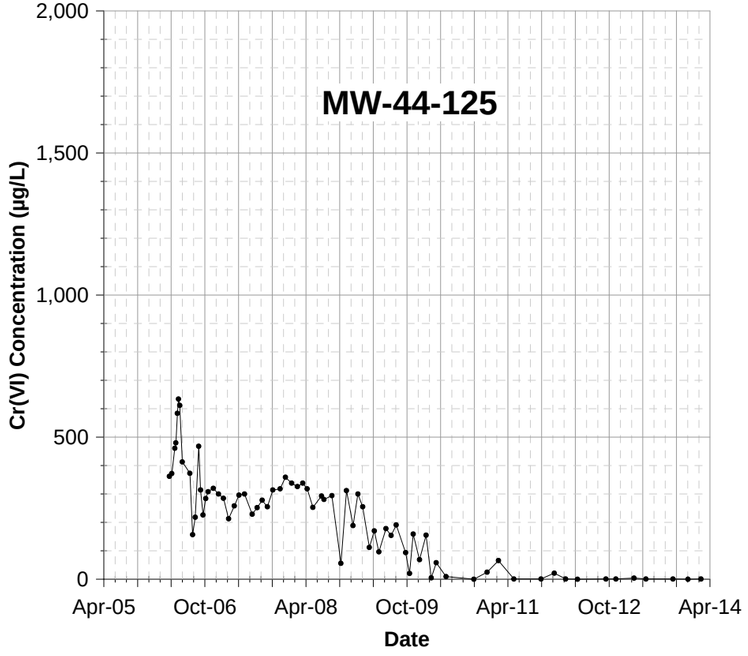
C:\USERS\E2USER\DOCUMENTS\TOPOCK\GINT\2014_1Q\FIGURE4-2_XSECB_CR.GDW;

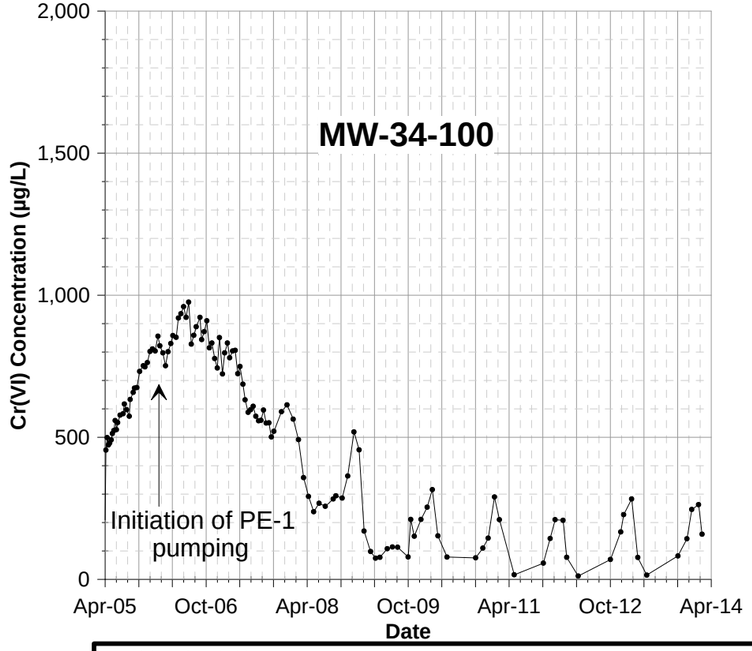












Notes:

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

FIGURE 4-3
Cr(VI) CONCENTRATION TRENDS IN SELECTED PERFORMANCE MONITORING WELLS, APRIL 2005 THROUGH MARCH 2014
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

\\zinfandel\Proj\PacificGasElectricCo\TopockProgram\Project_2011-2013_Combined_Monitoring\Reporting\GMP_PMP\2014_Q1\Draft_2014_Q1_GMP_PMP\Figures\Grapher_Files

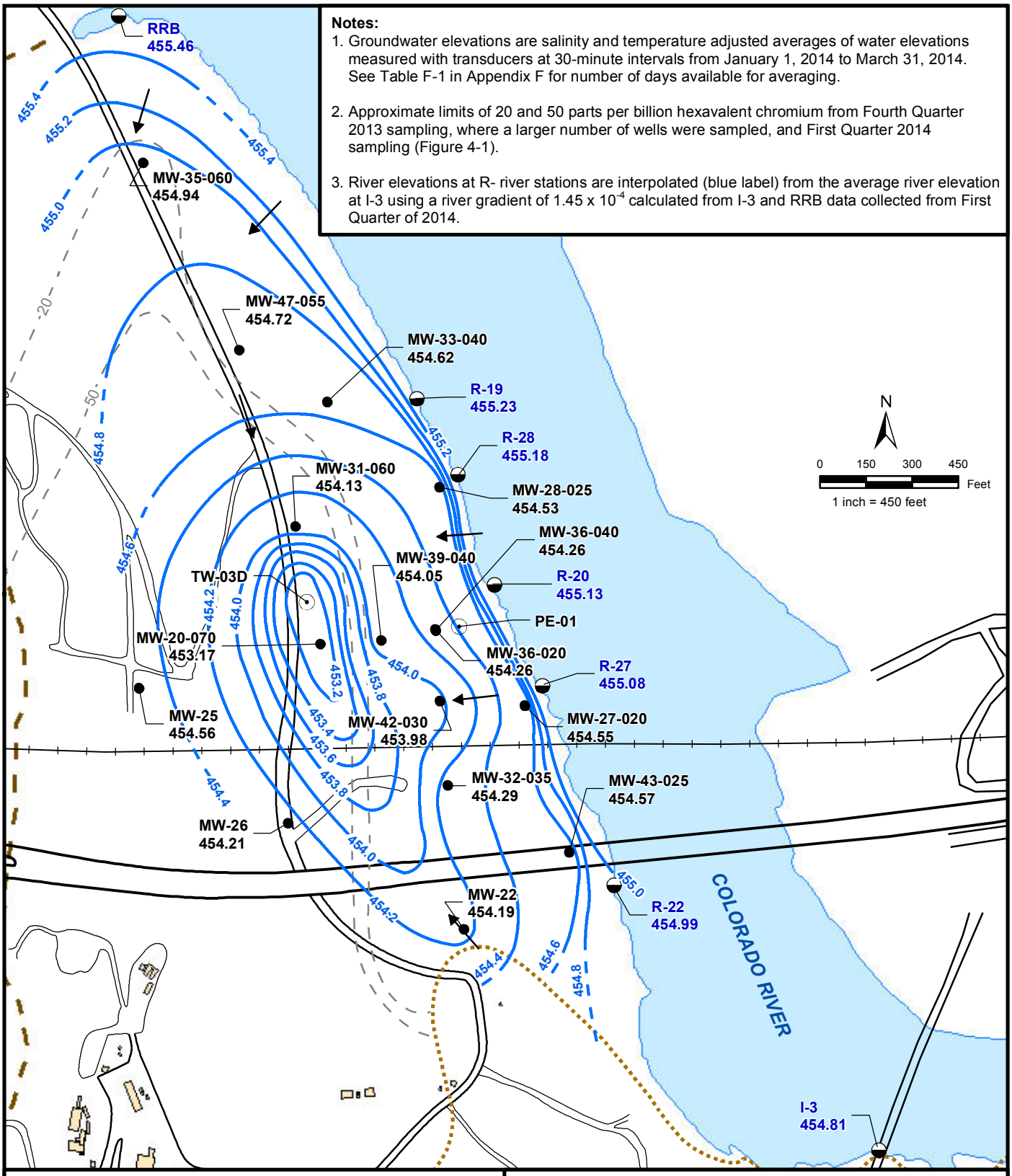


FIGURE 4-4a
AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS AND RIVER ELEVATIONS, FIRST QUARTER 2014

FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

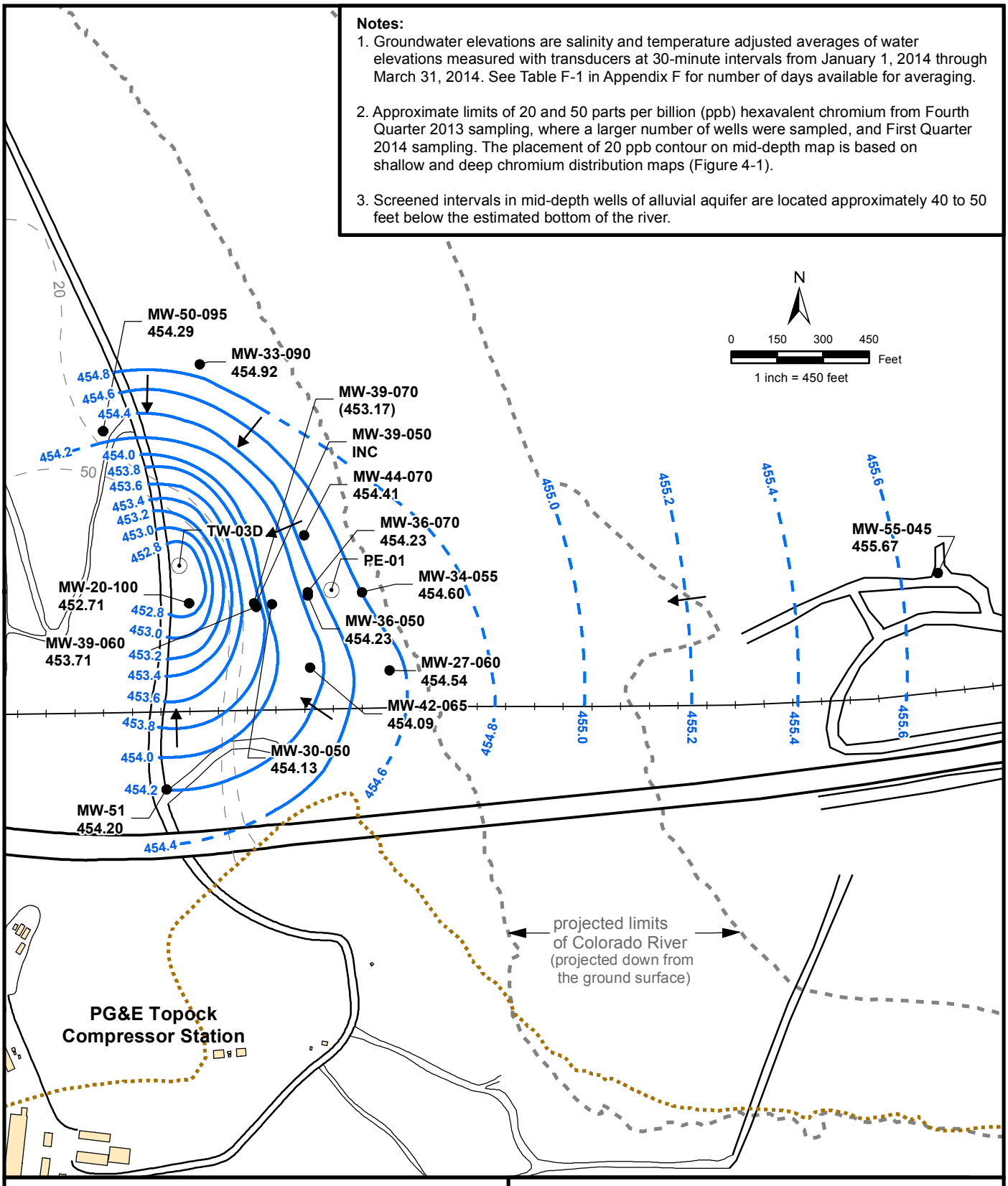


FIGURE 4-4b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS, FIRST QUARTER 2014

FIRST QUARTER 2014 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\2014Q1\FIGURE4-4B_PMR_GWE_2014Q1_MID.MXD ECLARK1 4/16/2014 8:46:52 AM

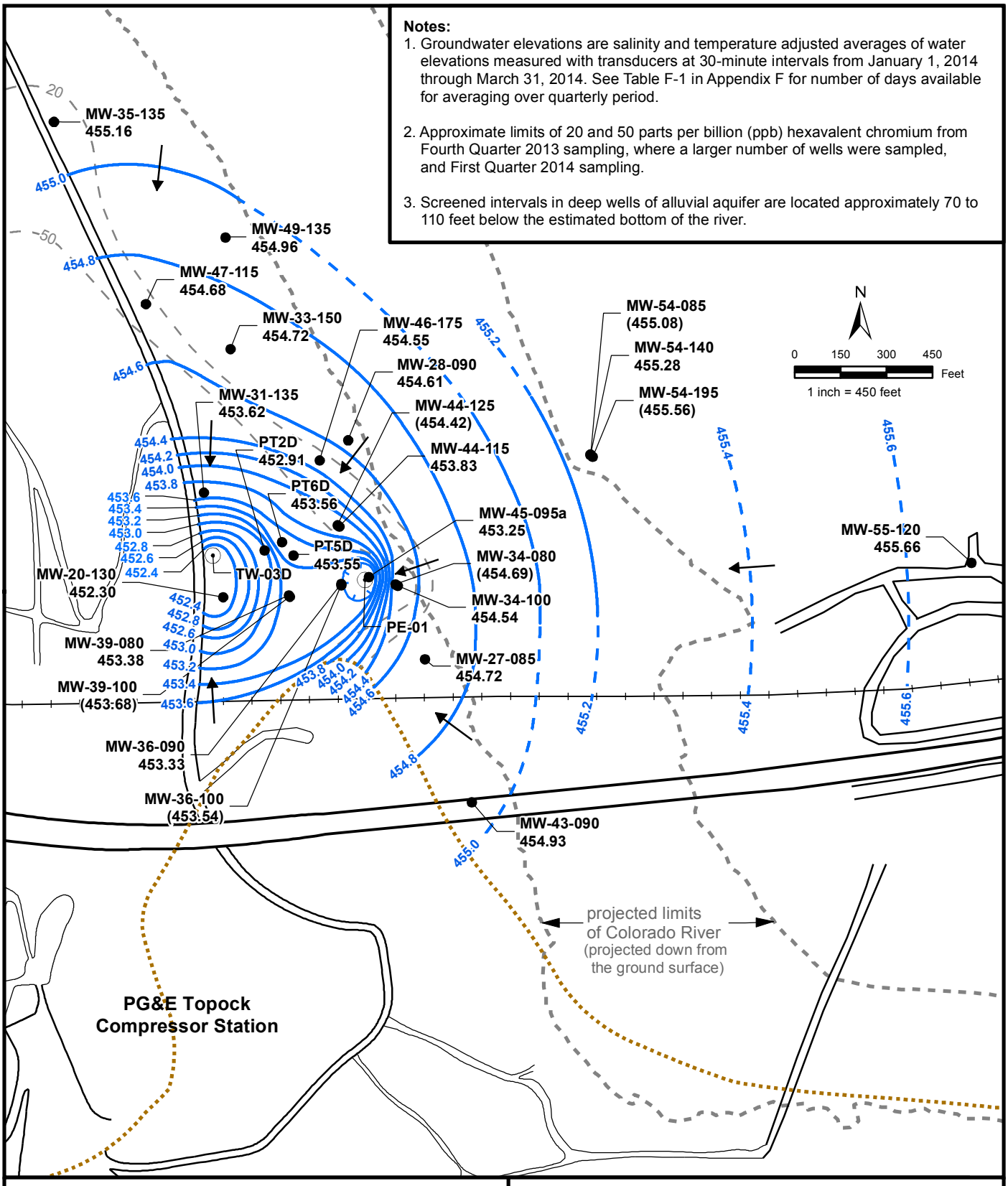
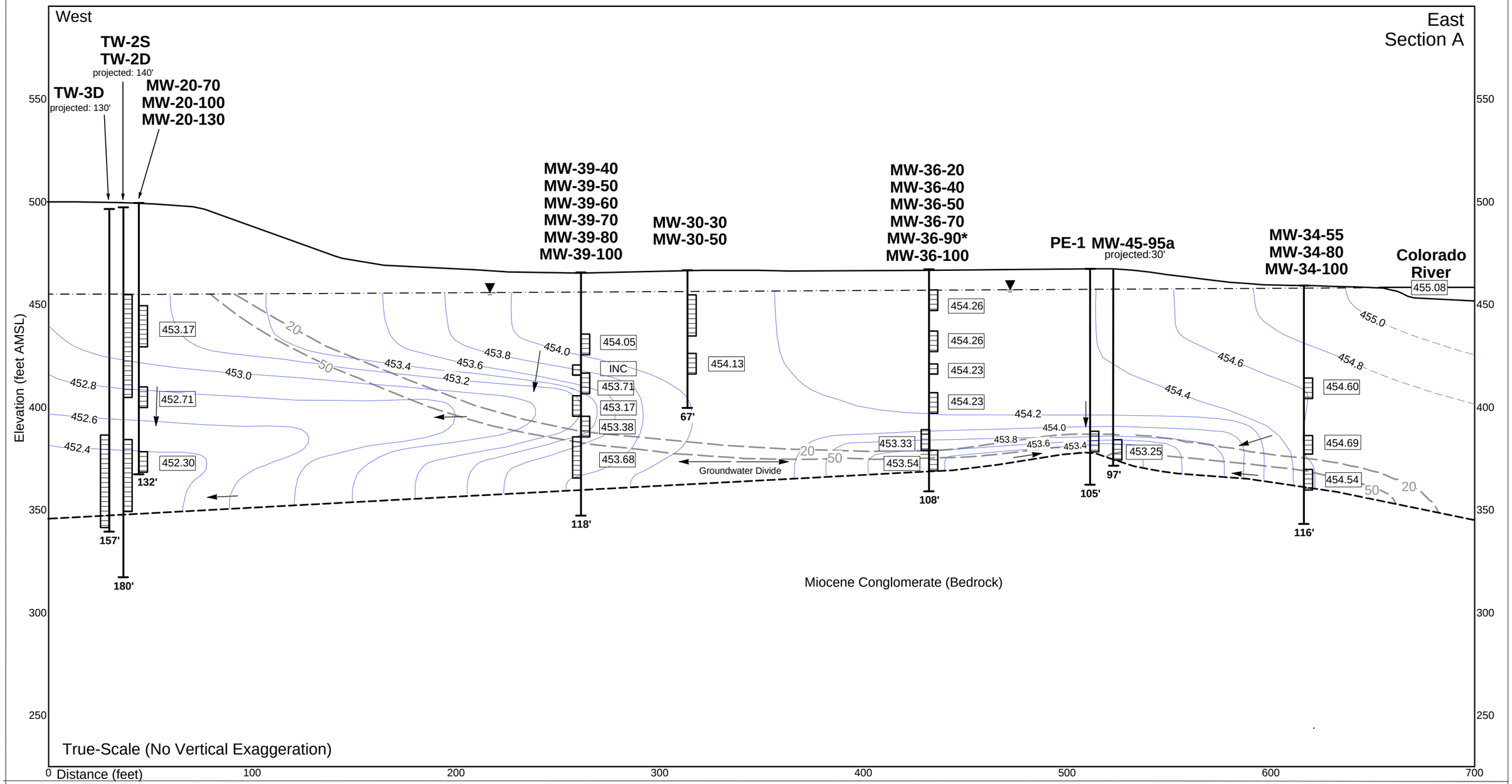


FIGURE 4-4c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, FIRST QUARTER 2014

FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:
1. Results show average groundwater elevations for January, 2014 through March 31, 2014 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.
INC = data incomplete for reporting period.

Legend:

MW-30-50
Inferred water table
well screen
455.23
103 boring depth (feet)

20
Inferred hexavalent chromium contour (ppb) in Alluvial Aquifer from Fourth Quarter 2013, where a larger number of wells were sampled, and First Quarter 2014.
Average groundwater head (ft AMSL)

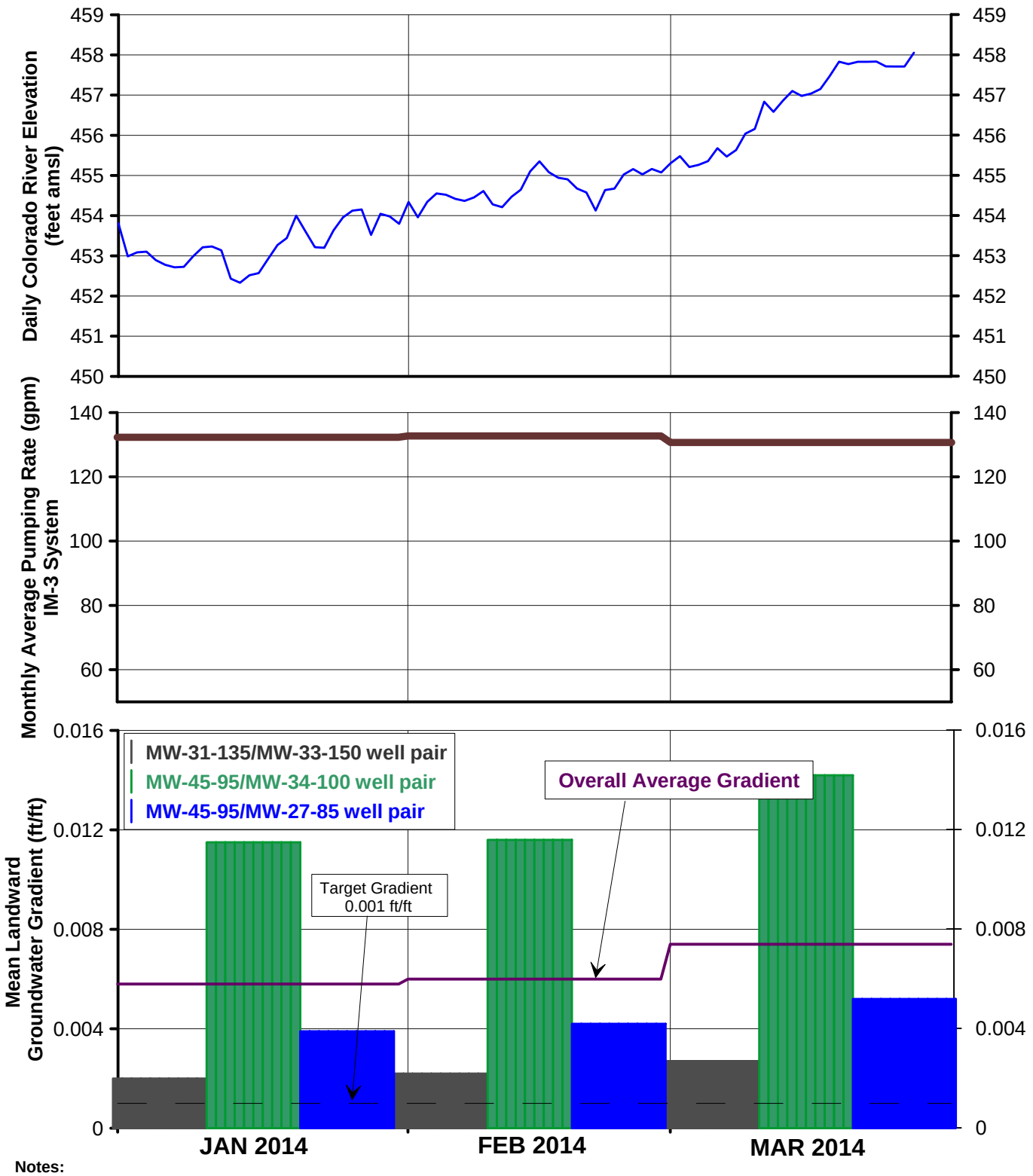
453.5
Groundwater head contour
453.5
Inferred groundwater head contour
Interpreted groundwater flow direction

FIGURE 4-5
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A, FIRST QUARTER 2014

FIRST QUARTER 2014 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\2014_1Q\FIGURE4-5_XSECA_GW - COPY.GDW;



Notes:

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

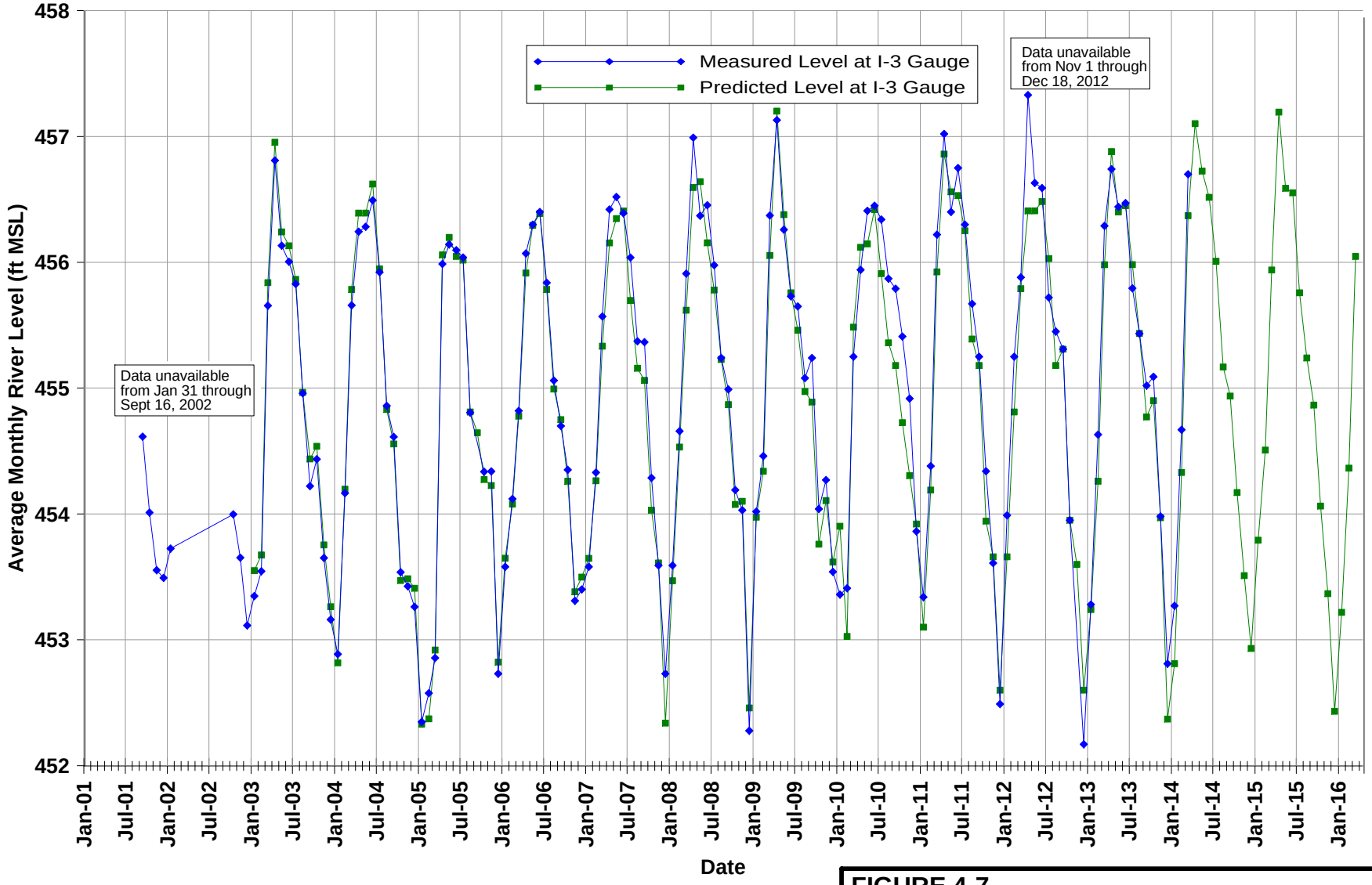
amsl = above mean sea level.
ft/ft = feet/foot.
gpm = gallons per minute.

FIGURE 4-6
MEASURED HYDRAULIC GRADIENTS, RIVER ELEVATIONS, AND PUMPING RATE, FIRST QUARTER 2014

FIRST QUARTER 2014 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

\\zinfandel\Proj\PacificGasElectricCo\TopockProgram\Project_2011-2013_Combined_Monitoring\Reporting\GMP_PMP\2014_Q1\Draft_2014_Q1_GMP_PMP\Figures\Grapher_Files



Note:
Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon April 2014 USBR projections. These data are reported monthly by the US Department of Interior, at http://www.usbr.gov/lc/region/g4000/24mo.pdf

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

FIRST QUARTER 2014 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Appendix A
Well Inspection and Maintenance Log, First Quarter 2014

Table A-1
Well Inspection Log, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring andSite-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	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-1M	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-2D	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-2M	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-3D	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-3M	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-4D	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-4M	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-01	03/25/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-03	03/25/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-04	03/25/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-05	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-06	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-07	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-08	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-09	03/25/14	Y	N	Y	N	Y	Y[a]	Y	N	Y	Y	N	Y	NA	One traffic pole is bent over.			
MW-10	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-11	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-12	03/20/14	Y	N	Y	N	Y	Y	a	N[a]	Y	Y	N	Y	NA	Pad buried deposition			
MW-13	03/20/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-14	03/20/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-15	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				

Date Printed: 4/8/2014

Table A-1
Well Inspection Log, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring andSite-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	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-17	03/20/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-18	03/20/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-19	03/20/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-20-070	03/27/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-20-100	03/27/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-20-130	03/27/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-21	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-22	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-23-060 MW-23-080	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-24 BR	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	N	NA				
MW-24A	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	N	NA				
MW-24B	03/25/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-25	03/27/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-26	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-020	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-060	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-085	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-28-025	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-28-090	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-29	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-30-030	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-30-050	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Table A-1
Well Inspection Log, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring andSite-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	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-31-135	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-32-020	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-32-035	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-150	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-210	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-40	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-90	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-34-055	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-34-080	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-34-100	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-35-135	03/26/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-35-60	03/26/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-36-020 MW-36-070	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-36-090 MW-36-040	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-36-050 MW-36-100	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-37D	03/25/14	Y	N	Y	N	Y	a	Y	N	Y	Y	N	Y	NA	Only 2			
MW-37S	03/25/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-38S	03/25/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-38D	03/25/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-39-040 MW-39-070	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-39-050 MW-39-080	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-39-060 MW-39-100	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Table A-1
Well Inspection Log, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring andSite-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	03/20/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-40S	03/20/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-41D	03/20/14	Y	N	Y	N	Y	NA	Y	Y[a]	Y	Y	N	Y	NA	Slight erosion under pad, 1"			
MW-41M	03/20/14	Y	N	Y	N	Y	NA	Y	Y[a]	Y	Y	N	Y	NA	Slight erosion under pad, 1"			
MW-41S	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-030	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-055	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-065	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-025	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-075	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-090	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-44-125 MW-44-070	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-44-115	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-45-095a MW-45-095b	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-46-175 MW-46-205	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-47-055 MW-47-115	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-48	03/20/14	Y	N	Y	N	Y	Y	Y	N[a]	Y	Y	N	Y	NA	Deposition on pad			
MW-49-135 MW-49-275 MW-49-365	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-50-095 MW-50-200	03/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-51	03/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-52	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-53	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Table A-1
Well Inspection Log, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring andSite-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	03/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-54-195	03/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-55-045 MW-55-120	03/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-56 D/S/M	03/27/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-57-050	03/24/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-57-070	03/24/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-57-185	03/24/14	Y	N	NA	N	Y	NA	Y	Y	Y	Y	N	Y	NA				
MW-58BR	03/24/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-58-065	03/24/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-60-125	03/24/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-60BR-245	03/24/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-61-110	03/24/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-59-100	03/24/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-62-110 MW-62-190	03/24/14	N [a]	N	NA	N	Y	NA	Y	N	Y	NA	N	Y	NA	Static WL not measured in flute wells			
MW-62-065	03/24/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-63-065	03/24/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-64-BR	03/24/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-65-160 MW-65-225	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-66-165 MW-66-230	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-66BR-270	03/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-67-185	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-67-225 MW-67-260	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-68BR	03/27/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Table A-1
Well Inspection Log, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring andSite-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	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-69-195	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-70BR-225	03/24/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-70-105	03/24/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-71-035	03/20/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-72-080	03/24/14	Y	N	NA	N	Y	NA	Y	N[a]	Y	Y	N	Y	NA	Deposition on pad			
MW-72-200	03/24/14	Y	N	NA	N	Y	NA	Y	N[a]	Y	Y	N	Y	NA	Deposition on pad			
MW-73-080	03/24/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	Y	Y	NA	Water removed from annulus			
MW-74-240	03/27/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MWP-08	03/25/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MWP-10	03/25/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-1D	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-1M	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-1S	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2D	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2M	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2S	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3D	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3M	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3S	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-5D	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-5M	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Table A-1
Well Inspection Log, First Quarter 2014
First Quarter 2014 Interim Measures Performance Monitoring andSite-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	03/20/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
P2	03/25/14	Y	N	Y	N	Y [a]	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.			
PG&E-8	03/24/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
PGE-7	03/25/14	N [a]	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	New surface completion, needs resurveyed			
PT-1 3 WELLS	03/26/14	Y	N	Y	N	Y	NA	Y	Y [a]	Y	Y	N	Y	NA	Very slight erosion under pad.			
PT-2 3 WELLS	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-3 3 WELLS	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-4 3 WELLS	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-5 3 WELLS	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-6 3 WELLS	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-7 S/D	03/25/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-7M	03/25/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-8 S/D	03/25/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-8M	03/25/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-9 S/D	03/25/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-9M	03/25/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PTI-1D	03/26/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PTI-1M	03/26/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PTI-1S	03/26/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
TW-01	03/25/14	N	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Table A-1

Well Inspection Log, First Quarter 2014

First Quarter 2014 Interim Measures Performance Monitoring andSite-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	03/26/14	N	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
TW-05	03/27/14	N	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Notes Key:

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

Appendix B
Lab Reports, First Quarter 2014
(Provided on CD-ROM only with hardcopy submittal)

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

February 9, 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 IM3PLANT-EW-214, GROUNDWATER MONITORING PROJECT, TLI NO.: 811623

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-214 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 January 7, 2014, 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.

f/

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.: 811623
Date: February 9, 2014
Collected: January 7, 2014
Received: January 7, 2014

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	Maria Mangarova
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.: 811623
Date Received: January 7, 2014

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
811623-001	PE-01-214	E120.1	NONE	1/7/2014	13:20	EC	3960	umhos/cm	2.00
811623-001	PE-01-214	E200.7	LABFLT	1/7/2014	13:20	Calcium	100000	ug/L	10000
811623-001	PE-01-214	E200.7	LABFLT	1/7/2014	13:20	Iron	ND	ug/L	20.0
811623-001	PE-01-214	E200.7	LABFLT	1/7/2014	13:20	Magnesium	21300	ug/L	20000
811623-001	PE-01-214	E200.7	LABFLT	1/7/2014	13:20	Sodium	866000	ug/L	50000
811623-001	PE-01-214	E200.8	LABFLT	1/7/2014	13:20	Chromium	5.6	ug/L	1.0
811623-001	PE-01-214	E200.8	LABFLT	1/7/2014	13:20	Manganese	51.0	ug/L	1.0
811623-001	PE-01-214	E218.6	LABFLT	1/7/2014	13:20	Chromium, Hexavalent	5.5	ug/L	0.20
811623-001	PE-01-214	E300	NONE	1/7/2014	13:20	Chloride	1120	mg/L	50.0
811623-001	PE-01-214	E300	NONE	1/7/2014	13:20	Nitrate as N	ND	mg/L	0.500
811623-001	PE-01-214	E300	NONE	1/7/2014	13:20	Sulfate	429	mg/L	12.5
811623-001	PE-01-214	SM2320B	NONE	1/7/2014	13:20	Alkalinity	221	mg/L	5.00
811623-001	PE-01-214	SM2320B	NONE	1/7/2014	13:20	Alkalinity, Bicarbonate (As CaCO3)	221	mg/L	5.00
811623-001	PE-01-214	SM2320B	NONE	1/7/2014	13:20	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811623-001	PE-01-214	SM2540C	NONE	1/7/2014	13:20	Total Dissolved Solids	2680	mg/L	125
811623-001	PE-01-214	SM4500HB	NONE	1/7/2014	13:20	PH	7.44 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
811623-002	TW-03D-214	E120.1	NONE	1/7/2014	13:20	EC	7290	umhos/cm	2.00
811623-002	TW-03D-214	E200.7	LABFLT	1/7/2014	13:20	Calcium	220000	ug/L	50000
811623-002	TW-03D-214	E200.7	LABFLT	1/7/2014	13:20	Iron	ND	ug/L	20.0
811623-002	TW-03D-214	E200.7	LABFLT	1/7/2014	13:20	Magnesium	32000	ug/L	10000
811623-002	TW-03D-214	E200.7	LABFLT	1/7/2014	13:20	Sodium	1540000	ug/L	250000
811623-002	TW-03D-214	E200.8	LABFLT	1/7/2014	13:20	Chromium	761	ug/L	2.0
811623-002	TW-03D-214	E200.8	LABFLT	1/7/2014	13:20	Manganese	6.9	ug/L	0.50
811623-002	TW-03D-214	E300	NONE	1/7/2014	13:20	Chloride	2660	mg/L	50.0
811623-002	TW-03D-214	E300	NONE	1/7/2014	13:20	Nitrate as N	3.84	mg/L	0.500
811623-002	TW-03D-214	E300	NONE	1/7/2014	13:20	Sulfate	560	mg/L	50.0
811623-002	TW-03D-214	SM2320B	NONE	1/7/2014	13:20	Alkalinity	137	mg/L	5.00
811623-002	TW-03D-214	SM2320B	NONE	1/7/2014	13:20	Alkalinity, Bicarbonate (As CaCO3)	137	mg/L	5.00
811623-002	TW-03D-214	SM2320B	NONE	1/7/2014	13:20	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
811623-002	TW-03D-214	SM2540C	NONE	1/7/2014	13:20	Total Dissolved Solids	5140	mg/L	250
811623-002	TW-03D-214	SM3500-CrB	LABFLT	1/7/2014	13:20	Chromium, Hexavalent	905	ug/L	250
811623-002	TW-03D-214	SM4500HB	NONE	1/7/2014	13:20	PH	7.41 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. 811623

Printed 2/9/2014

Samples Received on 1/7/2014 7:50:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-214	811623-001	01/07/2014 13:20	Water
TW-03D-214	811623-002	01/07/2014 13:20	Water

Anions By I.C. - EPA 300.0

Batch 01AN14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Nitrate as Nitrogen	mg/L	01/08/2014 12:06	5.00	0.0415	0.500	ND
811623-002 Nitrate as Nitrogen	mg/L	01/08/2014	5.00	0.0415	0.500	3.84
Sulfate	mg/L	01/08/2014	100	3.07	50.0	560

Method Blank

Parameter	Unit	DF	Result
Fluoride	mg/L	1.00	ND
Nitrate (as NO3)	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	554	560	1.01	0 - 20

Duplicate — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.41	2.40	0.457	0 - 20
Nitrate (as NO3)	mg/L	5.00	13.9	13.8	0.571	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.14	3.13	0.160	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
Fluoride	mg/L	1.00	4.21	4.00	105	90 - 110
Nitrate (as NO3)	mg/L	1.00	17.9	17.7	101	90 - 110
Sulfate	mg/L	1.00	20.5	20.0	102	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

Matrix Spike — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1700	1560(1000)	114	85 - 115

Matrix Spike — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.0	22.4(20.0)	103	85 - 115
Nitrate (as NO3)	mg/L	5.00	105	104(89.9)	102	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.7	23.1(20.0)	103	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.22	4.00	105	90 - 110
Nitrate (as NO3)	mg/L	1.00	18.0	17.7	102	90 - 110
Sulfate	mg/L	1.00	20.4	20.0	102	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.07	4.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.19	3.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.20	3.00	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate (as NO3)	mg/L	1.00	13.5	13.3	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate (as NO3)	mg/L	1.00	12.2	13.3	91.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate (as NO3)	mg/L	1.00	13.4	13.3	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.

Anions By I.C. - EPA 300.0

Batch 01AN14J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Sulfate	mg/L	01/11/2014 13:26	25.0	0.768	12.5	429

Method Blank

Parameter	Unit	DF	Result
Sulfate	mg/L	1.00	ND

Duplicate — Lab ID = 811665-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

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

Matrix Spike — Lab ID = 811665-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	1.00	2.03	2.00(2.00)	101	85 - 115

Matrix Spike Duplicate — Lab ID = 811665-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	1.00	2.00	2.00(2.00)	99.8	85 - 115

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.7	15.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.6	15.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.4	15.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.6	15.0	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.

Anions By I.C. - EPA 300.0

Batch 01AN14K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Chloride	mg/L	01/14/2014 10:54	500	17.4	50.0	1120
811623-002 Chloride	mg/L	01/14/2014 11:06	500	17.4	50.0	2660

Method Blank

Parameter	Unit	DF	Result
Chloride	mg/L	1.00	ND
Fluoride	mg/L	1.00	ND
Nitrate (as NO3)	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND

Duplicate

Lab ID = 811648-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate (as NO3)	mg/L	5.00	93.8	93.7	0.129	0 - 20

Duplicate

Lab ID = 811665-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	1.00	ND	0	0	0 - 20
Fluoride	mg/L	1.00	ND	0	0	0 - 20
Sulfate	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	4.05	4.00	101	90 - 110
Fluoride	mg/L	1.00	4.16	4.00	104	90 - 110
Nitrate (as NO3)	mg/L	1.00	17.7	17.7	99.8	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110

Matrix Spike

Lab ID = 811648-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate (as NO3)	mg/L	5.00	183	184(89.9)	99.4	85 - 110

Matrix Spike

Lab ID = 811665-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	1.00	1.95	2.00(2.00)	97.7	85 - 115
Fluoride	mg/L	1.00	2.11	2.00(2.00)	105	85 - 115
Sulfate	mg/L	1.00	1.88	2.00(2.00)	94.2	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.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	14.9	15.0	99.1	90 - 110

Alkalinity by SM 2320B Batch 01ALK14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Alkalinity as CaCO3	mg/L	01/17/2014	1.00	1.68	5.00	221
Bicarbonate (Calculated)	mg/L	01/17/2014	1.00	1.68	5.00	221
Carbonate (Calculated)	mg/L	01/17/2014	1.00	1.68	5.00	ND
811623-002 Alkalinity as CaCO3	mg/L	01/17/2014	1.00	1.68	5.00	137
Bicarbonate (Calculated)	mg/L	01/17/2014	1.00	1.68	5.00	137
Carbonate (Calculated)	mg/L	01/17/2014	1.00	1.68	5.00	ND

Method Blank

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

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	100	100	100	90 - 110

Matrix Spike Lab ID = 811753-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	224	234(100)	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.

Specific Conductivity - EPA 120.1

Batch 01EC14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Specific Conductivity	umhos/cm	01/09/2014	1.00	0.606	2.00	3960
811623-002 Specific Conductivity	umhos/cm	01/09/2014	1.00	0.606	2.00	7290

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811647-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	754	749	0.665	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	764	706	108	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	766	706	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	999	1000	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	997	1000	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.

Chrome VI by EPA 218.6

Batch 01CrH14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Chromium, Hexavalent	ug/L	01/08/2014 12:46	1.00	0.00600	0.20	5.5

Method Blank

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

Duplicate — Lab ID = 811623-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.49	5.49	0.0656	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	4.93	5.00	98.7	90 - 110

Matrix Spike — Lab ID = 811623-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.4	15.5(10.0)	99.1	90 - 110

Matrix Spike — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.66	6.69(5.00)	99.3	90 - 110

Matrix Spike — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.50	6.69(5.00)	96.3	90 - 110

Matrix Spike — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1350	1390(750)	94.6	90 - 110

Matrix Spike — Lab ID = 811626-003

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 = 811626-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.80	5.95(5.00)	97.0	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.

Chromium, Hexavalent by SM 3500-Cr B Batch 01CrH14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-002 Chromium, Hexavalent	ug/L	01/15/2014 11:38	25.0	110	250	905

Method Blank

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

Duplicate — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	934	905	3.18	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	56.3	60.0	93.8	90 - 110

Matrix Spike — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3500	3400(2500)	104	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	56.3	60.0	93.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	57.5	60.0	95.8	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 01PH14F

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811623-001 pH	pH	01/08/2014 11:17	1.00	0.0784	4.00	7.44	J
811623-002 pH	pH	01/08/2014 11:19	1.00	0.0784	4.00	7.41	J

Duplicate — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.46	7.41	0.672	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.06	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.08	7.00	101	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 01TDS14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Total Dissolved Solids	mg/L	01/07/2014	1.00	1.76	125	2680
811623-002 Total Dissolved Solids	mg/L	01/07/2014	1.00	1.76	250	5140

Method Blank

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

Duplicate — Lab ID = 811574-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	529	530	0.189	0 - 10

Duplicate — Lab ID = 811611-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	413	404	2.20	0 - 10

Lab Control Sample

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 011414A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Chromium	ug/L	01/14/2014 16:19	2.00	0.142	1.0	5.6
Manganese	ug/L	01/14/2014 16:19	2.00	0.120	1.0	51.0
811623-002 Chromium	ug/L	01/14/2014 17:19	10.0	0.710	2.0	761
Manganese	ug/L	01/14/2014 17:13	1.00	0.0600	0.50	6.9

Method Blank

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

Duplicate — Lab ID = 811623-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	5.44	5.57	2.29	0 - 20
Manganese	ug/L	2.00	51.9	51.0	1.74	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.199	0.200	99.5	70 - 130
Manganese	ug/L	1.00	0.510	0.500	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.6	50.0	93.2	85 - 115
Manganese	ug/L	1.00	48.8	50.0	97.6	85 - 115

Matrix Spike — Lab ID = 811623-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.6	55.6(50.0)	88.0	75 - 125
Manganese	ug/L	2.00	99.0	101(50.0)	95.9	75 - 125

Matrix Spike Duplicate — Lab ID = 811623-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.5	55.6(50.0)	89.9	75 - 125
Manganese	ug/L	2.00	100	101(50.0)	98.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.5	20.0	92.6	90 - 110
Manganese	ug/L	1.00	18.7	20.0	93.5	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 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	18.0	20.0	89.9	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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.3	20.0	96.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.8	20.0	99.0	80 - 120

Serial Dilution — Lab ID = 811623-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	5.00	53.4	54.8	2.55	0 - 10

Serial Dilution — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	741	761	2.70	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 012314A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Calcium	ug/L	01/23/2014 18:55	20.0	340	10000	100000
Sodium	ug/L	01/23/2014 18:49	100	5980	50000	866000
811623-002 Calcium	ug/L	01/23/2014 18:58	100	1700	50000	220000
Sodium	ug/L	01/23/2014 16:15	500	29900	250000	1540000

Method Blank

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

Duplicate — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	222000	220000	0.995	0 - 20
Sodium	ug/L	500	1590000	1540000	3.13	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	1870	2000	93.5	85 - 115
Sodium	ug/L	1.00	1810	2000	90.4	85 - 115

Matrix Spike — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	412000	420000(200000)	95.8	75 - 125
Sodium	ug/L	500	2710000	2540000(10000C	117	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4820	5000	96.5	95 - 105
Sodium	ug/L	1.00	4900	5000	98.0	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4830	5000	96.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4590	5000	91.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4790	5000	95.7	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 200.7, Dissolved Batch 013114A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811623-001 Iron	ug/L	01/31/2014 16:21	1.00	3.00	20.0	ND
Magnesium	ug/L	01/31/2014 19:31	20.0	9360	20000	21300
811623-002 Iron	ug/L	01/31/2014 15:54	1.00	3.00	20.0	ND
Magnesium	ug/L	01/31/2014 16:28	10.0	4680	10000	32000

Method Blank

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

Duplicate — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20
Magnesium	ug/L	10.0	32800	32000	2.62	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2190	2000	110	85 - 115
Magnesium	ug/L	1.00	1950	2000	97.6	85 - 115

Matrix Spike — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1890	2000(2000)	94.5	75 - 125
Magnesium	ug/L	10.0	50400	52000(20000)	92.0	75 - 125

Matrix Spike Duplicate — Lab ID = 811623-002

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4970	5000	99.4	95 - 105
Magnesium	ug/L	1.00	4780	5000	95.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5360	5000	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5210	5000	104	90 - 110

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

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: 01TDS14B
Date Analyzed: 1/7/2014

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	78.3690	78.3690	78.3690	0.0000	No	0.0000	0.0	25.0	ND	1
811574-7	100	77.2316	77.2848	77.2846	0.0002	No	0.0530	530.0	25.0	530.0	1
811577-1	100	77.4922	77.5344	77.5344	0.0000	No	0.0422	422.0	25.0	422.0	1
811577-2	100	70.3840	70.4265	70.4264	0.0001	No	0.0424	424.0	25.0	424.0	1
811596-1	100	76.0252	76.0674	76.0674	0.0000	No	0.0422	422.0	25.0	422.0	1
811596-2	100	66.6941	66.7373	66.7370	0.0003	No	0.0429	429.0	25.0	429.0	1
811611-2	100	78.7842	78.8004	78.8004	0.0000	No	0.0162	162.0	25.0	162.0	1
811611-4	100	75.7502	75.7906	75.7906	0.0000	No	0.0404	404.0	25.0	404.0	1
811551-1	100	79.7960	79.8423	79.8421	0.0002	No	0.0461	461.0	25.0	461.0	1
811551-2	100	75.6059	75.6536	75.6536	0.0000	No	0.0477	477.0	25.0	477.0	1
811551-3	100	69.1891	69.2380	69.2376	0.0004	No	0.0485	485.0	25.0	485.0	1
811574-7 Dup	100	72.4842	72.5371	72.5371	0.0000	No	0.0529	529.0	25.0	529.0	1
LCS	100	78.6042	78.6538	78.6537	0.0001	No	0.0495	495.0	25.0	495.0	1
811551-4	100	76.7865	76.8343	76.8341	0.0002	No	0.0476	476.0	25.0	476.0	1
811623-1	20	29.2555	29.3091	29.3092	-0.0001	No	0.0537	2685.0	125.0	2685.0	1
811623-2	10	29.4759	29.5277	29.5273	0.0004	No	0.0514	5140.0	250.0	5140.0	1
811626-1	20	30.3638	30.4536	30.4536	0.0000	No	0.0898	4490.0	125.0	4490.0	1
811626-2	20	30.4175	30.5078	30.5078	0.0000	No	0.0903	4515.0	125.0	4515.0	1
811626-3	5	29.3252	29.4285	29.4282	0.0003	No	0.1030	20600.0	500.0	20600.0	1
811636-14	100	74.3760	74.4345	74.4345	0.0000	No	0.0585	585.0	25.0	585.0	1
811611-4 Dup	100	77.4781	77.5194	77.5194	0.0000	No	0.0413	413.0	25.0	413.0	1

Calculation as follows:

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

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?
LCS	495.0	500	99.0%	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?
811574-7	0.0530	0.0529	0.1%	≤5%	Yes
811611-4	0.0404	0.0413	1.1%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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: 01TDS14B
Date Analyzed: 1/7/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
811574-7	819	0.65	532.35	1.00
811577-1	773	0.55	502.45	0.84
811577-2	728	0.58	473.2	0.90
811596-1	748	0.56	486.2	0.87
811596-2	718	0.60	466.7	0.92
811611-2	278	0.58	180.7	0.90
811611-4	670	0.60	435.5	0.93
811551-1	812	0.57	527.8	0.87
811551-2	806	0.59	523.9	0.91
811551-3	809	0.60	525.85	0.92
811574-7 Dup	819	0.65	532.35	0.99
LCS				
811551-4	819	0.58	532.35	0.89
811623-1	3960	0.68	2574	1.04
811623-2	7290	0.71	4738.5	1.08
811626-1	6750	0.67	4387.5	1.02
811626-2	6770	0.67	4400.5	1.03
811626-3	27200	0.76	17680	1.17
811636-14	822	0.71	534.3	1.09
811611-4 Dup	670	0.62	435.5	0.95

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B
Calculations

Analytical Batch:	01ALK14B
Matrix:	WATER
Date of Analysis:	1/17/14

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	4.94	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
811623-1	7.60	50	0.02	0.00	0.0	11.05		221.0	5	221.0	221.0	ND	ND	
811623-2	7.50	50	0.02	0.00	0.0	6.85		137.0	5	137.0	137.0	ND	ND	
811660-20	8.19	50	0.02	0.00	0.0	6.30		126.0	5	126.0	126.0	ND	ND	
811753-11	7.75	50	0.02	0.00	0.0	6.55		131.0	5	131.0	131.0	ND	ND	
811753-12	7.63	50	0.02	0.00	0.0	6.70		134.0	5	134.0	134.0	ND	ND	
811782-9	7.72	50	0.02	0.00	0.0	6.90		138.0	5	138.0	138.0	ND	ND	
811812-21	8.12	50	0.02	0.00	0.0	6.35		127.0	5	127.0	127.0	ND	ND	
QC	8.22	50	0.02	0.00	0.0	4.35		87.0	5	87.0	87.0	ND	ND	
PE	7.75	50	0.02	0.00	0.0	1.65		33.0	5	33.0	33.0	ND	ND	
PE DUP	7.72	50	0.02	0.00	0.0	1.65		33.0	5	33.0	33.0	ND	ND	
LCS	10.38	50	0.02	2.05	41.0	4.95		99.0	5	99.0	17.0	82	ND	
LCSD	10.40	50	0.02	2.1	41.0	5.00		100.0	5	100.0	18.0	82	ND	
811753-12 MS	9.26	50	0.02	0.0	0.0	11.20		224.0	5	224.0	224.0	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	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?
PE	33	33	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?
811753-12	134	1	100	100	224	234.00	90%	75-125	Yes			
				0								

Himani Vaishnav
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

0114B.xls

040

4 of 4

811623

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-214]

TURNAROUND TIME 10 Days
DATE 01/07/14 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 [signature]

Rec'd 1/07/14
~~S9e~~ 811623

	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-01-214	01/07/14	13:20	Ground water	X		X	X	X	X									4	PH=7
-2	TW-03D-214	01/07/14	13:20	Ground water	X	X	X	X		X									4	200.7
																			8	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	[signature]	Printed Name	Ron Phelps	Company/ Agency	CH2MHILL	Date/ Time	1-7-14 15:30
Signature (Received)	[signature]	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	1-7-14 1530
Signature (Relinquished)	[signature]	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	1-7-14 1950
Signature (Received)	[signature]	Printed Name	Marcheal Bra	Company/ Agency	TL	Date/ Time	1/7/14 1950
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time	
Signature (Received)		Printed Name		Company/ Agency		Date/ Time	

SAMPLE CONDITIONS
RECEIVED COOL ☒ WARM ☐ 5.7 °C
CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

077

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	HK
	811497-1	7.0	2mL/100mL	9.5	18:40	HK
	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					
12/30/13	811544	7.0	2mL/100mL	~~N/A~~ 9.5	20:00	HK
NE 8/14	811623-1	7.00	2ml/100ml	9.5	8:00	NE
	-2					
8/14	811624-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	811626-1	7.0	2ml/100ml	9.5	8:00	NE
	-2					

NE
1/10/14

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
811620	<1	<2	1/9/14	ES	yes			
811621	↓	↓	↓	↓	↓			
811634								
811643								
811647 (1-2)								
811649-4					↓			
811611 (1-2,4)		>2			NO	5:00	1/13/14 10:00	pH <2
811617		↓			↓	↓	↓	↓
811635 (10-12)								
811648 (1-7)								
811650 (1-4)								
811662 (1-3)	↓	↓	↓	↓	↓	↓	↓	
811598 (1-4)	<1	<2	1/10/14	ES	yes			
811623 (1-2)	↓	>2	↓	↓	↓	11:00		Filtered then acidified
811624 (1-7)		<2						
811651 (1-4)		↓						
811652 (1-2)	↓	↓	↓	↓	↓			
811653 (1-15)	<1	<2	1/10/14	ES	yes			
811654 (1-15)	<1	<2	1/14/14	ES	yes			
811626 (1-3)	<1	>2	1/15/14	ES	yes	10:30		pH <2
811582 (1-3)	↓	<2	↓	↓	↓			
811628 (1-3)		↓						
811655 (1-7)	↓	↓	↓	↓	↓			
811731	<1	<2	1/15/14	ES	yes			
811728	↓	↓	↓	↓	↓			
811707								
811708								
811709								
811710								
811729								
811735								
811736		↓			↓			
811707-6		>2			No	1:00		
811711 (1-2,4)		↓			↓	↓		
811739	↓	↓	↓	↓	↓	↓		
811788 (1-3,6-13)	<1	<2	1/10/14	KK	yes	—	—	dissolved bottles
811788 (1-3,6-13)	<1	<2	1/10/14	KK	yes	-	-	total bottles
811747 (1-3,6-14)	<1	<2	1/10/14	KK	yes	—	-	total bottles
811747 (1-3,6-14,16)	<1	<2	1/10/14	KK	yes	-	-	dissolved
811688 (1-6)	<1	<2	1/16/14	KK	yes			
811750-1	<1	<2	1/16/14	KK	yes			
811748	<1	>2	1/17/14	KK	yes			total
811799 (1-3)	<1	<2	1/17/14	KK	yes			total
811751 (1-8)	<1	<2	1/17/14	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.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E2 ***Lab #*** 811623

Date Delivered: 01/07/14 ***Time:*** 19:50 ***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?* *Temperature (if yes)?* 5.7 °C	☒*Yes*	☐*No*	☐*N/A*
7.	*Were samples received intact* *(i.e. broken bottles, leaks, air bubbles, etc..)?*	☒*Yes*	☐*No*	☐*N/A*
8.	*Were sample custody seals intact?*	☐*Yes*	☐*No*	☒*N/A*
9.	*Does the number of samples received agree with COC?*	☒*Yes*	☐*No*	☐*N/A*
10.	*Did sample labels correspond with the client ID's?*	☒*Yes*	☐*No*	☐*N/A*
11.	*Did sample labels indicate proper preservation?* *Preserved (if yes) by:* ☐***Truesdail*** ☐*Client*	☐*Yes*	☐*No*	☒*N/A*
12.	*Were samples pH checked? pH =* see c.o.c	☒*Yes*	☐*No*	☐*N/A*
13.	*Were all analyses within holding time at time of receipt?* *If not, notify Project Manager.*	☒*Yes*	☐*No*	☐*N/A*
14.	*Have Project due dates been checked and accepted?* *Turn Around Time (TAT):* ☐ ***RUSH*** ☒ *Std*	☒*Yes*	☐*No*	☐*N/A*

15. ***Sample Matrix:*** ☐*Liquid* ☐*Drinking Water* ☒*Ground Water* ☐*Waste Water*
☐*Sludge* ☐*Soil* ☐*Wipe* ☐*Paint* ☐*Solid* ☐*Other*_____

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

February 9, 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 2014-RMP-194, SURFACEWATER MONITORING PROJECT, TLI NO.: 811747

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-RMP-194 surfacewater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on January 14, 2014, 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 2014-RMP-194 Cr by SW 6020, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
C-BNS-D-194	2.00	No			
C-I-3-D-194	2.00	No			
C-I-3-S-194	2.00	No			
C-R22A-D-194	2.00	No			
C-R22A-S-194	2.00	No			
C-R27-D-194	2.00	No			
C-R27-S-194	2.00	No			
C-TAZ-D-194	2.00	No			
C-TAZ-S-194	2.00	No			
R-19-194	2.00	No			
R-28-194	2.00	No			
R63-194	2.00	No			
SW1-194	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 2014-RMP-194 Cr (VI) by EPA 218.6, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-BNS-D-194	9.50	No			
C-I-3-D-194	9.50	No			
C-I-3-S-194	9.50	No			
C-MW-80-194	9.50	No			
C-MW-81-194	9.50	No			
C-R22A-D-194	9.50	No			
C-R22A-S-194	9.50	No			
C-R27-D-194	9.50	No			
C-R27-S-194	9.50	No			
C-TAZ-D-194	9.50	No			
C-TAZ-S-194	9.50	No			
R-19-194	9.50	No			
R-28-194	9.50	No			
R63-194	9.50	No			
RMP-AB1-194	9.50	No			
SW1-194	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.: 811747
Date Received: January 14, 2014

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
811747-001	C-BNS-D-194	E120.1	NONE	1/14/2014	12:18	EC	832	umhos/cm	2.00
811747-001	C-BNS-D-194	E218.6	FLDFLT	1/14/2014	12:18	Chromium, Hexavalent	ND	ug/L	0.20
811747-001	C-BNS-D-194	SM2540D	NONE	1/14/2014	12:18	Suspended Solids (Residue, Non-Filterable)	4.3	mg/L	4.00
811747-001	C-BNS-D-194	SM4500HB	NONE	1/14/2014	12:18	PH	8.29 J	pH	4.00
811747-001	C-BNS-D-194	SW6010B	NONE	1/14/2014	12:18	Iron	190	ug/L	20.0
811747-001	C-BNS-D-194	SW6010B	FLDFLT	1/14/2014	12:18	Iron	ND	ug/L	20.0
811747-001	C-BNS-D-194	SW6020	FLDFLT	1/14/2014	12:18	Arsenic	3.0	ug/L	0.50
811747-001	C-BNS-D-194	SW6020	FLDFLT	1/14/2014	12:18	Barium	104	ug/L	5.0
811747-001	C-BNS-D-194	SW6020	FLDFLT	1/14/2014	12:18	Chromium	ND	ug/L	1.0
811747-001	C-BNS-D-194	SW6020	FLDFLT	1/14/2014	12:18	Manganese	1.6	ug/L	0.50
811747-001	C-BNS-D-194	SW6020	FLDFLT	1/14/2014	12:18	Molybdenum	4.2	ug/L	2.0
811747-001	C-BNS-D-194	SW6020	FLDFLT	1/14/2014	12:18	Selenium	ND	ug/L	5.0
811747-002	C-I-3-D-194	E120.1	NONE	1/14/2014	10:37	EC	843	umhos/cm	2.00
811747-002	C-I-3-D-194	E218.6	FLDFLT	1/14/2014	10:37	Chromium, Hexavalent	ND	ug/L	0.20
811747-002	C-I-3-D-194	SM2540D	NONE	1/14/2014	10:37	Suspended Solids (Residue, Non-Filterable)	8.10	mg/L	4.00
811747-002	C-I-3-D-194	SM4500HB	NONE	1/14/2014	10:37	PH	8.32 J	pH	4.00
811747-002	C-I-3-D-194	SW6010B	NONE	1/14/2014	10:37	Iron	144	ug/L	20.0
811747-002	C-I-3-D-194	SW6010B	FLDFLT	1/14/2014	10:37	Iron	26.3	ug/L	20.0
811747-002	C-I-3-D-194	SW6020	FLDFLT	1/14/2014	10:37	Arsenic	3.0	ug/L	0.50
811747-002	C-I-3-D-194	SW6020	FLDFLT	1/14/2014	10:37	Barium	98.3	ug/L	5.0
811747-002	C-I-3-D-194	SW6020	FLDFLT	1/14/2014	10:37	Chromium	ND	ug/L	1.0
811747-002	C-I-3-D-194	SW6020	FLDFLT	1/14/2014	10:37	Manganese	1.8	ug/L	0.50
811747-002	C-I-3-D-194	SW6020	FLDFLT	1/14/2014	10:37	Molybdenum	4.0	ug/L	2.0
811747-002	C-I-3-D-194	SW6020	FLDFLT	1/14/2014	10:37	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
811747-003	C-I-3-S-194	E120.1	NONE	1/14/2014	10:52	EC	845	umhos/cm	2.00
811747-003	C-I-3-S-194	E218.6	FLDFLT	1/14/2014	10:52	Chromium, Hexavalent	ND	ug/L	0.20
811747-003	C-I-3-S-194	SM2540D	NONE	1/14/2014	10:52	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811747-003	C-I-3-S-194	SM4500HB	NONE	1/14/2014	10:52	PH	8.33 J	pH	4.00
811747-003	C-I-3-S-194	SW6010B	NONE	1/14/2014	10:52	Iron	148	ug/L	20.0
811747-003	C-I-3-S-194	SW6010B	FLDFLT	1/14/2014	10:52	Iron	35.2	ug/L	20.0
811747-003	C-I-3-S-194	SW6020	FLDFLT	1/14/2014	10:52	Arsenic	2.9	ug/L	0.50
811747-003	C-I-3-S-194	SW6020	FLDFLT	1/14/2014	10:52	Barium	101	ug/L	5.0
811747-003	C-I-3-S-194	SW6020	FLDFLT	1/14/2014	10:52	Chromium	ND	ug/L	1.0
811747-003	C-I-3-S-194	SW6020	FLDFLT	1/14/2014	10:52	Manganese	1.5	ug/L	0.50
811747-003	C-I-3-S-194	SW6020	FLDFLT	1/14/2014	10:52	Molybdenum	4.0	ug/L	2.0
811747-003	C-I-3-S-194	SW6020	FLDFLT	1/14/2014	10:52	Selenium	ND	ug/L	5.0
811747-004	C-MW-80-194	E218.6	NONE	1/14/2014	11:06	Chromium, Hexavalent	ND	ug/L	0.20
811747-005	C-MW-81-194	E218.6	NONE	1/14/2014	12:40	Chromium, Hexavalent	ND	ug/L	0.20
811747-006	C-R22A-D-194	E120.1	NONE	1/14/2014	11:40	EC	872	umhos/cm	2.00
811747-006	C-R22A-D-194	E218.6	FLDFLT	1/14/2014	11:40	Chromium, Hexavalent	ND	ug/L	0.20
811747-006	C-R22A-D-194	SM2540D	NONE	1/14/2014	11:40	Suspended Solids (Residue, Non-Filterable)	9.40	mg/L	4.00
811747-006	C-R22A-D-194	SM4500HB	NONE	1/14/2014	11:40	PH	8.30 J	pH	4.00
811747-006	C-R22A-D-194	SW6010B	NONE	1/14/2014	11:40	Iron	215	ug/L	20.0
811747-006	C-R22A-D-194	SW6010B	FLDFLT	1/14/2014	11:40	Iron	32.0	ug/L	20.0
811747-006	C-R22A-D-194	SW6020	FLDFLT	1/14/2014	11:40	Arsenic	2.9	ug/L	0.50
811747-006	C-R22A-D-194	SW6020	FLDFLT	1/14/2014	11:40	Barium	100	ug/L	5.0
811747-006	C-R22A-D-194	SW6020	FLDFLT	1/14/2014	11:40	Chromium	ND	ug/L	1.0
811747-006	C-R22A-D-194	SW6020	FLDFLT	1/14/2014	11:40	Manganese	3.3	ug/L	0.50
811747-006	C-R22A-D-194	SW6020	FLDFLT	1/14/2014	11:40	Molybdenum	3.9	ug/L	2.0
811747-006	C-R22A-D-194	SW6020	FLDFLT	1/14/2014	11:40	Selenium	ND	ug/L	5.0
811747-007	C-R22A-S-194	E120.1	NONE	1/14/2014	11:52	EC	873	umhos/cm	2.00
811747-007	C-R22A-S-194	E218.6	FLDFLT	1/14/2014	11:52	Chromium, Hexavalent	ND	ug/L	0.20
811747-007	C-R22A-S-194	SM2540D	NONE	1/14/2014	11:52	Suspended Solids (Residue, Non-Filterable)	9.6	mg/L	4.00
811747-007	C-R22A-S-194	SM4500HB	NONE	1/14/2014	11:52	PH	8.32 J	pH	4.00
811747-007	C-R22A-S-194	SW6010B	NONE	1/14/2014	11:52	Iron	276	ug/L	20.0
811747-007	C-R22A-S-194	SW6010B	FLDFLT	1/14/2014	11:52	Iron	23.8	ug/L	20.0
811747-007	C-R22A-S-194	SW6020	FLDFLT	1/14/2014	11:52	Arsenic	2.9	ug/L	0.50
811747-007	C-R22A-S-194	SW6020	FLDFLT	1/14/2014	11:52	Barium	99.0	ug/L	5.0
811747-007	C-R22A-S-194	SW6020	FLDFLT	1/14/2014	11:52	Chromium	ND	ug/L	1.0
811747-007	C-R22A-S-194	SW6020	FLDFLT	1/14/2014	11:52	Manganese	3.3	ug/L	0.50
811747-007	C-R22A-S-194	SW6020	FLDFLT	1/14/2014	11:52	Molybdenum	4.0	ug/L	2.0
811747-007	C-R22A-S-194	SW6020	FLDFLT	1/14/2014	11:52	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
811747-008	C-R27-D-194	E120.1	NONE	1/14/2014	12:52	EC	876	umhos/cm	2.00
811747-008	C-R27-D-194	E218.6	FLDFLT	1/14/2014	12:52	Chromium, Hexavalent	ND	ug/L	0.20
811747-008	C-R27-D-194	SM2540D	NONE	1/14/2014	12:52	Suspended Solids (Residue, Non-Filterable)	5.30	mg/L	4.00
811747-008	C-R27-D-194	SM4500HB	NONE	1/14/2014	12:52	PH	8.32 J	pH	4.00
811747-008	C-R27-D-194	SW6010B	NONE	1/14/2014	12:52	Iron	169	ug/L	20.0
811747-008	C-R27-D-194	SW6010B	FLDFLT	1/14/2014	12:52	Iron	40.2	ug/L	20.0
811747-008	C-R27-D-194	SW6020	FLDFLT	1/14/2014	12:52	Arsenic	2.9	ug/L	0.50
811747-008	C-R27-D-194	SW6020	FLDFLT	1/14/2014	12:52	Barium	97.3	ug/L	5.0
811747-008	C-R27-D-194	SW6020	FLDFLT	1/14/2014	12:52	Chromium	ND	ug/L	1.0
811747-008	C-R27-D-194	SW6020	FLDFLT	1/14/2014	12:52	Manganese	2.0	ug/L	0.50
811747-008	C-R27-D-194	SW6020	FLDFLT	1/14/2014	12:52	Molybdenum	3.9	ug/L	2.0
811747-008	C-R27-D-194	SW6020	FLDFLT	1/14/2014	12:52	Selenium	ND	ug/L	5.0
811747-009	C-R27-S-194	E120.1	NONE	1/14/2014	13:06	EC	878	umhos/cm	2.00
811747-009	C-R27-S-194	E218.6	FLDFLT	1/14/2014	13:06	Chromium, Hexavalent	ND	ug/L	0.20
811747-009	C-R27-S-194	SM2540D	NONE	1/14/2014	13:06	Suspended Solids (Residue, Non-Filterable)	4.6	mg/L	4.00
811747-009	C-R27-S-194	SM4500HB	NONE	1/14/2014	13:06	PH	8.31 J	pH	4.00
811747-009	C-R27-S-194	SW6010B	NONE	1/14/2014	13:06	Iron	178	ug/L	20.0
811747-009	C-R27-S-194	SW6010B	FLDFLT	1/14/2014	13:06	Iron	21.2	ug/L	20.0
811747-009	C-R27-S-194	SW6020	FLDFLT	1/14/2014	13:06	Arsenic	3.0	ug/L	0.50
811747-009	C-R27-S-194	SW6020	FLDFLT	1/14/2014	13:06	Barium	99.8	ug/L	5.0
811747-009	C-R27-S-194	SW6020	FLDFLT	1/14/2014	13:06	Chromium	ND	ug/L	1.0
811747-009	C-R27-S-194	SW6020	FLDFLT	1/14/2014	13:06	Manganese	2.8	ug/L	0.50
811747-009	C-R27-S-194	SW6020	FLDFLT	1/14/2014	13:06	Molybdenum	4.0	ug/L	2.0
811747-009	C-R27-S-194	SW6020	FLDFLT	1/14/2014	13:06	Selenium	ND	ug/L	5.0
811747-010	C-TAZ-D-194	E120.1	NONE	1/14/2014	9:56	EC	878	umhos/cm	2.00
811747-010	C-TAZ-D-194	E218.6	FLDFLT	1/14/2014	9:56	Chromium, Hexavalent	ND	ug/L	0.20
811747-010	C-TAZ-D-194	SM2540D	NONE	1/14/2014	9:56	Suspended Solids (Residue, Non-Filterable)	5.60	mg/L	4.00
811747-010	C-TAZ-D-194	SM4500HB	NONE	1/14/2014	9:56	PH	8.31 J	pH	4.00
811747-010	C-TAZ-D-194	SW6010B	NONE	1/14/2014	9:56	Iron	98.8	ug/L	20.0
811747-010	C-TAZ-D-194	SW6010B	FLDFLT	1/14/2014	9:56	Iron	22.8	ug/L	20.0
811747-010	C-TAZ-D-194	SW6020	FLDFLT	1/14/2014	9:56	Arsenic	2.9	ug/L	0.50
811747-010	C-TAZ-D-194	SW6020	FLDFLT	1/14/2014	9:56	Barium	99.5	ug/L	5.0
811747-010	C-TAZ-D-194	SW6020	FLDFLT	1/14/2014	9:56	Chromium	ND	ug/L	1.0
811747-010	C-TAZ-D-194	SW6020	FLDFLT	1/14/2014	9:56	Manganese	2.2	ug/L	0.50
811747-010	C-TAZ-D-194	SW6020	FLDFLT	1/14/2014	9:56	Molybdenum	4.0	ug/L	2.0
811747-010	C-TAZ-D-194	SW6020	FLDFLT	1/14/2014	9:56	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
811747-011	C-TAZ-S-194	E120.1	NONE	1/14/2014	10:10	EC	877	umhos/cm	2.00
811747-011	C-TAZ-S-194	E218.6	FLDFLT	1/14/2014	10:10	Chromium, Hexavalent	ND	ug/L	0.20
811747-011	C-TAZ-S-194	SM2540D	NONE	1/14/2014	10:10	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811747-011	C-TAZ-S-194	SM4500HB	NONE	1/14/2014	10:10	PH	8.33 J	pH	4.00
811747-011	C-TAZ-S-194	SW6010B	NONE	1/14/2014	10:10	Iron	70.7	ug/L	20.0
811747-011	C-TAZ-S-194	SW6010B	FLDFLT	1/14/2014	10:10	Iron	ND	ug/L	20.0
811747-011	C-TAZ-S-194	SW6020	FLDFLT	1/14/2014	10:10	Arsenic	2.9	ug/L	0.50
811747-011	C-TAZ-S-194	SW6020	FLDFLT	1/14/2014	10:10	Barium	99.6	ug/L	5.0
811747-011	C-TAZ-S-194	SW6020	FLDFLT	1/14/2014	10:10	Chromium	ND	ug/L	1.0
811747-011	C-TAZ-S-194	SW6020	FLDFLT	1/14/2014	10:10	Manganese	2.0	ug/L	0.50
811747-011	C-TAZ-S-194	SW6020	FLDFLT	1/14/2014	10:10	Molybdenum	4.0	ug/L	2.0
811747-011	C-TAZ-S-194	SW6020	FLDFLT	1/14/2014	10:10	Selenium	ND	ug/L	5.0
811747-012	R-19-194	E120.1	NONE	1/14/2014	13:40	EC	856	umhos/cm	2.00
811747-012	R-19-194	E218.6	FLDFLT	1/14/2014	13:40	Chromium, Hexavalent	ND	ug/L	0.20
811747-012	R-19-194	SM2540D	NONE	1/14/2014	13:40	Suspended Solids (Residue, Non-Filterable)	75.6	mg/L	4.00
811747-012	R-19-194	SM4500HB	NONE	1/14/2014	13:40	PH	8.28 J	pH	4.00
811747-012	R-19-194	SW6010B	NONE	1/14/2014	13:40	Iron	1720	ug/L	20.0
811747-012	R-19-194	SW6010B	FLDFLT	1/14/2014	13:40	Iron	ND	ug/L	20.0
811747-012	R-19-194	SW6020	FLDFLT	1/14/2014	13:40	Arsenic	2.9	ug/L	0.50
811747-012	R-19-194	SW6020	FLDFLT	1/14/2014	13:40	Barium	102	ug/L	5.0
811747-012	R-19-194	SW6020	FLDFLT	1/14/2014	13:40	Chromium	ND	ug/L	1.0
811747-012	R-19-194	SW6020	FLDFLT	1/14/2014	13:40	Manganese	9.2	ug/L	0.50
811747-012	R-19-194	SW6020	FLDFLT	1/14/2014	13:40	Molybdenum	4.0	ug/L	2.0
811747-012	R-19-194	SW6020	FLDFLT	1/14/2014	13:40	Selenium	ND	ug/L	5.0
811747-013	R-28-194	E120.1	NONE	1/14/2014	13:24	EC	863	umhos/cm	2.00
811747-013	R-28-194	E218.6	FLDFLT	1/14/2014	13:24	Chromium, Hexavalent	ND	ug/L	0.20
811747-013	R-28-194	SM2540D	NONE	1/14/2014	13:24	Suspended Solids (Residue, Non-Filterable)	79.1	mg/L	4.00
811747-013	R-28-194	SM4500HB	NONE	1/14/2014	13:24	PH	8.29 J	pH	4.00
811747-013	R-28-194	SW6010B	NONE	1/14/2014	13:24	Iron	1410	ug/L	20.0
811747-013	R-28-194	SW6010B	FLDFLT	1/14/2014	13:24	Iron	45.9	ug/L	20.0
811747-013	R-28-194	SW6020	FLDFLT	1/14/2014	13:24	Arsenic	2.9	ug/L	0.50
811747-013	R-28-194	SW6020	FLDFLT	1/14/2014	13:24	Barium	102	ug/L	5.0
811747-013	R-28-194	SW6020	FLDFLT	1/14/2014	13:24	Chromium	ND	ug/L	1.0
811747-013	R-28-194	SW6020	FLDFLT	1/14/2014	13:24	Manganese	7.9	ug/L	0.50
811747-013	R-28-194	SW6020	FLDFLT	1/14/2014	13:24	Molybdenum	4.0	ug/L	2.0
811747-013	R-28-194	SW6020	FLDFLT	1/14/2014	13:24	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
811747-014	R63-194	E120.1	NONE	1/14/2014	11:15	EC	893	umhos/cm	2.00
811747-014	R63-194	E218.6	FLDFLT	1/14/2014	11:15	Chromium, Hexavalent	ND	ug/L	0.20
811747-014	R63-194	SM2540D	NONE	1/14/2014	11:15	Suspended Solids (Residue, Non-Filterable)	7.9	mg/L	4.00
811747-014	R63-194	SM4500HB	NONE	1/14/2014	11:15	PH	8.26 J	pH	4.00
811747-014	R63-194	SW6010B	NONE	1/14/2014	11:15	Iron	251	ug/L	20.0
811747-014	R63-194	SW6010B	FLDFLT	1/14/2014	11:15	Iron	27.1	ug/L	20.0
811747-014	R63-194	SW6020	FLDFLT	1/14/2014	11:15	Arsenic	3.0	ug/L	0.50
811747-014	R63-194	SW6020	FLDFLT	1/14/2014	11:15	Barium	106	ug/L	5.0
811747-014	R63-194	SW6020	FLDFLT	1/14/2014	11:15	Chromium	ND	ug/L	1.0
811747-014	R63-194	SW6020	FLDFLT	1/14/2014	11:15	Manganese	4.8	ug/L	0.50
811747-014	R63-194	SW6020	FLDFLT	1/14/2014	11:15	Molybdenum	4.2	ug/L	2.0
811747-014	R63-194	SW6020	FLDFLT	1/14/2014	11:15	Selenium	ND	ug/L	5.0
811747-015	RMP-AB1-194	E218.6	NONE	1/14/2014	13:46	Chromium, Hexavalent	ND	ug/L	0.20
811747-016	SW1-194	E120.1	NONE	1/14/2014	7:30	EC	1150	umhos/cm	2.00
811747-016	SW1-194	E218.6	FLDFLT	1/14/2014	7:30	Chromium, Hexavalent	ND	ug/L	0.20
811747-016	SW1-194	SM4500HB	NONE	1/14/2014	7:30	PH	7.79 J	pH	4.00
811747-016	SW1-194	SW6020	FLDFLT	1/14/2014	7:30	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.RM
P.O. Number: 423575.MP.02.RM
Release Number:

Laboratory No. 811747

Printed 2/9/2014

Samples Received on 1/14/2014 11:50:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-194	811747-001	01/14/2014 12:18	Water
C-I-3-D-194	811747-002	01/14/2014 10:37	Water
C-I-3-S-194	811747-003	01/14/2014 10:52	Water
C-MW-80-194	811747-004	01/14/2014 11:06	Water
C-MW-81-194	811747-005	01/14/2014 12:40	Water
C-R22A-D-194	811747-006	01/14/2014 11:40	Water
C-R22A-S-194	811747-007	01/14/2014 11:52	Water
C-R27-D-194	811747-008	01/14/2014 12:52	Water
C-R27-S-194	811747-009	01/14/2014 13:06	Water
C-TAZ-D-194	811747-010	01/14/2014 09:56	Water
C-TAZ-S-194	811747-011	01/14/2014 10:10	Water
R-19-194	811747-012	01/14/2014 13:40	Water
R-28-194	811747-013	01/14/2014 13:24	Water
R63-194	811747-014	01/14/2014 11:15	Water
RMP-AB1-194	811747-015	01/14/2014 13:46	Water
SW1-194	811747-016	01/14/2014 07:30	Water

Specific Conductivity - EPA 120.1

Batch 01EC14E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811747-001 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	832
811747-002 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	843
811747-003 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	845
811747-006 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	872
811747-007 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	873
811747-008 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	876
811747-009 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	878
811747-010 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	878
811747-011 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	877
811747-012 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	856

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

811747-013 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	863
811747-014 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	893
811747-016 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	1150

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811747-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	875	873	0.229	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	721	706	102	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	726	706	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	967	1000	96.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	968	1000	96.8	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.

Metals by EPA 6010B, Total

Batch 020714B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811747-001 Iron	ug/L	02/07/2014 15:46	2.00	6.00	20.0	190
811747-002 Iron	ug/L	02/07/2014 16:11	2.00	6.00	20.0	144
811747-003 Iron	ug/L	02/07/2014 16:34	2.00	6.00	20.0	148
811747-006 Iron	ug/L	02/07/2014 16:40	2.00	6.00	20.0	215
811747-007 Iron	ug/L	02/07/2014 16:47	2.00	6.00	20.0	276
811747-008 Iron	ug/L	02/07/2014 16:53	2.00	6.00	20.0	169
811747-009 Iron	ug/L	02/07/2014 16:59	2.00	6.00	20.0	178
811747-010 Iron	ug/L	02/07/2014 17:06	2.00	6.00	20.0	98.8
811747-011 Iron	ug/L	02/07/2014 17:44	2.00	6.00	20.0	70.7
811747-012 Iron	ug/L	02/07/2014 17:50	2.00	6.00	20.0	1720
811747-013 Iron	ug/L	02/07/2014 17:57	2.00	6.00	20.0	1410
811747-014 Iron	ug/L	02/07/2014 18:03	2.00	6.00	20.0	251

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	2.00	188	190	1.22	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2010	2000	100	85 - 115

Matrix Spike — Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	2040	2190(2000)	92.4	75 - 125

Matrix Spike Duplicate — Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	2120	2190(2000)	96.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4930	5000	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4740	5000	94.8	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.

Chrome VI by EPA 218.6

Batch 01CrH14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811747-001 Chromium, Hexavalent	ug/L	01/15/2014 12:32	1.00	0.00600	0.20	ND
811747-002 Chromium, Hexavalent	ug/L	01/15/2014 12:42	1.00	0.00600	0.20	ND
811747-003 Chromium, Hexavalent	ug/L	01/15/2014 12:52	1.00	0.00600	0.20	ND
811747-004 Chromium, Hexavalent	ug/L	01/15/2014 13:03	1.00	0.00600	0.20	ND
811747-005 Chromium, Hexavalent	ug/L	01/15/2014 13:13	1.00	0.00600	0.20	ND
811747-006 Chromium, Hexavalent	ug/L	01/15/2014 13:24	1.00	0.00600	0.20	ND
811747-007 Chromium, Hexavalent	ug/L	01/15/2014 13:34	1.00	0.00600	0.20	ND
811747-008 Chromium, Hexavalent	ug/L	01/15/2014 13:44	1.00	0.00600	0.20	ND
811747-009 Chromium, Hexavalent	ug/L	01/15/2014 14:16	1.00	0.00600	0.20	ND
811747-010 Chromium, Hexavalent	ug/L	01/15/2014 14:26	1.00	0.00600	0.20	ND
811747-011 Chromium, Hexavalent	ug/L	01/15/2014 14:36	1.00	0.00600	0.20	ND
811747-012 Chromium, Hexavalent	ug/L	01/15/2014 14:47	1.00	0.00600	0.20	ND
811747-013 Chromium, Hexavalent	ug/L	01/15/2014 14:57	1.00	0.00600	0.20	ND
811747-014 Chromium, Hexavalent	ug/L	01/15/2014 15:08	1.00	0.00600	0.20	ND
811747-015 Chromium, Hexavalent	ug/L	01/15/2014 15:18	1.00	0.00600	0.20	ND
811747-016 Chromium, Hexavalent	ug/L	01/15/2014 15:28	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 811749-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.03	3.04	0.379	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.216	0.200	108	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 = 811747-001

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.

Matrix Spike — Lab ID = 811747-002

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 = 811747-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.03(1.00)	99.6	90 - 110

Matrix Spike — Lab ID = 811747-004

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 = 811747-005

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 = 811747-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.01(1.00)	106	90 - 110

Matrix Spike — Lab ID = 811747-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.00(1.00)	108	90 - 110

Matrix Spike — Lab ID = 811747-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.03(1.00)	104	90 - 110

Matrix Spike — Lab ID = 811747-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.03(1.00)	104	90 - 110

Matrix Spike — Lab ID = 811747-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.989	1.02(1.00)	96.6	90 - 110

Matrix Spike — Lab ID = 811747-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.02(1.00)	103	90 - 110

Matrix Spike — Lab ID = 811747-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.03(1.00)	104	90 - 110

Matrix Spike — Lab ID = 811747-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.02(1.00)	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.

Matrix Spike — Lab ID = 811747-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.03(1.00)	102	90 - 110

Matrix Spike — Lab ID = 811747-015

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 = 811747-016

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 = 811749-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.71	1.64(1.00)	107	90 - 110

Matrix Spike — Lab ID = 811749-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.91	8.04(5.00)	97.5	90 - 110

Matrix Spike — Lab ID = 811749-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.1	15.4(10.0)	97.6	90 - 110

Matrix Spike — Lab ID = 811749-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.66	1.62(1.00)	104	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	9.68	10.0	96.8	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.79	10.0	97.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.75	10.0	97.5	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 011714D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811747-001 Barium	ug/L	01/18/2014 05:12	2.00	0.594	5.0	104
Chromium	ug/L	01/18/2014 05:12	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 05:12	2.00	0.100	2.0	4.2
Selenium	ug/L	01/18/2014 05:12	2.00	0.424	5.0	ND
811747-002 Barium	ug/L	01/18/2014 05:48	2.00	0.594	5.0	98.3
Chromium	ug/L	01/18/2014 05:48	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 05:48	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 05:48	2.00	0.424	5.0	ND
811747-003 Barium	ug/L	01/18/2014 05:54	2.00	0.594	5.0	101
Chromium	ug/L	01/18/2014 05:54	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 05:54	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 05:54	2.00	0.424	5.0	ND
811747-006 Barium	ug/L	01/18/2014 06:00	2.00	0.594	5.0	100
Chromium	ug/L	01/18/2014 06:00	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 06:00	2.00	0.100	2.0	3.9
Selenium	ug/L	01/18/2014 06:00	2.00	0.424	5.0	ND
811747-007 Barium	ug/L	01/18/2014 06:06	2.00	0.594	5.0	99.0
Chromium	ug/L	01/18/2014 06:06	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 06:06	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 06:06	2.00	0.424	5.0	ND
811747-008 Barium	ug/L	01/18/2014 06:12	2.00	0.594	5.0	97.3
Chromium	ug/L	01/18/2014 06:12	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 06:12	2.00	0.100	2.0	3.9
Selenium	ug/L	01/18/2014 06:12	2.00	0.424	5.0	ND
811747-009 Barium	ug/L	01/18/2014 06:18	2.00	0.594	5.0	99.8
Chromium	ug/L	01/18/2014 06:18	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 06:18	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 06:18	2.00	0.424	5.0	ND
811747-010 Barium	ug/L	01/18/2014 06:24	2.00	0.594	5.0	99.5
Chromium	ug/L	01/18/2014 06:24	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 06:24	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 06:24	2.00	0.424	5.0	ND
811747-011 Barium	ug/L	01/18/2014 06:30	2.00	0.594	5.0	99.6
Chromium	ug/L	01/18/2014 06:30	2.00	0.142	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.

811747-011	Molybdenum	ug/L	01/18/2014 06:30	2.00	0.100	2.0	4.0
	Selenium	ug/L	01/18/2014 06:30	2.00	0.424	5.0	ND
811747-012	Barium	ug/L	01/18/2014 06:36	2.00	0.594	5.0	102
	Chromium	ug/L	01/18/2014 06:36	2.00	0.142	1.0	ND
	Molybdenum	ug/L	01/18/2014 06:36	2.00	0.100	2.0	4.0
	Selenium	ug/L	01/18/2014 06:36	2.00	0.424	5.0	ND
811747-013	Barium	ug/L	01/18/2014 06:42	2.00	0.594	5.0	102
	Chromium	ug/L	01/18/2014 06:42	2.00	0.142	1.0	ND
	Molybdenum	ug/L	01/18/2014 06:42	2.00	0.100	2.0	4.0
	Selenium	ug/L	01/18/2014 06:42	2.00	0.424	5.0	ND
811747-014	Barium	ug/L	01/18/2014 07:00	2.00	0.594	5.0	106
	Chromium	ug/L	01/18/2014 07:00	2.00	0.142	1.0	ND
	Molybdenum	ug/L	01/18/2014 07:00	2.00	0.100	2.0	4.2
	Selenium	ug/L	01/18/2014 07:00	2.00	0.424	5.0	ND
811747-016	Chromium	ug/L	01/18/2014 07:06	2.00	0.142	1.0	ND

Method Blank

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

Duplicate

Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	2.00	98.4	104	5.58	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Selenium	ug/L	2.00	ND	0	0	0 - 20
Molybdenum	ug/L	2.00	3.95	4.25	7.32	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	1.96	2.00	97.8	70 - 130
Chromium	ug/L	1.00	0.556	0.500	111	70 - 130
Selenium	ug/L	1.00	1.95	2.00	97.5	70 - 130
Molybdenum	ug/L	1.00	0.558	0.500	112	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
Barium	ug/L	1.00	50.4	50.0	101	85 - 115
Chromium	ug/L	1.00	52.5	50.0	105	85 - 115
Selenium	ug/L	1.00	48.1	50.0	96.2	85 - 115
Molybdenum	ug/L	1.00	52.0	50.0	104	85 - 115

Matrix Spike Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	156	154(50.0)	104	75 - 125
Chromium	ug/L	2.00	51.2	50.0(50.0)	102	75 - 125
Selenium	ug/L	2.00	49.8	50.0(50.0)	99.6	75 - 125
Molybdenum	ug/L	2.00	55.4	54.2(50.0)	102	75 - 125

Matrix Spike Duplicate Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	155	154(50.0)	103	75 - 125
Chromium	ug/L	2.00	50.8	50.0(50.0)	102	75 - 125
Selenium	ug/L	2.00	49.8	50.0(50.0)	99.6	75 - 125
Molybdenum	ug/L	2.00	55.1	54.2(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.8	20.0	99.1	90 - 110
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110
Selenium	ug/L	1.00	19.0	20.0	95.3	90 - 110
Molybdenum	ug/L	1.00	19.6	20.0	97.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.8	20.0	99.2	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	19.9	20.0	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.

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		
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 = 811668-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	156	149	4.48	0 - 10

Serial Dilution Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	107	104	2.74	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 011714H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811747-001 Arsenic	ug/L	01/18/2014 21:44	1.00	0.0500	0.50	3.0
Manganese	ug/L	01/18/2014 21:44	1.00	0.0600	0.50	1.6
811747-002 Arsenic	ug/L	01/18/2014 22:20	1.00	0.0500	0.50	3.0
Manganese	ug/L	01/18/2014 22:20	1.00	0.0600	0.50	1.8
811747-003 Arsenic	ug/L	01/18/2014 22:26	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 22:26	1.00	0.0600	0.50	1.5
811747-006 Arsenic	ug/L	01/18/2014 22:32	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 22:32	1.00	0.0600	0.50	3.3
811747-007 Arsenic	ug/L	01/18/2014 22:38	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 22:38	1.00	0.0600	0.50	3.3
811747-008 Arsenic	ug/L	01/18/2014 22:44	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 22:44	1.00	0.0600	0.50	2.0
811747-009 Arsenic	ug/L	01/18/2014 22:50	1.00	0.0500	0.50	3.0
Manganese	ug/L	01/18/2014 22:50	1.00	0.0600	0.50	2.8
811747-010 Arsenic	ug/L	01/18/2014 22:56	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 22:56	1.00	0.0600	0.50	2.2
811747-011 Arsenic	ug/L	01/18/2014 23:02	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 23:02	1.00	0.0600	0.50	2.0
811747-012 Arsenic	ug/L	01/18/2014 23:08	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 23:08	1.00	0.0600	0.50	9.2
811747-013 Arsenic	ug/L	01/18/2014 23:14	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 23:14	1.00	0.0600	0.50	7.9
811747-014 Arsenic	ug/L	01/18/2014 23:32	1.00	0.0500	0.50	3.0
Manganese	ug/L	01/18/2014 23:32	1.00	0.0600	0.50	4.8

Method Blank

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.578	0.500	116	70 - 130
Manganese	ug/L	1.00	0.211	0.200	106	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
Arsenic	ug/L	1.00	50.6	50.0	101	85 - 115
Manganese	ug/L	1.00	51.0	50.0	102	85 - 115

Matrix Spike Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	53.8	53.0(50.0)	102	75 - 125
Manganese	ug/L	1.00	51.6	51.6(50.0)	100	75 - 125

Matrix Spike Duplicate Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	54.0	53.0(50.0)	102	75 - 125
Manganese	ug/L	1.00	50.9	51.6(50.0)	98.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.5	20.0	97.6	90 - 110
Manganese	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	19.3	20.0	96.4	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	19.5	20.0	97.5	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	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.

Metals by EPA 6010B, Dissolved

Batch 020714C-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811747-001 Iron	ug/L	02/07/2014 20:37	2.00	6.00	20.0	ND
811747-002 Iron	ug/L	02/07/2014 21:02	2.00	6.00	20.0	26.3
811747-003 Iron	ug/L	02/07/2014 21:23	2.00	6.00	20.0	35.2
811747-006 Iron	ug/L	02/07/2014 21:29	2.00	6.00	20.0	32.0
811747-007 Iron	ug/L	02/07/2014 21:36	2.00	6.00	20.0	23.8
811747-008 Iron	ug/L	02/07/2014 21:42	2.00	6.00	20.0	40.2
811747-009 Iron	ug/L	02/07/2014 21:48	2.00	6.00	20.0	21.2
811747-010 Iron	ug/L	02/07/2014 21:55	2.00	6.00	20.0	22.8
811747-011 Iron	ug/L	02/07/2014 22:01	2.00	6.00	20.0	ND
811747-012 Iron	ug/L	02/07/2014 22:07	2.00	6.00	20.0	ND
811747-013 Iron	ug/L	02/07/2014 22:14	2.00	6.00	20.0	45.9
811747-014 Iron	ug/L	02/07/2014 22:20	2.00	6.00	20.0	27.1

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 811747-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2110	2000	105	85 - 115

Matrix Spike — Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	1950	2000(2000)	97.5	75 - 125

Matrix Spike Duplicate — Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	1880	2000(2000)	94.0	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4890	5000	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.

pH by SM 4500-H B Batch 01PH14L

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811747-001 pH	pH	01/15/2014 11:19	1.00	0.0784	4.00	8.29	J
811747-002 pH	pH	01/15/2014 11:21	1.00	0.0784	4.00	8.32	J
811747-003 pH	pH	01/15/2014 11:23	1.00	0.0784	4.00	8.33	J
811747-006 pH	pH	01/15/2014 11:25	1.00	0.0784	4.00	8.30	J
811747-007 pH	pH	01/15/2014 11:27	1.00	0.0784	4.00	8.32	J
811747-008 pH	pH	01/15/2014 11:29	1.00	0.0784	4.00	8.32	J
811747-009 pH	pH	01/15/2014 11:31	1.00	0.0784	4.00	8.31	J
811747-010 pH	pH	01/15/2014 11:33	1.00	0.0784	4.00	8.31	J
811747-011 pH	pH	01/15/2014 11:35	1.00	0.0784	4.00	8.33	J
811747-012 pH	pH	01/15/2014 11:41	1.00	0.0784	4.00	8.28	J
811747-013 pH	pH	01/15/2014 11:43	1.00	0.0784	4.00	8.29	J
811747-014 pH	pH	01/15/2014 11:45	1.00	0.0784	4.00	8.26	J
811747-016 pH	pH	01/15/2014 11:47	1.00	0.0784	4.00	7.79	J

Duplicate — Lab ID = 811747-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.31	8.30	0.120	0 - 20

Duplicate — Lab ID = 811747-012

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	7.01	7.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.07	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.07	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.

Total Suspended Solids by SM 2540 D Batch 01TSS14E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811747-001 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	4.30
811747-002 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	8.10
811747-003 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	ND
811747-006 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	9.40
811747-007 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	9.60
811747-008 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	5.30
811747-009 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	4.60
811747-010 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	5.60
811747-011 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	ND
811747-012 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	75.6
811747-013 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	79.1
811747-014 Total Suspended Solids	mg/L	01/15/2014	1.00	0.349	4.00	7.90

Method Blank

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

Duplicate Lab ID = 811768-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	170	165	3.16	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	95.0	100	95.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	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.

1 of 2

Total Suspended Solids by SM 2540 D

Calculations

Batch: 01TSS14E

Date Analyzed: 01/16/14

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	Blank	1000	1.4189	1.4192	1.4192	0.0000	No	0.0003	0.3	2.5	ND
2	811709	700	1.4185	1.4188	1.4188	0.0000	No	0.0003	0.4	3.6	ND
3	811710	300	1.4335	1.5881	1.5881	0.0000	No	0.1546	515.3	8.3	515.3
4	811727-1	250	1.4193	1.4281	1.4281	0.0000	No	0.0088	35.2	10.0	35.2
5	811738-4	250	1.4212	1.4282	1.4282	0.0000	No	0.0070	28.0	10.0	28.0
6	811806	500	1.4284	1.4284	1.4284	0.0000	No	0.0000	0.0	5.0	ND
7	811759	1000	1.4261	1.4283	1.4283	0.0000	No	0.0022	2.2	2.5	ND
8	811747-1	700	1.4170	1.4200	1.4200	0.0000	No	0.0030	4.3	3.6	4.3
9	811747-2	700	1.4233	1.4290	1.4290	0.0000	No	0.0057	8.1	3.6	8.1
10	811747-3	700	1.4304	1.4317	1.4317	0.0000	No	0.0013	1.9	3.6	ND
11	811747-6	700	1.4193	1.4259	1.4259	0.0000	No	0.0066	9.4	3.6	9.4
12	811710 Dup	300	1.4176	1.5779	1.5779	0.0000	No	0.1603	534.3	8.3	534.3
13	LCS	100	1.4201	1.4296	1.4296	0.0000	No	0.0095	95.0	25.0	95.0
14	811747-7	700	1.4189	1.4256	1.4256	0.0000	No	0.0067	9.6	3.6	9.6
15	811747-8	700	1.4218	1.4255	1.4255	0.0000	No	0.0037	5.3	3.6	5.3
16	811747-9	700	1.4205	1.4237	1.4237	0.0000	No	0.0032	4.6	3.6	4.6
17	811747-10	700	1.4252	1.4291	1.4291	0.0000	No	0.0039	5.6	3.6	5.6
18	811747-11	700	1.4200	1.4215	1.4215	0.0000	No	0.0015	2.1	3.6	ND
19	811747-12	700	1.4229	1.4758	1.4758	0.0000	No	0.0529	75.6	3.6	75.6
20	811747-13	700	1.4181	1.4735	1.4735	0.0000	No	0.0554	79.1	3.6	79.1
21	811747-14	700	1.4218	1.4273	1.4273	0.0000	No	0.0055	7.9	3.6	7.9
22	811747-16	700	1.4181	1.4185	1.4185	0.0000	No	0.0004	0.6	3.6	ND
23	811768	300	1.4214	1.4708	1.4708	0.0000	No	0.0494	164.7	8.3	164.7
24	811768 Dup	300	1.4257	1.4768	1.4768	0.0000	No	0.0511	170.3	8.3	170.3
25	LCSD	100	1.4199	1.4294	1.4294	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	95.0	100	95.0%	90-110%	Yes
LCSD	95.0	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?
811710	0.1546	0.1603	1.8%	5%	Yes
811768	0.0494	0.0511	1.7%	5%	Yes

Himani
Analyst Name

Himani
Analyst Signature

Maksim
Reviewer Signature

Reveiwer Signature

Rec'd 01/14/14

S 811747

811747

CH2MHILL **CHAIN OF CUSTODY RECORD** 1/14/2014 4:22:08 PM Page 1 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2014-RMP-194
Turnaround Time 10 Days
Shipping Date: 1/14/2014
COC Number: 1

	DATE	TIME	Matrix	Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1x1 Liter	1x1 Liter	1x1 Liter	Number of Containers	COMMENTS
				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		
				Filtered:	Field	NA	NA	Field	Field	NA	NA	NA		
				Holding Time:	28	28	180	180	180	2	2	2		
					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)	PH (SM4500HB)	TSS (SM2540)		
1	C-BNS-D-194	1/14/2014	12:18	Water	X		X	X	X	X	X	X	8	
2	C-I-3-D-194	1/14/2014	10:37	Water	X		X	X	X	X	X	X	8	pH=2 6020A/ 6010B
3	C-I-3-S-194	1/14/2014	10:52	Water	X		X	X	X	X	X	X	8	
4	C-MW-80-194	1/14/2014	11:06	Water		X							1	
5	C-MW-81-194	1/14/2014	12:40	Water		X							1	
6	C-R22A-D-194	1/14/2014	11:40	Water	X		X	X	X	X	X	X	8	
7	C-R22A-S-194	1/14/2014	11:52	Water	X		X	X	X	X	X	X	8	
8	C-R27-D-194	1/14/2014	12:52	Water	X		X	X	X	X	X	X	8	pH=2 6020A/ 6010B
9	C-R27-S-194	1/14/2014	13:06	Water	X		X	X	X	X	X	X	8	
10	C-TAZ-D-194	1/14/2014	9:56	Water	X		X	X	X	X	X	X	8	
11	C-TAZ-S-194	1/14/2014	10:10	Water	X		X	X	X	X	X	X	8	
12	R-19-194	1/14/2014	13:40	Water	X		X	X	X	X	X	X	8	
13	R-28-194	1/14/2014	13:24	Water	X		X	X	X	X	X	X	8	
14	R63-194	1/14/2014	11:15	Water	X		X	X	X	X	X	X	8	

* Where provided w/multiple bottles for Cr6+ metals, please analyze 1+ hold 2

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		1-14-14
Sampled by		1700
Relinquished by		
Received by		1-14-14 1915
Relinquished by		1-14-14 2350
Received by		1/14/14 2350

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:
Jan 13-14, 2014

Report Copy to
Shawn Duffy
(530) 229-3303

811747

CH2MHILL **CHAIN OF CUSTODY RECORD** 1/14/2014 4:22:09 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 2014-RMP-194
Turnaround Time 10 Days
Shipping Date: 1/14/2014
COC Number: 1

			Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1x1 Liter	1x1 Liter	1x1 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			
			Filtered:	Field	NA	NA	Field	Field	NA	NA	NA			
			Holding Time:	28	28	180	180	180	2	2	2			
	DATE	TIME	Matrix	Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6–river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo,Ba	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	PH (SM4500HB)	TSS (SM2540)		Number of Containers	COMMENTS
-15 RMP-AB1-194	1/14/2014	13:46	Water		X								1	
-16 SW1-194	1/14/2014	7:30	Water	X				X	X	X			~~6~~	7 BEC PH-2 60209
												TOTAL NUMBER OF CONTAINERS	~~105~~	106

*Where provided w/multiple bottles for Cr6 + metals please analyze 1 + hold 2

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		1-14-14
Sampled by		1700
Relinquished by		
Received by	Shawn Duffy	1-14-14 1915
Relinquished by	Shawn Duffy	1-14-14 2350
Received by	Jay B. Duffy	1/14/14 2350

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:
Jan 13-14, 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
4/9/14	811654-10	9.5	N/A	N/A	N/A	NE
	-11					
	-12					
	-13					
	-14					
	-15					
	811655-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
1/9/14	811668-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
1/15/14	811747-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					

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
6/15/14	811747-12	9.5	N/A	N/A	N/A	NE
	-13					
	-14					
	-15					
	811748	7.0	2ml/100ml	9.5	8:00	NE
	811749-1					
	-5					
	-~~6~~					
	-13					
	811753-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	811750-1					
	-2					
	811751-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					

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
811620	<1	<2	1/9/14	ES	yes			
811621	↓	↓	↓	↓	↓			
811634								
811643								
811647 (1-2)								
811649-4					↓			
811611 (1-2,4)		>2			NO	5:00	1/13/14 10:00	pH <2
811617		↓			↓	↓	↓	↓
811635 (10-12)								
811648 (1-7)								
811650 (1-4)								
811662 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
811598 (1-4)	<1	<2	1/10/14	ES	yes			
811623 (1-2)	↓	>2	↓	↓	↓	11:00		Filtered then acidify
811624 (1-7)		<2						
811651 (1-4)		↓						
811652 (1-2)	↓	↓	↓	↓	↓			
811653 (1-15)	<1	<2	1/10/14	ES	yes			
811654 (1-15)	<1	<2	1/14/14	ES	yes			
811626 (1-3)	<1	>2	1/15/14	ES	yes	10:30		pH <2
811582 (1-3)	↓	<2	↓	↓	↓			
811628 (1-3)		↓						
811655 (1-7)	↓	↓	↓	↓	↓			
811731	<1	<2	1/15/14	ES	yes			
811728	↓	↓	↓	↓	↓			
811707								
811708								
811709								
811710								
811729								
811735								
811736		↓			↓			
811703-6		>2			NO	1:00		
811711 (1-2,4)		↓			↓	↓		
811739	↓	↓	↓	↓	↓	↓		
811788 (1-3,6-13)	<1	<2	1/10/14	KK	yes	—	—	dissolved bottles
811788 (1-3,6-13)	<1	<2	1/10/14	KK	yes	-	-	total bottles
811747 (1-3,6-14)	<1	<2	1/10/14	KK	yes	—	-	total bottles
811747 (1-3,6-14,16)	<1	<2	1/10/14	KK	yes	-	-	dissolved
811688 (1-6)	<1	<2	1/16/14	KK	yes			
811750-1	<1	<2	1/16/14	KK	yes			
811748	<1	>2	1/17/14	KK	yes			total
811799 (1-3)	<1	<2	1/17/14	KK	yes			total
811751 (1-8)	<1	<2	1/17/14	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 #** 811747

Date Delivered: 11/14/14 **Time:** 23:50 **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? Temperature (if yes)? 3.3°C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

ALERT !! Level III QC

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

February 4, 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 2014-RMP-194, SURFACEWATER MONITORING PROJECT, TLI NO.: 811788

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-RMP-194 surfacewater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on January 15, 2014, 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.

fo - Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

Event 2014-RMP-194 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-194	2.00	No			
C-CON-S-194	2.00	No			
C-MAR-S-194	2.00	No			
C-NR1-D-194	2.00	No			
C-NR1-S-194	2.00	No			
C-NR3-D-194	2.00	No			
C-NR3-S-194	2.00	No			
C-NR4-D-194	2.00	No			
C-NR4-S-194	2.00	No			
RRB-194	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 2014-RMP-194 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-194	9.50	No			
C-CON-S-194	9.50	No			
C-MAR-S-194	9.50	No			
C-MW-82-194	9.50	No			
C-MW-83-194	9.50	No			
C-NR1-D-194	9.50	No			
C-NR1-S-194	9.50	No			
C-NR3-D-194	9.50	No			
C-NR3-S-194	9.50	No			
C-NR4-D-194	9.50	No			
C-NR4-S-194	9.50	No			
RMP-AB2-194	9.50	No			
RRB-194	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.: 811788
Date Received: January 15, 2014

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
811788-001	C-CON-D-194	E120.1	NONE	1/15/2014	9:32	EC	830	umhos/cm	2.00
811788-001	C-CON-D-194	E218.6	FLDFLT	1/15/2014	9:32	Chromium, Hexavalent	ND	ug/L	0.20
811788-001	C-CON-D-194	SM2540D	NONE	1/15/2014	9:32	Suspended Solids (Residue, Non-Filterable)	4.30	mg/L	4.00
811788-001	C-CON-D-194	SM4500HB	NONE	1/15/2014	9:32	PH	8.46 J	pH	4.00
811788-001	C-CON-D-194	SW6010B	NONE	1/15/2014	9:32	Iron	113	ug/L	20.0
811788-001	C-CON-D-194	SW6010B	FLDFLT	1/15/2014	9:32	Iron	ND	ug/L	20.0
811788-001	C-CON-D-194	SW6020	FLDFLT	1/15/2014	9:32	Arsenic	2.9	ug/L	0.50
811788-001	C-CON-D-194	SW6020	FLDFLT	1/15/2014	9:32	Barium	102	ug/L	5.0
811788-001	C-CON-D-194	SW6020	FLDFLT	1/15/2014	9:32	Chromium	ND	ug/L	1.0
811788-001	C-CON-D-194	SW6020	FLDFLT	1/15/2014	9:32	Manganese	1.2	ug/L	0.50
811788-001	C-CON-D-194	SW6020	FLDFLT	1/15/2014	9:32	Molybdenum	4.0	ug/L	2.0
811788-001	C-CON-D-194	SW6020	FLDFLT	1/15/2014	9:32	Selenium	ND	ug/L	5.0
811788-002	C-CON-S-194	E120.1	NONE	1/15/2014	9:44	EC	790	umhos/cm	2.00
811788-002	C-CON-S-194	E218.6	FLDFLT	1/15/2014	9:44	Chromium, Hexavalent	ND	ug/L	0.20
811788-002	C-CON-S-194	SM2540D	NONE	1/15/2014	9:44	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811788-002	C-CON-S-194	SM4500HB	NONE	1/15/2014	9:44	PH	8.40 J	pH	4.00
811788-002	C-CON-S-194	SW6010B	NONE	1/15/2014	9:44	Iron	69.8	ug/L	20.0
811788-002	C-CON-S-194	SW6010B	FLDFLT	1/15/2014	9:44	Iron	42.7	ug/L	20.0
811788-002	C-CON-S-194	SW6020	FLDFLT	1/15/2014	9:44	Arsenic	2.9	ug/L	0.50
811788-002	C-CON-S-194	SW6020	FLDFLT	1/15/2014	9:44	Barium	99.2	ug/L	5.0
811788-002	C-CON-S-194	SW6020	FLDFLT	1/15/2014	9:44	Chromium	ND	ug/L	1.0
811788-002	C-CON-S-194	SW6020	FLDFLT	1/15/2014	9:44	Manganese	1.6	ug/L	0.50
811788-002	C-CON-S-194	SW6020	FLDFLT	1/15/2014	9:44	Molybdenum	4.0	ug/L	2.0
811788-002	C-CON-S-194	SW6020	FLDFLT	1/15/2014	9:44	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
811788-003	C-MAR-S-194	E120.1	NONE	1/15/2014	8:58	EC	814	umhos/cm	2.00
811788-003	C-MAR-S-194	E218.6	FLDFLT	1/15/2014	8:58	Chromium, Hexavalent	ND	ug/L	0.20
811788-003	C-MAR-S-194	SM2540D	NONE	1/15/2014	8:58	Suspended Solids (Residue, Non-Filterable)	79.1	mg/L	4.00
811788-003	C-MAR-S-194	SM4500HB	NONE	1/15/2014	8:58	PH	8.20 J	pH	4.00
811788-003	C-MAR-S-194	SW6010B	NONE	1/15/2014	8:58	Iron	1920	ug/L	20.0
811788-003	C-MAR-S-194	SW6010B	FLDFLT	1/15/2014	8:58	Iron	58.7	ug/L	20.0
811788-003	C-MAR-S-194	SW6020	FLDFLT	1/15/2014	8:58	Arsenic	2.7	ug/L	0.50
811788-003	C-MAR-S-194	SW6020	FLDFLT	1/15/2014	8:58	Barium	104	ug/L	5.0
811788-003	C-MAR-S-194	SW6020	FLDFLT	1/15/2014	8:58	Chromium	ND	ug/L	1.0
811788-003	C-MAR-S-194	SW6020	FLDFLT	1/15/2014	8:58	Manganese	40.7	ug/L	0.50
811788-003	C-MAR-S-194	SW6020	FLDFLT	1/15/2014	8:58	Molybdenum	4.1	ug/L	2.0
811788-003	C-MAR-S-194	SW6020	FLDFLT	1/15/2014	8:58	Selenium	ND	ug/L	5.0
811788-004	C-MW-82-194	E218.6	NONE	1/15/2014	10:38	Chromium, Hexavalent	ND	ug/L	0.20
811788-005	C-MW-83-194	E218.6	NONE	1/15/2014	8:50	Chromium, Hexavalent	ND	ug/L	0.20
811788-006	C-NR1-D-194	E120.1	NONE	1/15/2014	10:04	EC	796	umhos/cm	2.00
811788-006	C-NR1-D-194	E218.6	FLDFLT	1/15/2014	10:04	Chromium, Hexavalent	ND	ug/L	0.20
811788-006	C-NR1-D-194	SM2540D	NONE	1/15/2014	10:04	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811788-006	C-NR1-D-194	SM4500HB	NONE	1/15/2014	10:04	PH	8.38 J	pH	4.00
811788-006	C-NR1-D-194	SW6010B	NONE	1/15/2014	10:04	Iron	63.4	ug/L	20.0
811788-006	C-NR1-D-194	SW6010B	FLDFLT	1/15/2014	10:04	Iron	ND	ug/L	20.0
811788-006	C-NR1-D-194	SW6020	FLDFLT	1/15/2014	10:04	Arsenic	3.0	ug/L	0.50
811788-006	C-NR1-D-194	SW6020	FLDFLT	1/15/2014	10:04	Barium	102	ug/L	5.0
811788-006	C-NR1-D-194	SW6020	FLDFLT	1/15/2014	10:04	Chromium	ND	ug/L	1.0
811788-006	C-NR1-D-194	SW6020	FLDFLT	1/15/2014	10:04	Manganese	1.2	ug/L	0.50
811788-006	C-NR1-D-194	SW6020	FLDFLT	1/15/2014	10:04	Molybdenum	4.0	ug/L	2.0
811788-006	C-NR1-D-194	SW6020	FLDFLT	1/15/2014	10:04	Selenium	ND	ug/L	5.0
811788-007	C-NR1-S-194	E120.1	NONE	1/15/2014	10:20	EC	786	umhos/cm	2.00
811788-007	C-NR1-S-194	E218.6	FLDFLT	1/15/2014	10:20	Chromium, Hexavalent	ND	ug/L	0.20
811788-007	C-NR1-S-194	SM2540D	NONE	1/15/2014	10:20	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811788-007	C-NR1-S-194	SM4500HB	NONE	1/15/2014	10:20	PH	8.22 J	pH	4.00
811788-007	C-NR1-S-194	SW6010B	NONE	1/15/2014	10:20	Iron	66.8	ug/L	20.0
811788-007	C-NR1-S-194	SW6010B	FLDFLT	1/15/2014	10:20	Iron	22.9	ug/L	20.0
811788-007	C-NR1-S-194	SW6020	FLDFLT	1/15/2014	10:20	Arsenic	2.9	ug/L	0.50
811788-007	C-NR1-S-194	SW6020	FLDFLT	1/15/2014	10:20	Barium	102	ug/L	5.0
811788-007	C-NR1-S-194	SW6020	FLDFLT	1/15/2014	10:20	Chromium	ND	ug/L	1.0
811788-007	C-NR1-S-194	SW6020	FLDFLT	1/15/2014	10:20	Manganese	1.4	ug/L	0.50
811788-007	C-NR1-S-194	SW6020	FLDFLT	1/15/2014	10:20	Molybdenum	4.0	ug/L	2.0
811788-007	C-NR1-S-194	SW6020	FLDFLT	1/15/2014	10:20	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
811788-008	C-NR3-D-194	E120.1	NONE	1/15/2014	10:50	EC	781	umhos/cm	2.00
811788-008	C-NR3-D-194	E218.6	FLDFLT	1/15/2014	10:50	Chromium, Hexavalent	ND	ug/L	0.20
811788-008	C-NR3-D-194	SM2540D	NONE	1/15/2014	10:50	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811788-008	C-NR3-D-194	SM4500HB	NONE	1/15/2014	10:50	PH	8.30 J	pH	4.00
811788-008	C-NR3-D-194	SW6010B	NONE	1/15/2014	10:50	Iron	104	ug/L	20.0
811788-008	C-NR3-D-194	SW6010B	FLDFLT	1/15/2014	10:50	Iron	38.3	ug/L	20.0
811788-008	C-NR3-D-194	SW6020	FLDFLT	1/15/2014	10:50	Arsenic	3.0	ug/L	0.50
811788-008	C-NR3-D-194	SW6020	FLDFLT	1/15/2014	10:50	Barium	106	ug/L	5.0
811788-008	C-NR3-D-194	SW6020	FLDFLT	1/15/2014	10:50	Chromium	ND	ug/L	1.0
811788-008	C-NR3-D-194	SW6020	FLDFLT	1/15/2014	10:50	Manganese	1.4	ug/L	0.50
811788-008	C-NR3-D-194	SW6020	FLDFLT	1/15/2014	10:50	Molybdenum	4.5	ug/L	2.0
811788-008	C-NR3-D-194	SW6020	FLDFLT	1/15/2014	10:50	Selenium	ND	ug/L	5.0
811788-009	C-NR3-S-194	E120.1	NONE	1/15/2014	11:06	EC	812	umhos/cm	2.00
811788-009	C-NR3-S-194	E218.6	FLDFLT	1/15/2014	11:06	Chromium, Hexavalent	ND	ug/L	0.20
811788-009	C-NR3-S-194	SM2540D	NONE	1/15/2014	11:06	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811788-009	C-NR3-S-194	SM4500HB	NONE	1/15/2014	11:06	PH	8.32 J	pH	4.00
811788-009	C-NR3-S-194	SW6010B	NONE	1/15/2014	11:06	Iron	28.3	ug/L	20.0
811788-009	C-NR3-S-194	SW6010B	FLDFLT	1/15/2014	11:06	Iron	ND	ug/L	20.0
811788-009	C-NR3-S-194	SW6020	FLDFLT	1/15/2014	11:06	Arsenic	2.9	ug/L	0.50
811788-009	C-NR3-S-194	SW6020	FLDFLT	1/15/2014	11:06	Barium	100	ug/L	5.0
811788-009	C-NR3-S-194	SW6020	FLDFLT	1/15/2014	11:06	Chromium	ND	ug/L	1.0
811788-009	C-NR3-S-194	SW6020	FLDFLT	1/15/2014	11:06	Manganese	1.0	ug/L	0.50
811788-009	C-NR3-S-194	SW6020	FLDFLT	1/15/2014	11:06	Molybdenum	3.9	ug/L	2.0
811788-009	C-NR3-S-194	SW6020	FLDFLT	1/15/2014	11:06	Selenium	ND	ug/L	5.0
811788-010	C-NR4-D-194	E120.1	NONE	1/15/2014	11:34	EC	804	umhos/cm	2.00
811788-010	C-NR4-D-194	E218.6	FLDFLT	1/15/2014	11:34	Chromium, Hexavalent	ND	ug/L	0.20
811788-010	C-NR4-D-194	SM2540D	NONE	1/15/2014	11:34	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811788-010	C-NR4-D-194	SM4500HB	NONE	1/15/2014	11:34	PH	8.32 J	pH	4.00
811788-010	C-NR4-D-194	SW6010B	NONE	1/15/2014	11:34	Iron	28.8	ug/L	20.0
811788-010	C-NR4-D-194	SW6010B	FLDFLT	1/15/2014	11:34	Iron	ND	ug/L	20.0
811788-010	C-NR4-D-194	SW6020	FLDFLT	1/15/2014	11:34	Arsenic	2.8	ug/L	0.50
811788-010	C-NR4-D-194	SW6020	FLDFLT	1/15/2014	11:34	Barium	99.0	ug/L	5.0
811788-010	C-NR4-D-194	SW6020	FLDFLT	1/15/2014	11:34	Chromium	ND	ug/L	1.0
811788-010	C-NR4-D-194	SW6020	FLDFLT	1/15/2014	11:34	Manganese	0.98	ug/L	0.50
811788-010	C-NR4-D-194	SW6020	FLDFLT	1/15/2014	11:34	Molybdenum	3.9	ug/L	2.0
811788-010	C-NR4-D-194	SW6020	FLDFLT	1/15/2014	11:34	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
811788-011	C-NR4-S-194	E120.1	NONE	1/15/2014	11:46	EC	795	umhos/cm	2.00
811788-011	C-NR4-S-194	E218.6	FLDFLT	1/15/2014	11:46	Chromium, Hexavalent	ND	ug/L	0.20
811788-011	C-NR4-S-194	SM2540D	NONE	1/15/2014	11:46	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
811788-011	C-NR4-S-194	SM4500HB	NONE	1/15/2014	11:46	PH	8.30 J	pH	4.00
811788-011	C-NR4-S-194	SW6010B	NONE	1/15/2014	11:46	Iron	61.3	ug/L	20.0
811788-011	C-NR4-S-194	SW6010B	FLDFLT	1/15/2014	11:46	Iron	ND	ug/L	20.0
811788-011	C-NR4-S-194	SW6020	FLDFLT	1/15/2014	11:46	Arsenic	3.0	ug/L	0.50
811788-011	C-NR4-S-194	SW6020	FLDFLT	1/15/2014	11:46	Barium	104	ug/L	5.0
811788-011	C-NR4-S-194	SW6020	FLDFLT	1/15/2014	11:46	Chromium	ND	ug/L	1.0
811788-011	C-NR4-S-194	SW6020	FLDFLT	1/15/2014	11:46	Manganese	1.1	ug/L	0.50
811788-011	C-NR4-S-194	SW6020	FLDFLT	1/15/2014	11:46	Molybdenum	4.1	ug/L	2.0
811788-011	C-NR4-S-194	SW6020	FLDFLT	1/15/2014	11:46	Selenium	ND	ug/L	5.0
811788-012	RMP-AB2-194	E218.6	NONE	1/15/2014	12:00	Chromium, Hexavalent	ND	ug/L	0.20
811788-013	RRB-194	E120.1	NONE	1/15/2014	13:26	EC	927	umhos/cm	2.00
811788-013	RRB-194	E218.6	FLDFLT	1/15/2014	13:26	Chromium, Hexavalent	ND	ug/L	0.20
811788-013	RRB-194	SM2540D	NONE	1/15/2014	13:26	Suspended Solids (Residue, Non-Filterable)	13.9	mg/L	4.00
811788-013	RRB-194	SM4500HB	NONE	1/15/2014	13:26	PH	8.49 J	pH	4.00
811788-013	RRB-194	SW6010B	NONE	1/15/2014	13:26	Iron	278	ug/L	20.0
811788-013	RRB-194	SW6010B	FLDFLT	1/15/2014	13:26	Iron	ND	ug/L	20.0
811788-013	RRB-194	SW6020	FLDFLT	1/15/2014	13:26	Arsenic	3.0	ug/L	0.50
811788-013	RRB-194	SW6020	FLDFLT	1/15/2014	13:26	Barium	123	ug/L	5.0
811788-013	RRB-194	SW6020	FLDFLT	1/15/2014	13:26	Chromium	ND	ug/L	1.0
811788-013	RRB-194	SW6020	FLDFLT	1/15/2014	13:26	Manganese	91.0	ug/L	0.50
811788-013	RRB-194	SW6020	FLDFLT	1/15/2014	13:26	Molybdenum	3.8	ug/L	2.0
811788-013	RRB-194	SW6020	FLDFLT	1/15/2014	13:26	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. 811788

Printed 2/4/2014

Samples Received on 1/15/2014 11:10:00 PM

Field ID	Lab ID	Collected	Matrix
C-CON-D-194	811788-001	01/15/2014 09:32	Water
C-CON-S-194	811788-002	01/15/2014 09:44	Water
C-MAR-S-194	811788-003	01/15/2014 08:58	Water
C-MW-82-194	811788-004	01/15/2014 10:38	Water
C-MW-83-194	811788-005	01/15/2014 08:50	Water
C-NR1-D-194	811788-006	01/15/2014 10:04	Water
C-NR1-S-194	811788-007	01/15/2014 10:20	Water
C-NR3-D-194	811788-008	01/15/2014 10:50	Water
C-NR3-S-194	811788-009	01/15/2014 11:06	Water
C-NR4-D-194	811788-010	01/15/2014 11:34	Water
C-NR4-S-194	811788-011	01/15/2014 11:46	Water
RMP-AB2-194	811788-012	01/15/2014 12:00	Water
RRB-194	811788-013	01/15/2014 13:26	Water

Specific Conductivity - EPA 120.1

Batch 01EC14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811788-001 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	830
811788-002 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	790
811788-003 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	814
811788-006 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	796
811788-007 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	786
811788-008 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	781
811788-009 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	812
811788-010 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	804
811788-011 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	795
811788-013 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	927

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811788-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	928	927	0.108	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	733	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	959	1000	95.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	959	1000	95.9	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.

Metals by EPA 6010B, Total

Batch 013014A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811788-001 Iron	ug/L	01/30/2014 13:30	2.00	6.00	20.0	113
811788-002 Iron	ug/L	01/30/2014 14:14	2.00	6.00	20.0	69.8
811788-003 Iron	ug/L	01/30/2014 14:21	2.00	6.00	20.0	1920
811788-006 Iron	ug/L	01/30/2014 14:28	2.00	6.00	20.0	63.4
811788-007 Iron	ug/L	01/30/2014 14:35	2.00	6.00	20.0	66.8
811788-008 Iron	ug/L	01/30/2014 14:42	2.00	6.00	20.0	104
811788-009 Iron	ug/L	01/30/2014 14:49	2.00	6.00	20.0	28.3
811788-010 Iron	ug/L	01/30/2014 14:56	2.00	6.00	20.0	28.8
811788-011 Iron	ug/L	01/30/2014 15:03	2.00	6.00	20.0	61.3
811788-013 Iron	ug/L	01/30/2014 15:09	2.00	6.00	20.0	278

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	2.00	112	113	0.978	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2170	2000	109	85 - 115

Matrix Spike — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	2140	2110(2000)	101	75 - 125

Matrix Spike Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	2100	2110(2000)	99.4	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5160	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 01CrH14O

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811788-001 Chromium, Hexavalent	ug/L	01/17/2014 17:27	1.00	0.00600	0.20	ND
811788-002 Chromium, Hexavalent	ug/L	01/17/2014 17:38	1.00	0.00600	0.20	ND
811788-003 Chromium, Hexavalent	ug/L	01/17/2014 17:48	1.00	0.00600	0.20	ND
811788-004 Chromium, Hexavalent	ug/L	01/17/2014 17:58	1.00	0.00600	0.20	ND
811788-005 Chromium, Hexavalent	ug/L	01/17/2014 18:09	1.00	0.00600	0.20	ND
811788-006 Chromium, Hexavalent	ug/L	01/17/2014 18:19	1.00	0.00600	0.20	ND
811788-007 Chromium, Hexavalent	ug/L	01/17/2014 18:30	1.00	0.00600	0.20	ND
811788-008 Chromium, Hexavalent	ug/L	01/17/2014 18:40	1.00	0.00600	0.20	ND
811788-009 Chromium, Hexavalent	ug/L	01/17/2014 19:11	1.00	0.00600	0.20	ND
811788-010 Chromium, Hexavalent	ug/L	01/17/2014 19:22	1.00	0.00600	0.20	ND
811788-011 Chromium, Hexavalent	ug/L	01/17/2014 19:32	1.00	0.00600	0.20	ND
811788-012 Chromium, Hexavalent	ug/L	01/17/2014 19:42	1.00	0.00600	0.20	ND
811788-013 Chromium, Hexavalent	ug/L	01/17/2014 19:53	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 811788-012

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.202	0.200	101	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 = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.02(1.00)	107	90 - 110

Matrix Spike — Lab ID = 811788-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.02(1.00)	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.

Matrix Spike — Lab ID = 811788-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.03(1.00)	105	90 - 110

Matrix Spike — Lab ID = 811788-004

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 = 811788-005

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 = 811788-006

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 = 811788-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.03(1.00)	105	90 - 110

Matrix Spike — Lab ID = 811788-008

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 = 811788-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.10	1.02(1.00)	107	90 - 110

Matrix Spike — Lab ID = 811788-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.02(1.00)	99.1	90 - 110

Matrix Spike — Lab ID = 811788-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.10	1.03(1.00)	107	90 - 110

Matrix Spike — Lab ID = 811788-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.00(1.00)	105	90 - 110

Matrix Spike — Lab ID = 811788-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.10	1.01(1.00)	108	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.04	5.00	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.

Metals by EPA 6020A, Dissolved Batch 011714C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811788-001 Barium	ug/L	01/18/2014 01:35	2.00	0.594	5.0	102
Chromium	ug/L	01/18/2014 01:35	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 01:35	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 01:35	2.00	0.424	5.0	ND
811788-002 Barium	ug/L	01/18/2014 02:05	2.00	0.594	5.0	99.2
Chromium	ug/L	01/18/2014 02:05	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 02:05	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 02:05	2.00	0.424	5.0	ND
811788-003 Barium	ug/L	01/18/2014 02:11	2.00	0.594	5.0	104
Chromium	ug/L	01/18/2014 02:11	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 02:11	2.00	0.100	2.0	4.1
Selenium	ug/L	01/18/2014 02:11	2.00	0.424	5.0	ND
811788-006 Barium	ug/L	01/18/2014 02:17	2.00	0.594	5.0	102
Chromium	ug/L	01/18/2014 02:17	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 02:17	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 02:17	2.00	0.424	5.0	ND
811788-007 Barium	ug/L	01/18/2014 02:23	2.00	0.594	5.0	102
Chromium	ug/L	01/18/2014 02:23	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 02:23	2.00	0.100	2.0	4.0
Selenium	ug/L	01/18/2014 02:23	2.00	0.424	5.0	ND
811788-008 Barium	ug/L	01/18/2014 02:29	2.00	0.594	5.0	106
Chromium	ug/L	01/18/2014 02:29	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 02:29	2.00	0.100	2.0	4.5
Selenium	ug/L	01/18/2014 02:29	2.00	0.424	5.0	ND
811788-009 Barium	ug/L	01/18/2014 02:35	2.00	0.594	5.0	100.
Chromium	ug/L	01/18/2014 02:35	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 02:35	2.00	0.100	2.0	3.9
Selenium	ug/L	01/18/2014 02:35	2.00	0.424	5.0	ND
811788-010 Barium	ug/L	01/18/2014 02:41	2.00	0.594	5.0	99.0
Chromium	ug/L	01/18/2014 02:41	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 02:41	2.00	0.100	2.0	3.9
Selenium	ug/L	01/18/2014 02:41	2.00	0.424	5.0	ND
811788-011 Barium	ug/L	01/18/2014 02:47	2.00	0.594	5.0	104
Chromium	ug/L	01/18/2014 02:47	2.00	0.142	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.

811788-011 Molybdenum	ug/L	01/18/2014 02:47	2.00	0.100	2.0	4.1
Selenium	ug/L	01/18/2014 02:47	2.00	0.424	5.0	ND
811788-013 Barium	ug/L	01/18/2014 02:53	2.00	0.594	5.0	123
Chromium	ug/L	01/18/2014 02:53	2.00	0.142	1.0	ND
Molybdenum	ug/L	01/18/2014 02:53	2.00	0.100	2.0	3.8
Selenium	ug/L	01/18/2014 02:53	2.00	0.424	5.0	ND

Method Blank

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	2.01	2.00	100	70 - 130
Chromium	ug/L	1.00	0.597	0.500	119	70 - 130
Selenium	ug/L	1.00	1.96	2.00	97.8	70 - 130
Molybdenum	ug/L	1.00	0.535	0.500	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	50.4	50.0	101	85 - 115
Chromium	ug/L	1.00	51.9	50.0	104	85 - 115
Selenium	ug/L	1.00	49.5	50.0	98.9	85 - 115
Molybdenum	ug/L	1.00	53.1	50.0	106	85 - 115

Matrix Spike — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	158	152(50.0)	112	75 - 125
Chromium	ug/L	2.00	51.2	50.0(50.0)	102	75 - 125
Selenium	ug/L	2.00	50.7	50.0(50.0)	101	75 - 125
Molybdenum	ug/L	2.00	56.0	54.0(50.0)	104	75 - 125

Matrix Spike Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	157	152(50.0)	109	75 - 125
Chromium	ug/L	2.00	50.7	50.0(50.0)	101	75 - 125
Selenium	ug/L	2.00	47.9	50.0(50.0)	95.8	75 - 125
Molybdenum	ug/L	2.00	55.9	54.0(50.0)	104	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.

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.4	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
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 = 811788-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	112	102	9.57	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 011714G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811788-001 Arsenic	ug/L	01/18/2014 18:25	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 18:25	1.00	0.0600	0.50	1.2
811788-002 Arsenic	ug/L	01/18/2014 19:01	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 19:01	1.00	0.0600	0.50	1.6
811788-003 Arsenic	ug/L	01/18/2014 19:07	1.00	0.0500	0.50	2.7
811788-006 Arsenic	ug/L	01/18/2014 19:13	1.00	0.0500	0.50	3.0
Manganese	ug/L	01/18/2014 19:13	1.00	0.0600	0.50	1.2
811788-007 Arsenic	ug/L	01/18/2014 19:19	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 19:19	1.00	0.0600	0.50	1.4
811788-008 Arsenic	ug/L	01/18/2014 19:25	1.00	0.0500	0.50	3.0
Manganese	ug/L	01/18/2014 19:25	1.00	0.0600	0.50	1.4
811788-009 Arsenic	ug/L	01/18/2014 19:31	1.00	0.0500	0.50	2.9
Manganese	ug/L	01/18/2014 19:31	1.00	0.0600	0.50	1.0
811788-010 Arsenic	ug/L	01/18/2014 19:37	1.00	0.0500	0.50	2.8
Manganese	ug/L	01/18/2014 19:37	1.00	0.0600	0.50	0.98
811788-011 Arsenic	ug/L	01/18/2014 19:43	1.00	0.0500	0.50	3.0
Manganese	ug/L	01/18/2014 19:43	1.00	0.0600	0.50	1.1
811788-013 Arsenic	ug/L	01/18/2014 19:49	1.00	0.0500	0.50	3.0

Method Blank

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

Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	2.82	2.87	1.58	0 - 20
Manganese	ug/L	1.00	1.08	1.21	11.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.570	0.500	114	70 - 130
Manganese	ug/L	1.00	0.198	0.200	99.0	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
Manganese	ug/L	1.00	50.6	50.0	101	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 = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	53.5	52.9(50.0)	101	75 - 125
Manganese	ug/L	1.00	51.0	51.2(50.0)	99.6	75 - 125

Matrix Spike Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	54.1	52.9(50.0)	102	75 - 125
Manganese	ug/L	1.00	50.7	51.2(50.0)	98.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.7	20.0	98.4	90 - 110
Manganese	ug/L	1.00	19.6	20.0	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	98.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.3	20.0	96.5	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.5	90 - 110

Interference Check Standard A

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	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		

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 012514A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811788-003 Manganese	ug/L	01/25/2014 16:58	2.00	0.120	0.50	40.7
811788-013 Manganese	ug/L	01/25/2014 17:10	2.00	0.120	0.50	91.0

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	1.16	1.14	1.58	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.198	0.200	99.1	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	50.9	50.0	102	85 - 115

Matrix Spike — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	49.0	51.1(50.0)	95.7	75 - 125

Matrix Spike Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	49.4	51.1(50.0)	96.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.3	20.0	96.6	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	18.9	20.0	94.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.2	20.0	95.9	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.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.2	20.0	96.3	90 - 110

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
Manganese	ug/L	1.00	18.9	20.0	94.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.8	20.0	93.8	80 - 120

Serial Dilution Lab ID = 811788-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	41.5	40.7	2.00	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.

Metals by EPA 6010B, Dissolved

Batch 013014A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811788-001 Iron	ug/L	01/30/2014 15:59	2.00	6.00	20.0	ND
811788-002 Iron	ug/L	01/30/2014 16:05	2.00	6.00	20.0	42.7
811788-003 Iron	ug/L	01/30/2014 16:30	2.00	6.00	20.0	58.7
811788-006 Iron	ug/L	01/30/2014 16:37	2.00	6.00	20.0	ND
811788-007 Iron	ug/L	01/30/2014 16:44	2.00	6.00	20.0	22.9
811788-008 Iron	ug/L	01/30/2014 16:51	2.00	6.00	20.0	38.3
811788-009 Iron	ug/L	01/30/2014 16:58	2.00	6.00	20.0	ND
811788-010 Iron	ug/L	01/30/2014 17:05	2.00	6.00	20.0	ND
811788-011 Iron	ug/L	01/30/2014 17:12	2.00	6.00	20.0	ND
811788-013 Iron	ug/L	01/30/2014 17:19	2.00	6.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	2.00	112	113	0.978	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2170	2000	109	85 - 115

Matrix Spike — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	2140	2110(2000)	101	75 - 125

Matrix Spike Duplicate — Lab ID = 811788-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	2100	2110(2000)	99.4	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5160	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.

pH by SM 4500-H B Batch 01PH14N

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
811788-001 pH	pH	01/16/2014 10:29	1.00	0.0784	4.00	8.46	J
811788-002 pH	pH	01/16/2014 10:31	1.00	0.0784	4.00	8.40	J
811788-003 pH	pH	01/16/2014 10:33	1.00	0.0784	4.00	8.20	J
811788-006 pH	pH	01/16/2014 10:35	1.00	0.0784	4.00	8.38	J
811788-007 pH	pH	01/16/2014 10:41	1.00	0.0784	4.00	8.22	J
811788-008 pH	pH	01/16/2014 10:43	1.00	0.0784	4.00	8.30	J
811788-009 pH	pH	01/16/2014 10:45	1.00	0.0784	4.00	8.32	J
811788-010 pH	pH	01/16/2014 10:47	1.00	0.0784	4.00	8.32	J
811788-011 pH	pH	01/16/2014 10:49	1.00	0.0784	4.00	8.30	J
811788-013 pH	pH	01/16/2014 10:51	1.00	0.0784	4.00	8.49	J

Duplicate — Lab ID = 811788-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.39	8.38	0.119	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	7.09	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.09	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.

Total Suspended Solids by SM 2540 D Batch 01TSS14F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811788-001 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	4.30
811788-002 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	ND
811788-003 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	79.1
811788-006 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	ND
811788-007 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	ND
811788-008 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	ND
811788-009 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	ND
811788-010 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	ND
811788-011 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	ND
811788-013 Total Suspended Solids	mg/L	01/22/2014	1.00	0.349	4.00	13.9

Method Blank

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

Duplicate — Lab ID = 811818-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	37.2	37.2	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	94.0	100	94.0	90 - 110

Lab Control Sample Duplicate

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 Suspended Solids by SM 2540 D

Calculations

Batch: 01TSS14F

Date Analyzed: 01/22/14

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	BLANK	1000	1.4197	1.4197	1.4197	0.0000	No	0.0000	0.0	2.5	ND
2	811756	700	1.4285	1.4285	1.4285	0.0000	No	0.0000	0.0	3.6	ND
3	811769	250	1.4237	1.4316	1.4316	0.0000	No	0.0079	31.6	10.0	31.6
4	811777-1	200	1.4310	1.4617	1.4617	0.0000	No	0.0307	153.5	12.5	153.5
5	811777-2	500	1.4267	1.4371	1.4371	0.0000	No	0.0104	20.8	5.0	20.8
6	811780	100	1.4202	1.4290	1.4290	0.0000	No	0.0088	88.0	25.0	88.0
7	811788-1	700	1.4185	1.4215	1.4215	0.0000	No	0.0030	4.3	3.6	4.3
8	811788-2	700	1.4311	1.4326	1.4326	0.0000	No	0.0015	2.1	3.6	ND
9	811788-3	700	1.4164	1.4718	1.4718	0.0000	No	0.0554	79.1	3.6	79.1
10	811788-6	700	1.4228	1.4255	1.4255	0.0000	No	0.0027	3.9	3.6	3.9
11	811788-7	700	1.4270	1.4284	1.4284	0.0000	No	0.0014	2.0	3.6	ND
12	811780 Dup	100	1.4175	1.4266	1.4266	0.0000	No	0.0091	91.0	25.0	91.0
13	LCS	100	1.4227	1.4321	1.4321	0.0000	No	0.0094	94.0	25.0	94.0
14	811788-8	700	1.4238	1.4260	1.4260	0.0000	No	0.0022	3.1	3.6	ND
15	811788-9	700	1.4262	1.4274	1.4274	0.0000	No	0.0012	1.7	3.6	ND
16	811788-10	700	1.4350	1.4368	1.4368	0.0000	No	0.0018	2.6	3.6	ND
17	811788-11	700	1.4297	1.4307	1.4307	0.0000	No	0.0010	1.4	3.6	ND
18	811788-13	700	1.4287	1.4384	1.4384	0.0000	No	0.0097	13.9	3.6	13.9
19	811803	300	1.4343	1.4343	1.4343	0.0000	No	0.0000	0.0	8.3	ND
20	811810	200	1.4332	1.4451	1.4451	0.0000	No	0.0119	59.5	12.5	59.5
21	811818	250	1.4202	1.4295	1.4295	0.0000	No	0.0093	37.2	10.0	37.2
22	811837	350	1.4259	1.4320	1.4320	0.0000	No	0.0061	17.4	7.1	17.4
23	811838	150	1.4264	1.4516	1.4516	0.0000	No	0.0252	168.0	16.7	168.0
24	811818 Dup	250	1.4298	1.4391	1.4391	0.0000	No	0.0093	37.2	10.0	37.2
25	LCSD	100	1.4290	1.4386	1.4386	0.0000	No	0.0096	96.0	25.0	96.0

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

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	94.0	100	94.0%	90-110%	Yes
LCSD	96.0	100	96.0%	90-110%	Yes

LCS Recovery

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

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

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

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?
811780	0.0088	0.0091	1.7%	5%	Yes
811818	0.0093	0.0093	0.0%	5%	Yes

Himani
Analyst Name

Analyst Signature

Maksim
Reviewer Signature

Reveiwer Signature

811788

CH2MHILL **CHAIN OF CUSTODY RECORD** 1/15/2014 2:22:35 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2014-RMP-194
Turnaround Time 10 Days
Shipping Date: 1/8/2014
COC Number: TLI-RMP194

				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1x1 Liter	1x1 Liter	1x1 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			
				Filtered:	Field	NA	NA	Field	Field	NA	NA	NA			
				Holding Time:	28	28	180	180	180	2	2	2			
					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)	PH (SM4500HB)	TSS (SM2540)		Number of Containers	COMMENTS
		DATE	TIME	Matrix											
1	C-CON-D-194	1/15/2014	9:32	Water	X		X	X	X	X	X	X		8	
2	C-CON-S-194	1/15/2014	9:44	Water	X		X	X	X	X	X	X		8	MM=2 6020A 6010B
3	C-MAR-S-194	1/15/2014	8:58	Water	X		X	X	X	X	X	X		8	
4	C-MW-82-194	1/15/2014	10:38	Water		X								1	
5	C-MW-83-194	1/15/2014	8:50	Water		X								1	
6	C-NR1-D-194	1/15/2014	10:04	Water	X		X	X	X	X	X	X		8	
7	C-NR1-S-194	1/15/2014	10:20	Water	X		X	X	X	X	X	X		8	
8	C-NR3-D-194	1/15/2014	10:50	Water	X		X	X	X	X	X	X		8	
9	C-NR3-S-194	1/15/2014	11:06	Water	X		X	X	X	X	X	X		8	MM=2 6020A 6010B
10	C-NR4-D-194	1/15/2014	11:34	Water	X		X	X	X	X	X	X		8	
11	C-NR4-S-194	1/15/2014	11:46	Water	X		X	X	X	X	X	X		8	
12	RMP-AB2-194	1/15/2014	12:00	Water		X								1	
13	RRB-194	1/15/2014	13:26	Water	X		X	X	X	X	X	X		8	MM=2 6020A 6010B
													TOTAL NUMBER OF CONTAINERS	83	

* Where provided w/ multiple bottles for Cr6 + metals, please analyze 1 + hold 2

ALERT !! Level III QC

Signatures	Date/Time
Approved by	1-15-14
Sampled by	1600
Relinquished by	
Received by	1-15-14 1900
Relinquished by	1-15-14 2310
Received by	1/15/14 2310

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:
Jan 13-14, 2014

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
1/16/14	811785-5	9.5	N/A	N/A	N/A	NE
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	811786-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	811787-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
✓	811788-1	✓	✓	✓	✓	✓

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
1/16/14	811738-2	9.5	N/A	N/A	N/A	NE
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
1/17/14	811820-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	811821-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	811822-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					

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
811620	<1	<2	1/9/14	ES	yes			
811621	↓	↓	↓	↓	↓			
811624								
811643								
811647 (1-2)								
811649-4					↓			
811611 (1-2,4)		>2			NO	5:00	1/13/14 10:00	pH <2
811617		↓			↓	↓	↓	↓
811635 (10-12)								
811648 (1-7)								
811650 (1-4)								
811662 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
811598 (1-4)	<1	<2	1/10/14	ES	yes			
811623 (1-2)	↓	>2	↓	↓	↓	11:00		Filtered then acidify
811624 (1-7)		<2						
811651 (1-4)		↓						
811652 (1-2)	↓	↓	↓	↓	↓			
811653 (1-15)	<1	<2	1/10/14	ES	yes			
811654 (1-15)	<1	<2	1/14/14	ES	yes			
811626 (1-3)	<1	>2	1/15/14	ES	yes	10:30		pH <2
811582 (1-3)	↓	<2	↓	↓	↓			
811628 (1-3)		↓						
811655 (1-7)	↓	↓	↓	↓	↓			
811731	<1	<2	1/15/14	ES	yes			
811728	↓	↓	↓	↓	↓			
811707								
811708								
811709								
811710								
811729								
811735								
811736		↓			↓			
811707-6		>2			NO	1:00		
811711 (1-2,4)		↓			↓	↓		
811739	↓	↓	↓	↓	↓	↓		
811788 (1-3,6-13)	<1	<2	1/16/14	KK	yes	—	—	dissolved bottles
811788 (1-3,6-13)	<1	<2	1/16/14	KK	yes	-	-	total bottles
811747 (1-3,6-14)	<1	<2	1/16/14	KK	yes	—	-	total bottles
811747 (1-3,6-14,16)	<1	<2	1/16/14	KK	yes	-	-	dissolved
811688 (1-6)	<1	<2	1/16/14	KK	yes			
811750-1	<1	<2	1/16/14	KK	yes			
811748	<1	>2	1/17/14	KK	yes			total
811799 (1-3)	<1	<2	1/17/14	KK	yes			total
811751 (1-8)	<1	<2	1/17/14	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 #** 811788

Date Delivered: 01/15/14 **Time:** 23:10 **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? Temperature (if yes)? 4-3 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

ALERT !! Level III QC

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

February 11, 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 2014-GMP-196, GROUNDWATER MONITORING PROJECT, TLI NO.: 811975

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-GMP-196 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 January 28, 2014, 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.: 811975
Date Received: January 28, 2014

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
811975-001	MW-34-100-196	E218.6	FLDFLT	1/22/2014	9:36	Chromium, Hexavalent	263	ug/L	5.0
811975-001	MW-34-100-196	SW6020	FLDFLT	1/22/2014	9:36	Arsenic	1.8	ug/L	0.50
811975-001	MW-34-100-196	SW6020	FLDFLT	1/22/2014	9:36	Chromium	270	ug/L	1.0
811975-002	MW-46-175-196	E218.6	FLDFLT	1/22/2014	10:45	Chromium, Hexavalent	46.3	ug/L	1.0
811975-002	MW-46-175-196	SW6020	FLDFLT	1/22/2014	10:45	Chromium	46.1	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.03
P.O. Number: 423575.MP.02.GM.03
Release Number:

Laboratory No. 811975

Printed 2/11/2014

Samples Received on 1/28/2014 6:45:00 PM

Field ID	Lab ID	Collected	Matrix
MW-34-100-196	811975-001	01/22/2014 09:36	Water
MW-46-175-196	811975-002	01/22/2014 10:45	Water

Chrome VI by EPA 218.6

Batch 01CrH14AH

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811975-001 Chromium, Hexavalent	ug/L	01/29/2014 12:36	25.0	0.150	5.0	263
811975-002 Chromium, Hexavalent	ug/L	01/29/2014 14:05	5.00	0.0300	1.0	46.3

Method Blank

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

Duplicate — Lab ID = 811976-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.154	0.175	12.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.185	0.200	92.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	90 - 110

Matrix Spike — Lab ID = 811975-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	630	638(375)	97.9	90 - 110

Matrix Spike — Lab ID = 811975-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	98.8	96.3(50.0)	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.

Metals by EPA 6020A, Dissolved

Batch 020314B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811975-001 Chromium	ug/L	02/04/2014 00:39	5.00	0.355	2.5	270
811975-002 Chromium	ug/L	02/04/2014 00:45	5.00	0.355	2.5	46.1

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 811941-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	1.95	1.61	18.9	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.520	0.500	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.7	50.0	101	85 - 115

Matrix Spike — Lab ID = 811941-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.6	51.6(50.0)	92.0	75 - 125

Matrix Spike Duplicate — Lab ID = 811941-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.0	51.6(50.0)	90.8	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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.5	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	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.

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.1	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	20.5	20.0	102	80 - 120

Interference Check Standard AB

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

Serial Dilution — Lab ID = 811975-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	47.2	46.1	2.41	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 013114H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811975-001 Arsenic	ug/L	02/01/2014 21:18	2.00	0.100	0.50	1.8

Method Blank

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

Duplicate — Lab ID = 811941-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	ND	0	0	0 - 20
Chromium	ug/L	2.00	1.72	1.70	0.937	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.168	0.200	83.9	70 - 130
Chromium	ug/L	1.00	0.251	0.200	126	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.7	50.0	99.4	85 - 115
Chromium	ug/L	1.00	49.0	50.0	98.0	85 - 115

Matrix Spike — Lab ID = 811941-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	47.0	50.0(50.0)	94.0	75 - 125
Chromium	ug/L	2.00	45.2	51.7(50.0)	87.0	75 - 125

Matrix Spike Duplicate — Lab ID = 811941-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	46.3	50.0(50.0)	92.6	75 - 125
Chromium	ug/L	2.00	44.7	51.7(50.0)	85.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	99.1	90 - 110
Chromium	ug/L	1.00	19.7	20.0	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.4	20.0	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.03

Printed 2/11/2014

Interference Check Standard AB

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

811975

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 2014-GMP-196
Turnaround Time 10 Days
Shipping Date: 1/7/2014
COC Number: GMP-196

Rec'd 01/28/14
~~S-12c~~ 811975

	DATE	TIME	Matrix	Container	250 ml Poly	500 ml Poly	500 ml Poly	Number of Containers	COMMENTS
				Preservatives	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C		
				Filtered:	Field	Field	Field		
				Holding Time:	28	180	180		
					Cr6 (E218.6) FF	Metals (6020A) FF Arsenic,Chromium	Metals (6020A) FF Chromium		
-1	MW-34-100-R16	1-22-14	0936	Water	X	X		2	PH-2 6020A
-2	MW-46-175-R16	1	1045	"	X		X	2	
							TOTAL NUMBER OF CONTAINERS	4	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

Signatures		Date/Time
Approved by		1-28-14 1455
Sampled by		
Relinquished by		1-28-14 1455
Received by		1-28-14 1455
Relinquished by		1-28-14 1845
Received by		1/28/14 1845

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:

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
1/24/14	811931-4	9.5	N/A	N/A	N/A	NE
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
1/25/14	88940-1	9.5	N/A	N/A	N/A	NE
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	✓ -4	↓	↓	↓	↓	↓
↓	811941-1	↓	↓	↓	↓	↓
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	811942-1	↓	↓	↓	↓	↓
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	✓ -6	↓	↓	↓	↓	↓
↓	811943-1	↓	↓	↓	↓	↓
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	✓ -5	↓	↓	↓	↓	↓
↓	811944-1	↓	↓	↓	↓	↓
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	✓ -5	↓	↓	↓	↓	↓
1/29/14	811975-1	9.5	N/A	N/A	N/A	NE
↑	↓ -2	↓	↓	↓	↓	↓
↓	811976	7.00	2ml/100ml	9.5	8:45	Felipe

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
811935	<1	<2	2/4/14	KD	Yes			
811939								
811951(1-2)								
811954								
811955			2/4/14	KD	Yes			
811964								
811965								
811988(1-2)								
811989								
811991								
811994								
812004								
812013								
812014								
812017								
812018								
812023 (1-2)								
812025								
811930(1-8)	<1	<2	1/31/14	ES	Yes			
811931(1-5)								
811946(1,3-4)								
811941 (1-2)								
ES 1/31/14 ~~811947 (1,3-6)~~								
811942(1,3-6)								
811943 (1-4)								
811944 (1-5)								
811975 811[illegible](1-2)								
811914-(4,5,7)	<1	>2	2/3/14	KD	yes			Filtered then acidify
~~811967 (1-2)~~	~~<1~~	~~>2~~	~~2/5/14~~	~~KK~~	~~NO~~	~~1:30pm~~	~~KK 2/5/14~~	
811967(1-2-4)	<1	>2	2/5/14	KK	NO	1:30 pm	2/6/14 @ 8am	
811984 811984(1-3)	<1	>2						
811974								
811998 (10-12)								
812027 (1-2,4)								
812048-1	>1	>2	2/5/14	KK	yes			
812048-2	<2 ~~<1~~	>2	2/5/14	KK	NO	1:30 pm		
812048-6	↓	↓	↓	↓	↓	↓		
812060 (4-6)	<1	>2	2/5/14	KK	NO	1:30 pm		
812034	>1	<2	2/5/14	KK	yes			
812035								
812036								
812037								
812038								
812039								

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 #** 811975

Date Delivered: 01/28/14 **Time:** 18:45 **By:** ☐Mail ☑Field Service ☐Client

1.	Was a Chain of Custody received and signed?	☑Yes	☐No	☐N/A
2.	Does Customer require an acknowledgement of the COC?	☐Yes	☑No	☐N/A
3.	Are there any special requirements or notes on the COC?	☐Yes	☑No	☐N/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes	☐No	☑N/A
5.	Were all requested analyses understood and acceptable?	☑Yes	☐No	☐N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? 4.2 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑**Truesdail** ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = see C.O.C	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ **RUSH** ☑ Std	☑Yes	☐No	☐N/A

ALERT !! Level III QC

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

April 9, 2014

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

Dear Mr. Duffy:

SUBJECT: REVISED CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-215, GROUNDWATER MONITORING PROJECT, TLI NO.: 812051

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-215 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 February 4, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

Total Dissolved Iron by EPA 200.7 in analytical batch 021814B-Th2 was detected in the method blank just above the reporting limit. Because the sample results were below the reporting limit and all other QA/QC were within acceptable limits, the data was accepted.

On April 8, 2014, Mr. Duffy requested that the results be reviewed, as some did not correspond to historical data. After review, the Total Dissolved Calcium, Iron, Magnesium, Sodium, Chromium, and Manganese results for PE-01-215 and TW-03D-215 appeared to be switched based on historical data. The client and laboratory labels were checked on the sample containers and all of them matched the chain of custody. Sample from the metals sample containers were re-analyzed for confirmation and yielded results that matched the original runs. Sample from the Hexavalent Chromium sample containers were then analyzed for the same metals and yielded results that indicated the metals containers were switched in the field. After discussing the results with Mr. Duffy, the report was revised. The metals sample analyzed as 812051-2 in the raw data was reported as 812051-1 (PE-01-215) on the Analytical Results Summary, final report pages, and batch summary pages. The metals sample analyzed as 812051-1 in the raw data was reported as 812051-2 (TW-03D-215) on the Analytical Results Summary, final report pages, and batch summary pages.

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.: 812051
Date: February 28, 2014
Collected: February 4, 2014
Received: February 4, 2014

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	Maria Mangarova
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

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

Laboratory No.: 812051
Date Received: February 4, 2014
Revision 1; April 8, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812051-001	PE-01-215	E120.1	NONE	2/4/2014	13:10	EC	3820	umhos/cm	2.00
812051-001	PE-01-215	E200.7	LABFLT	2/4/2014	13:10	Calcium	118000	ug/L	5000
812051-001	PE-01-215	E200.7	LABFLT	2/4/2014	13:10	Iron	ND	ug/L	20.0
812051-001	PE-01-215	E200.7	LABFLT	2/4/2014	13:10	Magnesium	23700	ug/L	10000
812051-001	PE-01-215	E200.7	LABFLT	2/4/2014	13:10	Sodium	747000	ug/L	50000
812051-001	PE-01-215	E200.8	LABFLT	2/4/2014	13:10	Chromium	6.0	ug/L	1.0
812051-001	PE-01-215	E200.8	LABFLT	2/4/2014	13:10	Manganese	54.5	ug/L	0.50
812051-001	PE-01-215	E218.6	LABFLT	2/4/2014	13:10	Chromium, Hexavalent	5.6	ug/L	0.20
812051-001	PE-01-215	E300	NONE	2/4/2014	13:10	Chloride	1110	mg/L	50.0
812051-001	PE-01-215	E300	NONE	2/4/2014	13:10	Nitrate as N	ND	mg/L	0.500
812051-001	PE-01-215	E300	NONE	2/4/2014	13:10	Sulfate	418	mg/L	12.5
812051-001	PE-01-215	SM2320B	NONE	2/4/2014	13:10	Alkalinity	217	mg/L	5.00
812051-001	PE-01-215	SM2320B	NONE	2/4/2014	13:10	Alkalinity, Bicarbonate (As CaCO3)	217	mg/L	5.00
812051-001	PE-01-215	SM2320B	NONE	2/4/2014	13:10	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
812051-001	PE-01-215	SM2540C	NONE	2/4/2014	13:10	Total Dissolved Solids	2630	mg/L	125
812051-001	PE-01-215	SM4500HB	NONE	2/4/2014	13:10	PH	7.57 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
812051-002	TW-03D-215	E120.1	NONE	2/4/2014	13:10	EC	7570	umhos/cm	2.00
812051-002	TW-03D-215	E200.7	LABFLT	2/4/2014	13:10	Calcium	230000	ug/L	50000
812051-002	TW-03D-215	E200.7	LABFLT	2/4/2014	13:10	Iron	ND	ug/L	20.0
812051-002	TW-03D-215	E200.7	LABFLT	2/4/2014	13:10	Magnesium	37200	ug/L	10000
812051-002	TW-03D-215	E200.7	LABFLT	2/4/2014	13:10	Sodium	1800000	ug/L	250000
812051-002	TW-03D-215	E200.8	LABFLT	2/4/2014	13:10	Chromium	804	ug/L	20.0
812051-002	TW-03D-215	E200.8	LABFLT	2/4/2014	13:10	Manganese	7.1	ug/L	0.50
812051-002	TW-03D-215	E300	NONE	2/4/2014	13:10	Chloride	2630	mg/L	50.0
812051-002	TW-03D-215	E300	NONE	2/4/2014	13:10	Nitrate as N	3.93	mg/L	0.500
812051-002	TW-03D-215	E300	NONE	2/4/2014	13:10	Sulfate	577	mg/L	25.0
812051-002	TW-03D-215	SM2320B	NONE	2/4/2014	13:10	Alkalinity	135	mg/L	5.00
812051-002	TW-03D-215	SM2320B	NONE	2/4/2014	13:10	Alkalinity, Bicarbonate (As CaCO3)	135	mg/L	5.00
812051-002	TW-03D-215	SM2320B	NONE	2/4/2014	13:10	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
812051-002	TW-03D-215	SM2540C	NONE	2/4/2014	13:10	Total Dissolved Solids	5190	mg/L	250
812051-002	TW-03D-215	SM3500-CrB	LABFLT	2/4/2014	13:10	Chromium, Hexavalent	816	ug/L	250
812051-002	TW-03D-215	SM4500HB	NONE	2/4/2014	13:10	PH	7.60 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. 812051

Printed 2/28/2014

Samples Received on 2/4/2014 6:20:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-215	812051-001	02/04/2014 13:10	Water
TW-03D-215	812051-002	02/04/2014 13:10	Water

Anions By I.C. - EPA 300.0

Batch 02AN14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Chloride	mg/L	02/05/2014 13:52	500	17.4	50.0	1110
Nitrate as Nitrogen	mg/L	02/05/2014 10:02	5.00	0.0415	0.500	ND
Sulfate	mg/L	02/05/2014 14:14	25.0	0.768	12.5	418
812051-002 Chloride	mg/L	02/05/2014 14:03	500	17.4	50.0	2630
Nitrate as Nitrogen	mg/L	02/05/2014 10:14	5.00	0.0415	0.500	3.93
Sulfate	mg/L	02/05/2014 14:26	50.0	1.54	25.0	577

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 = 812027-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	50.0	98.6	100	1.44	0 - 20

Duplicate — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.32	2.33	0.387	0 - 20
Sulfate	mg/L	100	555	555	0.0187	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.20	3.16	1.10	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	4.06	4.00	101	90 - 110
Fluoride	mg/L	1.00	4.19	4.00	105	90 - 110
Sulfate	mg/L	1.00	20.5	20.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.05	4.00	101	90 - 110

Matrix Spike Lab ID = 812027-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	50.0	300	300(200)	99.8	85 - 115

Matrix Spike Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.4	22.3(20.0)	105	85 - 115
Sulfate	mg/L	100	1680	1560(1000)	112	85 - 115
Nitrate as Nitrogen	mg/L	5.00	24.4	23.2(20.0)	106	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.89	4.00	97.3	90 - 110
Fluoride	mg/L	1.00	4.07	4.00	102	90 - 110
Sulfate	mg/L	1.00	19.8	20.0	98.8	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.95	4.00	98.8	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
Chloride	mg/L	1.00	2.90	3.00	96.6	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
Chloride	mg/L	1.00	2.92	3.00	97.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.08	3.00	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.

Alkalinity by SM 2320B

Batch 02ALK14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Alkalinity as CaCO3	mg/L	02/10/2014	1.00	1.68	5.00	217
Bicarbonate (Calculated)	mg/L	02/10/2014	1.00	1.68	5.00	217
Carbonate (Calculated)	mg/L	02/10/2014	1.00	1.68	5.00	ND
812051-002 Alkalinity as CaCO3	mg/L	02/10/2014	1.00	1.68	5.00	135
Bicarbonate (Calculated)	mg/L	02/10/2014	1.00	1.68	5.00	135
Carbonate (Calculated)	mg/L	02/10/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate — Lab ID = 812089-020

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	122	124	1.63	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	100	100	100	90 - 110

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	246	251(100)	95.0	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

Specific Conductivity - EPA 120.1

Batch 02EC14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Specific Conductivity	umhos/cm	02/05/2014	1.00	0.606	2.00	3820
812051-002 Specific Conductivity	umhos/cm	02/05/2014	1.00	0.606	2.00	7570

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6630	6620	0.151	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	704	706	99.7	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	705	706	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1040	1000	104	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.

Chrome VI by EPA 218.6

Batch 02CrH14 B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Chromium, Hexavalent	ug/L	02/05/2014 11:07	1.00	0.00600	0.20	5.6

Method Blank

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

Duplicate — Lab ID = 812051-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.55	5.57	0.324	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	5.18	5.00	104	90 - 110

Matrix Spike — Lab ID = 812051-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.7	15.6(10.0)	101	90 - 110

Matrix Spike — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.63	1.53(1.00)	109	90 - 110

Matrix Spike — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.83	5.52(5.00)	106	90 - 110

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1460	1440(750)	103	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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	10.5	10.0	105	95 - 105

MRCVS - Primary

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

Chromium, Hexavalent by SM 3500-Cr B Batch 02CrH14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-002 Chromium, Hexavalent	ug/L	02/06/2014 15:18	25.0	110	250	816

Method Blank

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

Duplicate — Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	846	816	3.57	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	55.1	60.0	91.8	90 - 110

Matrix Spike — Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3270	3320(2500)	98.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	55.1	60.0	91.8	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.

pH by SM 4500-H B

Batch 02pH14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
812051-001 pH	pH	02/05/2014 11:30	1.00	0.0784	4.00	7.57	J
812051-002 pH	pH	02/05/2014 11:32	1.00	0.0784	4.00	7.60	J

Duplicate — Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.67	7.60	0.917	0 - 20

Duplicate — Lab ID = 812073-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.60	8.59	0.116	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.09	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.09	7.00	101	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 02TDS14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Total Dissolved Solids	mg/L	02/05/2014	1.00	1.76	125	2630
812051-002 Total Dissolved Solids	mg/L	02/05/2014	1.00	1.76	250	5190

Method Blank

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

Duplicate — Lab ID = 812060-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	559	574	2.65	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	499	500	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.

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

Printed 4/9/2014
Revised

Metals by EPA 200.8, Dissolved

Batch 021214A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Chromium	ug/L	02/12/2014 15:28	1.00	0.0710	1.0	6.0
Manganese	ug/L	02/12/2014 15:28	1.00	0.0600	0.50	54.5
812051-002 Chromium	ug/L	02/12/2014 14:14	20.0	1.42	20.0	804
Manganese	ug/L	02/12/2014 15:03	1.00	0.0600	0.50	7.1

Method Blank

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

Duplicate

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	20.0	841	804	4.49	
Manganese	ug/L	1.00	7.83	7.10	9.73	

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	1.15	1.00	115	70 - 130
Manganese	ug/L	1.00	0.487	0.500	97.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.4	50.0	98.7	85 - 115
Manganese	ug/L	1.00	49.1	50.0	98.3	85 - 115

Matrix Spike

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	20.0	1720	1800(1000)	91.8	75 - 115
Manganese	ug/L	1.00	54.2	57.1(50.0)	94.3	75 - 115

Matrix Spike Duplicate

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	1.00	55.3	57.1(50.0)	96.5	75 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	90 - 110
Manganese	ug/L	1.00	20.1	20.0	100	90 - 110

MRCVS - Primary

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

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

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
Manganese	ug/L	1.00	19.9	20.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	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 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	19.7	20.0	98.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	102	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.0	20.0	99.8	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

Serial Dilution — Lab ID = 812051-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	5.00	54.9	54.5	0.658	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.

Serial Dilution — Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	840	804	4.38	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: 428648.IM.CS.EX.AC

Printed 4/9/2014
Revised

Metals by 200.7, Dissolved

Batch 021814B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Iron	ug/L	02/18/2014 17:13	1.00	3.00	20.0	ND
812051-002 Iron	ug/L	02/18/2014 16:12	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	26.2

Duplicate

Lab ID = 812051-002

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	2230	2000	112	85 - 115

Matrix Spike

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1930	2000(2000)	96.6	75 - 125

Matrix Spike Duplicate

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2000	2000(2000)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	95 - 105

MRCVS - Primary

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	5410	5000	108	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2280	2000	114	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2200	2000	110	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.

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

Printed 4/9/2014
Revised

Metals by 200.7, Dissolved

Batch 022014A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Calcium	ug/L	02/20/2014 19:11	10.0	170	5000	118000
Magnesium	ug/L	02/20/2014 19:11	10.0	4680	10000	23700
812051-002 Calcium	ug/L	02/20/2014 18:04	100	1700	50000	230000
Magnesium	ug/L	02/20/2014 18:46	10.0	4680	10000	37200

Method Blank

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

Duplicate

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	227000	230000	1.31	0 - 20
Magnesium	ug/L	10.0	38500	37200	3.41	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2090	2000	104	85 - 115
Magnesium	ug/L	1.00	1990	2000	99.4	85 - 115

Matrix Spike

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	440000	430000(200000)	105	75 - 125
Magnesium	ug/L	10.0	61100	57200(20000)	119	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5150	5000	103	95 - 105
Magnesium	ug/L	1.00	5120	5000	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5180	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5310	5000	106	90 - 110

MRCVS - Primary

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

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

Metals by 200.7, Dissolved

Batch 022714A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812051-001 Sodium	ug/L	02/27/2014 15:34	100	5980	50000	747000
812051-002 Sodium	ug/L	02/27/2014 14:54	500	29900	250000	1800000

Method Blank

Parameter	Unit	DF	Result
Sodium	ug/L	1.00	ND

Duplicate

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	ug/L	500	1480000	1800000	19.7	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2000	2000	100	85 - 115

Matrix Spike

Lab ID = 812051-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	ug/L	500	2630000	2800000(10000C	82.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	5200	5000	104	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4840	5000	96.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4880	5000	97.5	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1860	2000	93.2	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1910	2000	95.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1900	2000	95.0	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.

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1930	2000	96.4	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.

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 02TDS14A
Date Analyzed: 2/5/2014

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	76.2767	76.2769	76.2768	0.0001	No	0.0001	1.0	25.0	ND	1
812019	1000	173.2009	173.2027	173.2027	0.0000	No	0.0018	1.8	2.5	ND	1
812023-1	100	80.5727	80.6154	80.6154	0.0000	No	0.0427	427.0	25.0	427.0	1
812023-2	100	74.1439	74.1988	74.1988	0.0000	No	0.0549	549.0	25.0	549.0	1
812027-2	100	67.9655	67.9797	67.9797	0.0000	No	0.0142	142.0	25.0	142.0	1
812027-4	100	74.4532	74.4951	74.4948	0.0003	No	0.0416	416.0	25.0	416.0	1
812051-1	20	30.5001	30.5531	30.5527	0.0004	No	0.0526	2630.0	125.0	2630.0	1
812051-2	10	28.8153	28.8675	28.8672	0.0003	No	0.0519	5190.0	250.0	5190.0	1
812052-1	20	30.3627	30.4502	30.4498	0.0004	No	0.0871	4355.0	125.0	4355.0	1
812052-2	20	29.4886	29.5784	29.5783	0.0001	No	0.0897	4485.0	125.0	4485.0	1
812060-7	100	73.7906	73.8481	73.8480	0.0001	No	0.0574	574.0	25.0	574.0	1
812060-7 Dup	100	75.2752	75.3311	75.3311	0.0000	No	0.0559	559.0	25.0	559.0	1
LCS	100	71.3158	71.3657	71.3657	0.0000	No	0.0499	499.0	25.0	499.0	1
812063-4	100	74.7028	74.7577	74.7577	0.0000	No	0.0549	549.0	25.0	549.0	1
812065-1	100	72.4043	72.4556	72.4554	0.0002	No	0.0511	511.0	25.0	511.0	1
812065-2	100	78.3615	78.4127	78.4126	0.0001	No	0.0511	511.0	25.0	511.0	1
812065-3	100	74.6429	74.6949	74.6945	0.0004	No	0.0516	516.0	25.0	516.0	1
812065-4	100	122.3289	122.3876	122.3876	0.0000	No	0.0587	587.0	25.0	587.0	1
812080-1	100	121.4788	121.5049	121.5049	0.0000	No	0.0261	261.0	25.0	261.0	1
812071-1	100	74.7290	74.7748	74.7748	0.0000	No	0.0458	458.0	25.0	458.0	1
812071-2	100	78.7919	78.8385	78.8381	0.0004	No	0.0462	462.0	25.0	462.0	1
812063-4 Dup	100	77.9828	78.0390	78.0386	0.0004	No	0.0558	558.0	25.0	558.0	1

Calculation as follows:

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

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?
LCS	499.0	500	99.8%	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?
812060-7	0.0574	0.0559	1.3%	≤5%	Yes
812063-4	0.0549	0.0558	0.8%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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: 02TDS14A
Date Analyzed: 2/5/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812019	13.4	ND	8.71	ND
812023-1	769	0.56	499.85	0.85
812023-2	728	0.75	473.2	1.16
812027-2	257	0.55	167.05	0.85
812027-4	672	0.62	436.8	0.95
812051-1	3830	0.69	2489.5	1.06
812051-2	7570	0.69	4920.5	1.05
812052-1	6430	0.68	4179.5	1.04
812052-2	6620	0.68	4303	1.04
812060-7	744	0.77	483.6	1.19
812060-7 Dup	744	0.75	483.6	1.16
LCS				
812063-4	688	0.80	447.2	1.23
812065-1	726	0.70	471.9	1.08
812065-2	727	0.70	472.55	1.08
812065-3	758	0.68	492.7	1.05
812065-4	749	0.78	486.85	1.21
812080-1	346	0.75	224.9	1.16
812071-1	738	0.62	479.7	0.95
812071-2	686	0.67	445.9	1.04
812063-4 Dup	688	0.81	447.2	1.25

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Analytical Batch: 02ALK14A
Matrix: WATER
Date of Analysis: 2/10/14

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	5.19	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
811648-1	7.91	50	0.02	0.00	0.0	7.40		148.0	5	148.0	148.0	ND	ND	
811648-2	7.90	50	0.02	0.00	0.0	7.90		158.0	5	158.0	158.0	ND	ND	
811648-3	8.00	50	0.02	0.00	0.0	7.40		148.0	5	148.0	148.0	ND	ND	
811648-4	7.80	50	0.02	0.00	0.0	7.70		154.0	5	154.0	154.0	ND	ND	
811648-5	7.81	50	0.02	0.00	0.0	7.60		152.0	5	152.0	152.0	ND	ND	
811648-6	7.85	50	0.02	0.00	0.0	8.30		166.0	5	166.0	166.0	ND	ND	
811648-7	7.80	50	0.02	0.00	0.0	8.90		178.0	5	178.0	178.0	ND	ND	
812006-21	8.16	50	0.02	0.00	0.0	5.65		113.0	5	113.0	113.0	ND	ND	
812060-1	8.17	50	0.02	0.00	0.0	6.60		132.0	5	132.0	132.0	ND	ND	
812089-20	8.16	50	0.02	0.00	0.0	6.20		124.0	5	124.0	124.0	ND	ND	
812089-20 DUP	8.14	50	0.02	0.00	0.0	6.10		122.0	5	122.0	122.0	ND	ND	
LCS	10.37	50	0.02	2.0	40.0	4.95		99.0	5	99.0	19.0	80	ND	
LCSD	10.36	50	0.02	2.1	41.0	5.00		100.0	5	100.0	18.0	82	ND	
812089-16	7.57	50	0.02	0.0	0.0	5.60		112.0	5	112.0	112.0	ND	ND	
812051-1	7.58	50	0.02	0.0	0.0	10.85		217.0	5	217.0	217.0	ND	ND	
812051-2	7.55	50	0.02	0.0	0.0	6.75		135.0	5	135.0	135.0	ND	ND	
812052-2	7.54	50	0.02	0.0	0.0	7.55		151.0	5	151.0	151.0	ND	ND	
812130	8.27	50	0.02	0.0	0.0	9.40		188.0	5	188.0	188.0	ND	ND	
812052-2 MS	8.95	50	0.02	0.0	0.0	12.30		246.0	5	246.0	246.0	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	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?
812089-20	124	122	1.6%	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?
812052-2	151	1	100	100	246	251.00	95%	75-125	Yes			
				0								

Himani Vaishnav
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

0214A.xls

035

812051

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-215]

TURNAROUND TIME 10 Days
DATE 02/04/14 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

Rec'd 02/04/14
812051

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-01-215	02/04/14	13:10	Ground water	X		X	X	X	X	4	pH=7 (200.8/200.7)
-2 TW-03D-215	02/04/14	13:10	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

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	CHRIS LEWIS	CH2M HILL	2-4-14 14:15
Signature (Received)	THANH NGO	TRUESDAIL	2-4-14 14:15
Signature (Relinquished)	THANH NGO	TLI	2-4-14 1820
Signature (Received)	Rachel Brady	TLI	2/4/14 @ 1820
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.2 °C
CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

074

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
1/24/14	811931-4	9.5	N/A	N/A	N/A	NE
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
1/25/14	88940-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	✓ -4					
	811941-1					
	-2					
	-3					
	811942-1					
	-2					
	-3					
	-4					
	-5					
	✓ -6					
	811943-1					
	-2					
	-3					
	-4					
	✓ -5					
	811944-1					
	-2					
	-3					
	-4					
↓	✓ -5	↓	↓	↓	↓	↓
1/29/14	811975-1	9.5	N/A	N/A	N/A	NE
↑	↓ -2	↓	↓	↓	↓	↓
↓	811976	7.00	2ml/100ml	9.5	8:45	Felipe
2/5/14	812051-1	7.00	↓	↓	8:00	NE
	-2 (WET)	↓	↓	↓	↓	NE

NE
02/05/14

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
812041	1	<2	2/5/14	[illegible]	YES			
812042	↓	↓	↓	↓	↓			
812062 (1-3)	<1	>2	2/5/14	EK	YES	2 pm	2/6/14 @ 8am	
811976	<1	>2	2/6/14	ES	yes	3:00	↓	pH <2
812005 (1-3)	↓	<2	↓	↓	↓	↓	↓	↓
812052 (1-2)	↓	>2	↓	↓	↓	3:00	2/6/14 @ 8am	pH <2
812081 (1-5)	↓	>2	↓	↓	↓	↓	↓	T/D
812051 (1-2)	<1	>2	2/7/14	KK	YES	10:00	↓	lab filtered
812052 (-2)	<1	>2	↓	↓	↓ 2/10/14	↓	↓	↓
812089 (16,23)	<1	>2	2/12/14	ES	ES ~~yes~~ NO	10:00	↓	↓
812130	<1	<2	↓	↓	yes	↓	↓	↓
812098	↓	↓	↓	↓	↓	↓	↓	↓
812101	↓	↓	↓	↓	↓	↓	↓	↓
812112	↓	↓	↓	↓	↓	↓	↓	↓
812113 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
812110	↓	↓	↓	↓	↓	↓	↓	↓
812142	↓	↓	↓	↓	↓	↓	↓	↓
812147	↓	↓	↓	↓	↓	↓	↓	↓
812148	↓	↓	↓	↓	↓	↓	↓	↓
812149	↓	↓	↓	↓	↓	↓	↓	↓
812150	↓	↓	↓	↓	↓	↓	↓	↓
812151	↓	↓	↓	↓	↓	↓	↓	↓
812114	↓	↓	↓	↓	↓	↓	↓	↓
812145	↓	↓	↓	↓	↓	↓	↓	↓
812091	↓	↓	↓	↓	↓	↓	↓	↓
812071 (1-2	↓	↓	↓	↓	↓	↓	↓	↓
812123 (1-4)	↓	↓	↓	↓	↓	↓	↓	↓
812128 (1-2)	↓	↓	↓	↓	↓	↓	↓	↓
812121	↓	↓	↓	↓	↓	↓	↓	↓
812122	↓	↓	↓	↓	↓	↓	↓	↓
812062 (1-4)	↓	>2	↓	↓	NO	10:00	2/13/14 1:00	pH <2
812161	↓	↓	↓	↓	↓	↓	↓ ↓	↓
812134	↓	↓	↓	↓	↓	↓	↓ ↓	↓
812072 (10-12)	↓	↓	↓	↓	↓	↓	↓ ↓	↓
812162	<1	>2	2/13/14	ES	yes	3:00		pH <2
812163 (1-4)	↓	<2	↓	↓	↓	↓	↓	↓
812165 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
812172 (10-12)	<1	>2	2/14/14	ES	NO	2:00	2/18/14 10:00	pH <2
812195 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
812174 (1-2)	>1	<2	↓	↓	yes	↓	↓	↓
812180	<1	↓	↓	↓	↓	↓	↓	↓
812184	↓	↓	↓	↓	↓	↓	↓	↓
812189	↓	↓	↓	↓	↓	↓	↓	↓
812190	>1	↓	↓	↓	↓	↓	↓	↓

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 #** 812051

Date Delivered: 02/04/14 **Time:** 18:20 **By:** ☐Mail ☑Field Service ☐Client

1.	Was a Chain of Custody received and signed?	☑Yes	☐No	☐N/A
2.	Does Customer require an acknowledgement of the COC?	☐Yes	☑No	☐N/A
3.	Are there any special requirements or notes on the COC?	☐Yes	☑No	☐N/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes	☐No	☑N/A
5.	Were all requested analyses understood and acceptable?	☑Yes	☐No	☐N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? 4.2 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐**Truesdail** ☐Client	☐Yes	☐No	☑N/A
12.	Were samples pH checked? pH = see C.O.C	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ **RUSH** ☑ Std	☑Yes	☐No	☐N/A

15. ***Sample Matrix:*** ☐Liquid ☐Drinking Water ☑Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☐Other_____

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

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

February 19, 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 2014-GMP-197-Q1, GROUNDWATER MONITORING PROJECT, TLI NO.: 812163

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-GMP-197-Q1 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody February 11, 2014, 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

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

Laboratory No.: 812163
Date Received: February 11, 2014
Revision 1; February 20, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812163-001	MW-27-060-197	E218.6	FLDFLT	2/10/2014	14:20	Chromium, Hexavalent	ND	ug/L	0.20
812163-001	MW-27-060-197	SW6020	FLDFLT	2/10/2014	14:20	Chromium	ND	ug/L	1.0
812163-002	MW-27-085-197	E218.6	FLDFLT	2/10/2014	15:32	Chromium, Hexavalent	ND	ug/L	1.0
812163-002	MW-27-085-197	SW6020	FLDFLT	2/10/2014	15:32	Chromium	ND	ug/L	1.0
812163-003	MW-34-080-197	E218.6	FLDFLT	2/10/2014	12:12	Chromium, Hexavalent	ND	ug/L	0.20
812163-003	MW-34-080-197	SW6020	FLDFLT	2/10/2014	12:12	Chromium	ND	ug/L	1.0
812163-004	MW-34-100-197	E218.6	FLDFLT	2/11/2014	9:46	Chromium, Hexavalent	159	ug/L	2.0
812163-004	MW-34-100-197	SW6020	FLDFLT	2/11/2014	9:46	Chromium	170	ug/L	1.0
812163-005	MW-200-197	E218.6	FLDFLT	2/11/2014	6:50	Chromium, Hexavalent	ND	ug/L	0.20
812163-006	MW-201-197	E218.6	FLDFLT	2/11/2014	6:53	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.

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. 812163

Printed 2/20/2014
Revised

Samples Received on 2/11/2014 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-27-060-197	812163-001	02/10/2014 14:20	Water
MW-27-085-197	812163-002	02/10/2014 15:32	Water
MW-34-080-197	812163-003	02/10/2014 12:12	Water
MW-34-100-197	812163-004	02/10/2014 09:46	Water
MW-200-197	812163-005	02/11/2014 06:50	Water
MW-201-197	812163-006	02/11/2014 06:53	Water

Chrome VI by EPA 218.6 Batch 02CrH14 D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812163-001 Chromium, Hexavalent	ug/L	02/12/2014 10:24	1.00	0.00600	0.20	ND
812163-002 Chromium, Hexavalent	ug/L	02/12/2014 14:15	5.00	0.0300	1.0	ND
812163-003 Chromium, Hexavalent	ug/L	02/12/2014 10:45	1.00	0.00600	0.20	ND
812163-004 Chromium, Hexavalent	ug/L	02/12/2014 11:58	10.0	0.0600	2.0	159
812163-005 Chromium, Hexavalent	ug/L	02/12/2014 11:06	1.00	0.00600	0.20	ND
812163-006 Chromium, Hexavalent	ug/L	02/12/2014 11:16	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.687	0.696	1.24	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.83	5.00	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.

Matrix Spike — Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.52	5.69(5.00)	96.7	90 - 110

Matrix Spike — Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.63	1.70(1.00)	93.1	90 - 110

Matrix Spike — Lab ID = 812163-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.951	1.00(1.00)	95.1	90 - 110

Matrix Spike — Lab ID = 812163-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.79	5.00(5.00)	95.8	90 - 110

Matrix Spike — Lab ID = 812163-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.925	1.00(1.00)	92.5	90 - 110

Matrix Spike — Lab ID = 812163-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.935	1.00(1.00)	93.5	90 - 110

Matrix Spike — Lab ID = 812163-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	342	359(200)	91.7	90 - 110

Matrix Spike — Lab ID = 812163-005

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 = 812163-006

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.2	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.75	10.0	97.5	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 4 of 5
Project Number: 423575.MP.02.GM.03 Printed 2/19/2014

Metals by EPA 6020A, Dissolved

Batch 021314B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812163-001 Chromium	ug/L	02/13/2014 18:53	2.00	0.142	1.0	ND
812163-002 Chromium	ug/L	02/13/2014 18:59	2.00	0.142	1.0	ND
812163-003 Chromium	ug/L	02/13/2014 19:06	2.00	0.142	1.0	ND
812163-004 Chromium	ug/L	02/13/2014 19:12	2.00	0.142	1.0	170

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	1.13	1.28	12.4	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.518	0.500	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.9	50.0	97.9	85 - 115

Matrix Spike

Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.7	51.3(50.0)	94.9	75 - 125

Matrix Spike Duplicate

Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.6	51.3(50.0)	92.7	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 5
Project Number: 423575.MP.02.GM.03 Printed 2/19/2014

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.2	80 - 120

Interference Check Standard AB

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

Serial Dilution Lab ID = 812163-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	181	170	6.39	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.

812163

CH2MHILL **CHAIN OF CUSTODY RECORD** 2/11/2014 12:39:31 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/11/2014
COC Number: 1

	Container:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	500 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) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A-R) Field Filtered Chromium	Metals (6020A) Field Filtered Chromium		

Rec'd 02/11/14
~~S14a~~ 812163

		DATE	TIME	Matrix						Number of Containers	COMMENTS
1	MW-27-060-197	2/10/2014	14:20	Water		X	X			4	
1B	MW-27-060-197-EB	2/10/2014	13:30	Water	X			X		2	
2	MW-27-085-197	2/10/2014	15:32	Water		X	X			4	
2B	MW-27-085-197-EB	2/10/2014	13:50	Water	X			X		2	
3	MW-34-080-197	2/10/2014	12:12	Water		X	X			4	pH-2
3B	MW-34-080-197-EB	2/10/2014	10:04	Water	X			X		2	2/10/14
-4	MW-34-100-197	2/10/2014	9:46	Water	X			X		2	
-5	MW-200-197	2/11/2014	6:50	Water	X					1	
-6	MW-201-197	2/11/2014	6:53	Water	X					1	
									TOTAL NUMBER OF CONTAINERS	22	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		2-11-14
Sampled by		1530
Relinquished by		2-11-14
Received by		1530
Relinquished by		2-11-14 1940
Received by		2/11/14 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:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/5/14	812052-1	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -2	↓	↓	↓	↓	↓
2/6/14	812081-1	9.5	N/A	N/A	N/A	NE
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
2/12/14	812162	7.00	2ml/100ml	9.5	7:30	NE
↓	812163-1	9.5	N/A	N/A	N/A	NE
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓

NE
2/12/14

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
812041	1	<2	2/5/14	EK	YES			
812042	↓	↓	↓	↓	↓			
812062 (1-3)	<1	>2	2/5/14	EK	YES	2 pm	2/6/14 @ 8am	
811976	<1	>2	2/6/14	ES	yes	3:00	↓	pH <2
812005 (1-3)	↓	<2	↓	↓	↓	↓	↓	↓
812052 (1-2)		>2				3:00	2/6/14 @ 8am	pH <2
812081 (1-5)		>2						T/D
812051 (1-2)	<1	>2	2/7/14	EK	YES	10:00		lab filtered
812052 (-2)	<1	>2	↓	↓	↓ 2/10/14	↓		↓
812089 (16,23)	<1	>2	2/12/14	ES	ES ~~yes~~ NO	10:00		
812130	<1	<2			yes			
812098								
812101								
812112								
812113 (1-3)								
812110								
812142								
812147								
812148								
812149								
812150								
812151								
812114								
812145								
812091								
812071 (1-2								
812123 (1-4)								
812128 (1-2)								
812121								
812122		↓			↓			
812062 (1-4)		>2			NO	10:00	2/13/14 1:00	pH <2
812161		↓			↓	↓	↓ ↓	↓
812134		↓			↓	↓	↓ ↓	↓
812072 (10-12)	↓	↓	↓	↓	↓	↓	↓ ↓	↓
812162	<1	>2	2/13/14	ES	yes	3:00		pH <2
812163 (1-4)	↓	<2	↓	↓	↓			
812165 (1-3)	↓	↓	↓	↓	↓			
812172 (10-12)	<1	>2	2/14/14	ES	NO	2:00	2/18/14 10:00	pH <2
812195 (1-3)	↓	↓			↓	↓	↓	↓
812174 (1-2)	>1	<2			yes			
812180	<1							
812184	↓							
812189	↓	↓	↓	↓	↓			
812190	>1	↓	↓	↓	↓			

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 #** 812163

Date Delivered: 02/11/14 **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? Temperature (if yes)? 4.8 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = see c.o.c	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ **RUSH** ☑Std	☑Yes	☐No	☐N/A

ALERT !! Level III QC

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

February 26, 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 2014-GMP-197-Q1, GROUNDWATER MONITORING PROJECT, TLI NO.: 812255

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-GMP-197-Q1 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody February 18, 2014, 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.: 812255
Date Received: February 18, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812255-001	MW-33-090-197	E218.6	FLDFLT	2/12/2014	10:51	Chromium, Hexavalent	13.3	ug/L	1.0
812255-001	MW-33-090-197	SW6020	FLDFLT	2/12/2014	10:51	Chromium	15.5	ug/L	1.0
812255-002	MW-33-150-197	E218.6	FLDFLT	2/12/2014	11:41	Chromium, Hexavalent	9.7	ug/L	1.0
812255-002	MW-33-150-197	SW6020	FLDFLT	2/12/2014	11:41	Chromium	10.6	ug/L	1.0
812255-003	MW-33-210-197	E218.6	FLDFLT	2/12/2014	12:33	Chromium, Hexavalent	11.6	ug/L	1.0
812255-003	MW-33-210-197	SW6020	FLDFLT	2/12/2014	12:33	Chromium	13.5	ug/L	1.0
812255-004	MW-63-065-197	E218.6	FLDFLT	2/12/2014	14:28	Chromium, Hexavalent	1.2	ug/L	0.20
812255-004	MW-63-065-197	SW6020	FLDFLT	2/12/2014	14:28	Chromium	1.5	ug/L	1.0
812255-005	MW-91-197	E218.6	FLDFLT	2/12/2014	7:00	Chromium, Hexavalent	9.4	ug/L	1.0
812255-005	MW-91-197	SW6020	FLDFLT	2/12/2014	7:00	Chromium	10.8	ug/L	1.0
812255-006	MW-204-197	E218.6	FLDFLT	2/13/2014	8:00	Chromium, Hexavalent	ND	ug/L	0.20
812255-007	MW-205-197	E218.6	FLDFLT	2/13/2014	8:05	Chromium, Hexavalent	ND	ug/L	0.20
812255-008	MW-206-197	E218.6	FLDFLT	2/13/2014	22:51	Chromium, Hexavalent	ND	ug/L	0.20
812255-009	MW-207-197	E218.6	FLDFLT	2/13/2014	22:45	Chromium, Hexavalent	ND	ug/L	0.20
812255-010	MW-23-060-197	E218.6	FLDFLT	2/13/2014	13:56	Chromium, Hexavalent	34.9	ug/L	1.0
812255-010	MW-23-060-197	SW6020	FLDFLT	2/13/2014	13:56	Chromium	38.0	ug/L	1.0
812255-011	MW-23-080-197	E218.6	FLDFLT	2/13/2014	15:22	Chromium, Hexavalent	8.4	ug/L	1.0
812255-011	MW-23-080-197	SW6020	FLDFLT	2/13/2014	15:22	Chromium	9.0	ug/L	1.0
812255-012	MW-57-185-197	E218.6	FLDFLT	2/13/2014	11:19	Chromium, Hexavalent	9.2	ug/L	1.0
812255-012	MW-57-185-197	SW6020	FLDFLT	2/13/2014	11:19	Chromium	10.5	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
812255-013	MW-35-060-197	E218.6	FLDFLT	2/17/2014	8:24	Chromium, Hexavalent	21.1	ug/L	0.2
812255-013	MW-35-060-197	SW6020	FLDFLT	2/17/2014	8:24	Chromium	21.8	ug/L	1

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

Laboratory No. 812255

Printed 2/26/2014

Samples Received on 2/18/2014 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-33-090-197	812255-001	02/12/2014 10:51	Water
MW-33-150-197	812255-002	02/12/2014 11:41	Water
MW-33-210-197	812255-003	02/12/2014 12:33	Water
MW-63-065-197	812255-004	02/12/2014 14:28	Water
MW-91-197	812255-005	02/12/2014 07:00	Water
MW-204-197	812255-006	02/13/2014 08:00	Water
MW-205-197	812255-007	02/13/2014 08:05	Water
MW-206-197	812255-008	02/13/2014 22:51	Water
MW-207-197	812255-009	02/13/2014 22:45	Water
MW-23-060-197	812255-010	02/13/2014 13:56	Water
MW-23-080-197	812255-011	02/13/2014 15:22	Water
MW-57-185-197	812255-012	02/13/2014 11:19	Water
MW-35-060-197	812255-013	02/17/2014 08:24	Water

Chrome VI by EPA 218.6 Batch 02CrH14 F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812255-001 Chromium, Hexavalent	ug/L	02/20/2014 13:50	5.00	0.0300	1.0	13.3
812255-002 Chromium, Hexavalent	ug/L	02/20/2014 14:00	5.00	0.0300	1.0	9.7
812255-003 Chromium, Hexavalent	ug/L	02/20/2014 14:11	5.00	0.0300	1.0	11.6
812255-004 Chromium, Hexavalent	ug/L	02/20/2014 10:52	1.00	0.00600	0.20	1.2
812255-005 Chromium, Hexavalent	ug/L	02/20/2014 14:21	5.00	0.0300	1.0	9.4
812255-006 Chromium, Hexavalent	ug/L	02/20/2014 11:30	1.00	0.00600	0.20	ND
812255-007 Chromium, Hexavalent	ug/L	02/20/2014 11:40	1.00	0.00600	0.20	ND
812255-008 Chromium, Hexavalent	ug/L	02/20/2014 11:51	1.00	0.00600	0.20	ND
812255-009 Chromium, Hexavalent	ug/L	02/20/2014 12:22	1.00	0.00600	0.20	ND
812255-010 Chromium, Hexavalent	ug/L	02/20/2014 14:52	5.00	0.0300	1.0	34.9
812255-011 Chromium, Hexavalent	ug/L	02/20/2014 15:03	5.00	0.0300	1.0	8.4
812255-012 Chromium, Hexavalent	ug/L	02/20/2014 15:13	5.00	0.0300	1.0	9.2

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

812255-013 Chromium, Hexavalent	ug/L	02/20/2014 13:04	1.00	0.00600	0.20	21.1	

Method Blank

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

Duplicate — Lab ID = 812255-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.21	0.822	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 = 812255-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.2	38.3(25.0)	91.7	90 - 110

Matrix Spike — Lab ID = 812255-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.6	34.7(25.0)	91.7	90 - 110

Matrix Spike — Lab ID = 812255-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.8	36.6(25.0)	92.6	90 - 110

Matrix Spike — Lab ID = 812255-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.74	6.21(5.00)	90.7	90 - 110

Matrix Spike — Lab ID = 812255-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.8	34.4(25.0)	93.7	90 - 110

Matrix Spike — Lab ID = 812255-006

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 = 812255-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.942	1.00(1.00)	94.2	90 - 110

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

Matrix Spike — Lab ID = 812255-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.953	1.00(1.00)	95.3	90 - 110

Matrix Spike — Lab ID = 812255-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.949	1.00(1.00)	94.9	90 - 110

Matrix Spike — Lab ID = 812255-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	81.4	84.9(50.0)	93.0	90 - 110

Matrix Spike — Lab ID = 812255-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.8	33.4(25.0)	93.6	90 - 110

Matrix Spike — Lab ID = 812255-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.9	34.2(25.0)	94.6	90 - 110

Matrix Spike — Lab ID = 812255-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	47.4	46.1(25.0)	105	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.72	10.0	97.2	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.88	10.0	98.8	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 022014B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812255-001 Chromium	ug/L	02/20/2014 17:43	1.00	0.0710	1.0	15.5
812255-002 Chromium	ug/L	02/20/2014 18:20	1.00	0.0710	1.0	10.6
812255-003 Chromium	ug/L	02/20/2014 18:26	1.00	0.0710	1.0	13.5
812255-004 Chromium	ug/L	02/20/2014 18:32	1.00	0.0710	1.0	1.5
812255-005 Chromium	ug/L	02/20/2014 18:38	1.00	0.0710	1.0	10.8
812255-010 Chromium	ug/L	02/20/2014 18:44	1.00	0.0710	1.0	38.0
812255-011 Chromium	ug/L	02/20/2014 18:57	1.00	0.0710	1.0	9.0
812255-012 Chromium	ug/L	02/20/2014 19:03	1.00	0.0710	1.0	10.5
812255-013 Chromium	ug/L	02/20/2014 19:09	1.00	0.0710	1.0	21.8

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	15.5	15.5	0.150	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.510	0.500	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.9	50.0	102	85 - 115

Matrix Spike

Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	65.7	65.5(50.0)	100	75 - 125

Matrix Spike Duplicate

Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	64.9	65.5(50.0)	98.7	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	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.

MRCVS - Primary

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

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.9	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 = 812255-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	37.2	38.0	2.13	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.

812255

CH2MHILL **CHAIN OF CUSTODY RECORD** 2/18/2014 9:17:03 AM Page 2 OF 3

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/18/2014
COC Number: 4

Rec'd 02/18/14
~~S14d~~ 812255

	DATE	TIME	Matrix	Container: 250 ml Poly	2x250 ml Poly	2x500 ml Poly	500 ml Poly	Number of Containers	COMMENTS
				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) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A-R) Field Filtered Chromium	Metals (6020A) Field Filtered Chromium		
	MW-33-040-197-EB	2/12/2014	8:50	Water	X			X	2	
1	MW-33-090-197	2/12/2014	10:51	Water	X			X	2	
2	MW-33-150-197	2/12/2014	11:41	Water	X			X	2	
3	MW-33-210-197	2/12/2014	12:33	Water	X			X	2	pH=2 6020A
4	MW-63-065-197	2/12/2014	14:28	Water	X			X	2	
5	MW-91-197	2/12/2014	7:00	Water	X			X	2	
6	MW-204-197	2/13/2014	8:00	Water	X				1	
7	MW-205-197	2/13/2014	8:05	Water	X				1	
8	MW-206-197	2/13/2014	22:51	Water	X				1	
9	MW-207-197	2/13/2014	22:45	Water	X				1	
10	MW-23-060-197	2/13/2014	13:56	Water	X			X	2	
11	MW-23-080-197	2/13/2014	15:22	Water	X			X	2	pH=2 6020A
12	MW-57-185-197	2/13/2014	11:19	Water	X			X	2	
13	MW-35-060-197	2/17/2014	8:24	Water	X			X	2	

For Sample Conditions See Form Attached

ALERT !! Level III QC

Signatures	Date/Time
Approved by	
Sampled by	2-18-14 1525
Relinquished by	2-18-14
Received by	1525
Relinquished by	2-18-14 1940
Received by	2/18/14 @1940

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

ATTN:
Sample Custody

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/5/14	812052-1	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -2	↓	↓	↓	↓	↓
2/6/14	812081-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
↓	↓ -5	↓	↓	↓	↓	↓
2/12/14	812162	7.00	2ml/100ml	9.5	7:30	NE
↓	812163-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
↓	↓ -6	↓	↓	↓	↓	↓
2/19/14	812244	7.0	2ml/100ml	9.5	7:30	NE
	812254	↓	↓	↓	↓	↓
	812255-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	✓ -13					
	812256-1					
↓	-2	↓	↓	↓	↓	↓

NE
2/21/14

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
812191	<1	<2	2/14/14	ES	yes			
812192	↓	↓	↓	↓	↓			
812204	↓	↓	↓	↓	↓			
812205	↓	↓	↓	↓	↓			
812206	>1	↓	↓	↓	↓			
812197	↓	↓	↓	↓	↓			
812221	<1	↓	↓	↓	↓			
812225	↓	↓	↓	↓	↓			
812234(1-2)	<1	<2	2/19/14	ES	yes			
812238	↓	↓	↓	↓	↓			
812237	↓	↓	↓	↓	↓			
812246(1-3)	<1	>2	↓	↓	No	11:00	2/24/14 @ 12:00	pH <2
812251(1,3-4)	↓	↓	↓	↓	↓	↓	↓	↓
812239	<1	<2	↓	↓	yes			
812255(1-5,10-13)	<1	<2	2/20/14	ES	yes			
812256(1-7,10-11)	↓	↓	↓	↓	↓			
812257(1-4)	↓	↓	↓	↓	↓			
812254	↓	>2	↓	↓	↓	11:00		pH <2
812260(1-2,4)	<1	>2	2/21/14	ES	NO	2:00	2/24/14 @ 12	pH <2
812263	↓	<2	↓	↓	yes	↓	↓	↓
812264	↓	↓	↓	↓	↓	↓	↓	↓
812265	↓	↓	↓	↓	↓	↓	↓	↓
812266	↓	↓	↓	↓	↓	↓	↓	↓
812267	↓	↓	↓	↓	↓	↓	↓	↓
812276(1-2)	>1	↓	↓	↓	↓	↓	↓	↓
812291(10-12)	<1	>2 ES 2/21/14	↓	↓	NO	2:00	2/24/14 @ 12	pH <2
812292(1-2)	↓	~~>2~~ >2	↓	↓	↓	↓	↓	↓
812310	↓	↓	↓	↓	yes	↓	↓	↓
812319	<1	<2	2/25/14	ES	yes	↓	↓	↓
812320	↓	↓	↓	↓	↓	↓	↓	↓
812324(1-2)	↓	↓	↓	↓	↓	↓	↓	↓
812321	↓	>2	↓	↓	NO	10:00	↓	↓
812330(1-2,4)	↓	>2	↓	↓	↓	↓	↓	↓
812334	<1	<2	2/26/14	ES	yes	↓	↓	↓
812340	↓	↓	↓	↓	↓	↓	↓	↓
812346(1-2)	<1	>2	↓	↓	NO	10:00	↓	↓
812354(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 #** 812255

Date Delivered: 2 / 18 / 14 **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? Temperature (if yes)? 3.0 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: 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

February 28, 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 2014-GMP-197-Q1, GROUNDWATER MONITORING PROJECT, TLI NO.: 812256

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-GMP-197-Q1 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody February 18, 2014, 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-33-040-197 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike was within the retention time window and its recovery and all other QA/QC were within acceptable limits, the data from the straight run was 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-42-055-197, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both 2.6 ug/L. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 2.5 ug/L. Mr. Duffy was notified and the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (5.5 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-44-125-197, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 5.8 ug/L and 5.6 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 5.9 ug/L. Mr. Duffy was notified and the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (5.6 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-93-197, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 6.1 ug/L and 5.8 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 6.0 ug/L. Mr. Duffy was notified 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

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

Laboratory No.: 812256
Date Received: February 18, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812256-001	MW-42-055-197	E218.6	FLDFLT	2/11/2014	8:08	Chromium, Hexavalent	ND	ug/L	0.20
812256-001	MW-42-055-197	SW6020	FLDFLT	2/11/2014	8:08	Chromium	2.3	ug/L	1.0
812256-002	MW-42-065-197	E218.6	FLDFLT	2/11/2014	9:46	Chromium, Hexavalent	ND	ug/L	0.20
812256-002	MW-42-065-197	SW6020	FLDFLT	2/11/2014	9:46	Chromium	ND	ug/L	1.0
812256-003	MW-44-115-197	E218.6	FLDFLT	2/11/2014	12:10	Chromium, Hexavalent	41.6	ug/L	1.0
812256-003	MW-44-115-197	SW6020	FLDFLT	2/11/2014	12:10	Chromium	42.9	ug/L	1.0
812256-004	MW-44-125-197	E218.6	FLDFLT	2/11/2014	14:55	Chromium, Hexavalent	ND	ug/L	1.0
812256-004	MW-44-125-197	SW6020	FLDFLT	2/11/2014	14:55	Chromium	5.5	ug/L	1.0
812256-005	MW-46-175-197	E218.6	FLDFLT	2/11/2014	14:02	Chromium, Hexavalent	35.6	ug/L	1.0
812256-005	MW-46-175-197	SW6020	FLDFLT	2/11/2014	14:02	Chromium	38.0	ug/L	1.0
812256-006	MW-93-197	E218.6	FLDFLT	2/11/2014	12:10	Chromium, Hexavalent	ND	ug/L	1.0
812256-006	MW-93-197	SW6020	FLDFLT	2/11/2014	12:10	Chromium	5.6	ug/L	1.0
812256-007	MW-94-197	E218.6	FLDFLT	2/11/2014	7:00	Chromium, Hexavalent	35.4	ug/L	1.0
812256-007	MW-94-197	SW6020	FLDFLT	2/11/2014	7:00	Chromium	39.7	ug/L	1.0
812256-008	MW-202-197	E218.6	FLDFLT	2/12/2014	6:20	Chromium, Hexavalent	ND	ug/L	0.20
812256-009	MW-203-197	E218.6	FLDFLT	2/12/2014	6:22	Chromium, Hexavalent	ND	ug/L	0.20
812256-010	MW-28-090-197	E218.6	FLDFLT	2/12/2014	7:36	Chromium, Hexavalent	ND	ug/L	0.20
812256-010	MW-28-090-197	SW6020	FLDFLT	2/12/2014	7:36	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
812256-011	MW-33-040-197	E218.6	FLDFLT	2/12/2014	9:44	Chromium, Hexavalent	0.28	ug/L	0.20
812256-011	MW-33-040-197	SW6020	FLDFLT	2/12/2014	9:44	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
P.O. Number: 423575.MP.02.GM
Release Number:

Laboratory No. 812256

Printed 2/28/2014

Samples Received on 2/18/2014 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-42-055-197	812256-001	02/11/2014 08:08	Water
MW-42-065-197	812256-002	02/11/2014 09:46	Water
MW-44-115-197	812256-003	02/11/2014 12:10	Water
MW-44-125-197	812256-004	02/11/2014 14:55	Water
MW-46-175-197	812256-005	02/11/2014 14:02	Water
MW-93-197	812256-006	02/11/2014 12:10	Water
MW-94-197	812256-007	02/11/2014 07:00	Water
MW-202-197	812256-008	02/12/2014 06:20	Water
MW-203-197	812256-009	02/12/2014 06:22	Water
MW-28-090-197	812256-010	02/12/2014 07:36	Water
MW-33-040-197	812256-011	02/12/2014 09:44	Water

Chrome VI by EPA 218.6 Batch 02CrH14 E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812256-001 Chromium, Hexavalent	ug/L	02/19/2014 11:02	1.00	0.00600	0.20	ND
812256-002 Chromium, Hexavalent	ug/L	02/19/2014 11:12	1.00	0.00600	0.20	ND
812256-003 Chromium, Hexavalent	ug/L	02/19/2014 15:42	5.00	0.0300	1.0	41.6
812256-004 Chromium, Hexavalent	ug/L	02/19/2014 15:53	5.00	0.0300	1.0	ND
812256-005 Chromium, Hexavalent	ug/L	02/19/2014 16:03	5.00	0.0300	1.0	35.6
812256-006 Chromium, Hexavalent	ug/L	02/19/2014 16:14	5.00	0.0300	1.0	ND
812256-007 Chromium, Hexavalent	ug/L	02/19/2014 16:24	5.00	0.0300	1.0	35.4
812256-008 Chromium, Hexavalent	ug/L	02/19/2014 13:05	1.00	0.00600	0.20	ND
812256-009 Chromium, Hexavalent	ug/L	02/19/2014 13:15	1.00	0.00600	0.20	ND
812256-010 Chromium, Hexavalent	ug/L	02/19/2014 13:25	1.00	0.00600	0.20	ND
812256-011 Chromium, Hexavalent	ug/L	02/19/2014 13:36	1.00	0.00600	0.20	0.28

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 = 812256-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.113	0.0926	19.6	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.5	90 - 110

Matrix Spike — Lab ID = 812254-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.42	1.45(1.00)	97.8	90 - 110

Matrix Spike — Lab ID = 812254-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.30	5.44(5.00)	97.2	90 - 110

Matrix Spike — Lab ID = 812256-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.09(1.00)	98.9	90 - 110

Matrix Spike — Lab ID = 812256-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.938	1.00(1.00)	93.8	90 - 110

Matrix Spike — Lab ID = 812256-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	92.7	92.2(50.0)	101	90 - 110

Matrix Spike — Lab ID = 812256-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	99.8	90 - 110

Matrix Spike — Lab ID = 812256-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.56	5.06(5.00)	90.0	90 - 110

Matrix Spike — Lab ID = 812256-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	83.3	86.4(50.0)	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 = 812256-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.03(1.00)	98.3	90 - 110

Matrix Spike — Lab ID = 812256-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.84	5.03(5.00)	96.2	90 - 110

Matrix Spike — Lab ID = 812256-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	86.3	86.4(50.0)	99.8	90 - 110

Matrix Spike — Lab ID = 812256-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.992	1.00(1.00)	98.7	90 - 110

Matrix Spike — Lab ID = 812256-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.987	1.00(1.00)	98.1	90 - 110

Matrix Spike — Lab ID = 812256-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.968	1.00(1.00)	96.8	90 - 110

Matrix Spike — Lab ID = 812256-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.18	5.27(5.00)	98.2	90 - 110

Matrix Spike — Lab ID = 812256-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.32	1.28(1.00)	103	90 - 110

Matrix Spike — Lab ID = 812257-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	293	295(150)	98.8	90 - 110

Matrix Spike — Lab ID = 812257-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.0	32.2(25.0)	95.5	90 - 110

Matrix Spike — Lab ID = 812257-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	44.8	46.2(25.0)	94.4	90 - 110

Matrix Spike — Lab ID = 812257-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	46.1	46.4(25.0)	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 Page 6 of 7
Project Number: 423575.MP.02.GM Printed 2/28/2014

Metals by EPA 6020A, Dissolved

Batch 022014C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812256-001 Chromium	ug/L	02/20/2014 21:36	1.00	0.0710	1.0	2.3
812256-002 Chromium	ug/L	02/20/2014 21:42	1.00	0.0710	1.0	ND
812256-003 Chromium	ug/L	02/20/2014 22:19	1.00	0.0710	1.0	42.9
812256-004 Chromium	ug/L	02/20/2014 22:31	1.00	0.0710	1.0	5.5
812256-005 Chromium	ug/L	02/20/2014 22:37	1.00	0.0710	1.0	38.0
812256-006 Chromium	ug/L	02/20/2014 22:43	1.00	0.0710	1.0	5.6
812256-007 Chromium	ug/L	02/20/2014 22:49	1.00	0.0710	1.0	39.7
812256-010 Chromium	ug/L	02/20/2014 23:02	1.00	0.0710	1.0	ND
812256-011 Chromium	ug/L	02/20/2014 23:08	1.00	0.0710	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 812256-002

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.450	0.500	90.1	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.8	50.0	93.6	85 - 115

Matrix Spike — Lab ID = 812256-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	45.2	50.0(50.0)	90.5	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.3	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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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
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	18.9	20.0	94.6	80 - 120

Serial Dilution — Lab ID = 812256-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	43.0	42.9	0.136	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.

812256

CH2MHILL **CHAIN OF CUSTODY RECORD** 2/18/2014 9:17:02 AM Page 1 OF 3

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/18/2014
COC Number: 4

	Container:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	500 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) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A-R) Field Filtered Chromium	Metals (6020A) Field Filtered Chromium		Number of Containers	COMMENTS
	DATE / TIME / Matrix							
1	MW-42-055-197 2/11/2014 8:08 Water		X	X			4	
	MW-42-055-197-EB 2/11/2014 6:52 Water	X			X		2	
2	MW-42-065-197 2/11/2014 9:46 Water		X	X			4	
	MW-42-065-197-EB 2/11/2014 7:54 Water	X			X		2	pH-2 6020A
3	MW-44-115-197 2/11/2014 12:10 Water	X			X		2	
4	MW-44-125-197 2/11/2014 14:55 Water	X			X		2	
5	MW-46-175-197 2/11/2014 14:02 Water	X			X		2	
6	MW-93-197 2/11/2014 12:10 Water	X			X		2	
7	MW-94-197 2/11/2014 7:00 Water	X			X		2	
8	MW-202-197 2/12/2014 6:20 Water	X					1	
9	MW-203-197 2/12/2014 6:22 Water	X					1	
10	MW-28-090-197 2/12/2014 7:36 Water		X	X			4	
	MW-28-090-197-EB 2/12/2014 6:40 Water	X			X		2	pH-2 6020A
11	MW-33-040-197 2/12/2014 9:44 Water		X	X			4	

* Where provided with multiple bottles for Cr6 + CrT, please analyze 1 + hold 1

Rec'd 02/18/14
S-812256

For Sample Conditions See Form Attached

ALERT !! Level III QC

Signatures	Date/Time
Approved by	2-18-14
Sampled by	1525
Relinquished by	2-18-14
Received by	1525
Relinquished by	2-18-14 1940
Received by	2/18/14 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:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/5/14	812052-1	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -2	↓	↓	↓	↓	↓
2/6/14	812081-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
↓	↓ -5	↓	↓	↓	↓	↓
2/12/14	812162	7.00	2ml/100ml	9.5	7:30	NE
↓	812163-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
↓	↓ -6	↓	↓	↓	↓	↓
2/19/14	812244	7.0	2ml/100ml	9.5	7:30	NE
	812254	↓	↓	↓	↓	↓
	812255-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	✓ -13					
	812256-1					
↓	-2	↓	↓	↓	↓	↓

NE
2/21/14

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
2/19/14	812256-3	9.5	N/A	N/A	N/A	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	812257-1					
	-2					
	-3					
	-4					
	-5					
	-6					
2/20/14	812283-1	7.00	2ml/100ml	9.5	7:30	NE
	-2					
2/21/14	812302	7.00	1ml/50ml	9.5	7:15	NE

NE 2/21/14

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
S12191	<1	<2	2/14/14	ES	Yes			
S12192	↓	↓	↓	↓	↑			
S12204								
S12205	↓							
S12206	>1							
S12197	↓							
S12221	<1							
S12225	>1	↓	↓	↓	↓			
S12234 (1-2)	<1	<2	2/19/14	ES	Yes			
S12236	↓	↓	↓	↓	↓			
S12237	↓	↓						
S12246 (1-3)	<1	>2			No	11:00	2/24/14 @ 12:00	pH <2
S12251 (1,3-4)	↓	↓	↓	↓	↓	↓	↓	↓
S12239	<1	<2	↓	↓	Yes			
S12255 (1-5, 10-13)	<1	<2	2/20/14	ES	Yes			
S12256 (1-7, 10-11)	↓	↓	↓	↓	↓			
S12257 (1-4)		↓						
S12254	↓	>2	↓	↓	↓	11:00		pH <2
S12260 (1-2,4)	<1	>2	2/21/14	ES	No	2:00	2/24/14 @ 12	pH <2
S12263	↓	<2	↓	↓	Yes	↓	↓	↓
S12264	↓	↓	↓	↓	↓	↓	↓	↓
S12265	↓	↓	↓	↓	↓	↓	↓	↓
S12266	↓	↓	↓	↓	↓	↓	↓	↓
S12267	↓	↓	↓	↓	↓	↓	↓	↓
S12276 (1-2)	>1	↓	↓	↓	↓	↓	↓	↓
S12291 (10-12)	<1	>2 ES 2/21/14	↓	↓	No	2:00	2/24/14 @ 12	pH <2
S12292 (1-2)	↓	~~>2~~ >2	↓	↓	↓	↓	↓	↓
S12310	↓	↓	↓	↓	Yes	↓	↓	↓
S12319	<1	<2	2/25/14	ES	Yes	↓	↓	↓
S12320	↓	↓	↓	↓	↓	↓	↓	↓
S12324 (1-2)	↓	↓	↓	↓	↓	↓	↓	↓
S12321	↓	>2	↓	↓	No	10:00	↓	↓
S12330 (1-2,4)	↓	>2	↓	↓	↓	↓	↓	↓
S12339	<1	<2	2/26/14	ES	Yes	↓	↓	↓
S12340	↓	↓	↓	↓	↓	↓	↓	↓
S12346 (1-2)	<1	>2	↓	↓	No	10:00	↓	↓
S12354 (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 #** 812256

Date Delivered: 2 / 18 / 14 **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? Temperature (if yes)? 3.0 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ **RUSH** ☑ Std	☑Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: 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

March 3, 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 2014-GMP-197-Q1, GROUNDWATER MONITORING PROJECT, TLI NO.: 812257

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-GMP-197-Q1 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody February 18, 2014, 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.: 812257
Date Received: February 18, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812257-001	MW-70-105-197	E218.6	FLDFLT	2/17/2014	14:22	Chromium, Hexavalent	145	ug/L	2.0
812257-001	MW-70-105-197	SW6020	FLDFLT	2/17/2014	14:22	Chromium	136	ug/L	1.0
812257-002	MW-72BR-200-197	E218.6	FLDFLT	2/17/2014	14:08	Chromium, Hexavalent	7.1	ug/L	1.0
812257-002	MW-72BR-200-197	SW6020	FLDFLT	2/17/2014	14:08	Chromium	7.5	ug/L	1.0
812257-003	MW-92-197	E218.6	FLDFLT	2/17/2014	7:00	Chromium, Hexavalent	21.4	ug/L	1.0
812257-003	MW-92-197	SW6020	FLDFLT	2/17/2014	7:00	Chromium	20.4	ug/L	1.0
812257-004	MW-95-197	E218.6	FLDFLT	2/17/2014	7:00	Chromium, Hexavalent	7.1	ug/L	1.0
812257-004	MW-95-197	SW6020	FLDFLT	2/17/2014	7:00	Chromium	7.0	ug/L	1.0
812257-005	MW-208-197	E218.6	FLDFLT	2/18/2014	6:34	Chromium, Hexavalent	ND	ug/L	0.20
812257-006	MW-209-197	E218.6	FLDFLT	2/18/2014	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.

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

Laboratory No. 812257

Printed 3/3/2014

Samples Received on 2/18/2014 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
MW-70-105-197	812257-001	02/17/2014 14:22	Water
MW-72BR-200-197	812257-002	02/17/2014 14:08	Water
MW-92-197	812257-003	02/17/2014 07:00	Water
MW-95-197	812257-004	02/17/2014 07:00	Water
MW-208-197	812257-005	02/18/2014 06:34	Water
MW-209-197	812257-006	02/18/2014 06:30	Water

Chrome VI by EPA 218.6

Batch 02CrH14 E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812257-001 Chromium, Hexavalent	ug/L	02/19/2014 14:04	10.0	0.0600	2.0	145
812257-002 Chromium, Hexavalent	ug/L	02/19/2014 16:45	5.00	0.0300	1.0	7.1
812257-003 Chromium, Hexavalent	ug/L	02/19/2014 16:55	5.00	0.0300	1.0	21.4
812257-004 Chromium, Hexavalent	ug/L	02/19/2014 17:06	5.00	0.0300	1.0	7.1
812257-005 Chromium, Hexavalent	ug/L	02/19/2014 14:46	1.00	0.00600	0.20	ND
812257-006 Chromium, Hexavalent	ug/L	02/19/2014 14:56	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 812256-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.113	0.0926	19.6	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.5	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.

Matrix Spike — Lab ID = 812256-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.987	1.00(1.00)	98.1	90 - 110

Matrix Spike — Lab ID = 812256-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.968	1.00(1.00)	96.8	90 - 110

Matrix Spike — Lab ID = 812256-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.18	5.27(5.00)	98.2	90 - 110

Matrix Spike — Lab ID = 812256-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.32	1.28(1.00)	103	90 - 110

Matrix Spike — Lab ID = 812257-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	293	295(150)	98.8	90 - 110

Matrix Spike — Lab ID = 812257-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.0	32.1(25.0)	95.6	90 - 110

Matrix Spike — Lab ID = 812257-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	44.8	46.2(25.0)	94.4	90 - 110

Matrix Spike — Lab ID = 812257-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	46.1	46.4(25.0)	98.8	90 - 110

Matrix Spike — Lab ID = 812257-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	30.8	32.1(25.0)	94.6	90 - 110

Matrix Spike — Lab ID = 812257-005

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 = 812257-006

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

MRCCS - Secondary

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

Metals by EPA 6020A, Dissolved

Batch 022014B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812257-001 Chromium	ug/L	02/20/2014 19:27	2.00	0.142	1.0	136
812257-002 Chromium	ug/L	02/20/2014 19:40	1.00	0.0710	1.0	7.5
812257-003 Chromium	ug/L	02/20/2014 19:46	1.00	0.0710	1.0	20.4
812257-004 Chromium	ug/L	02/20/2014 19:52	1.00	0.0710	1.0	7.0

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	15.5	15.5	0.150	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.510	0.500	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.9	50.0	102	85 - 115

Matrix Spike — Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	65.7	65.5(50.0)	100	75 - 125

Matrix Spike Duplicate — Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	64.9	65.5(50.0)	98.7	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.1	90 - 110

MRCVS - Primary

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 6 of 6
Project Number: 423575.MP.02.GM Printed 3/3/2014

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.9	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 = 812255-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	37.2	38.0	2.13	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.

812257

CH2MHILL

CHAIN OF CUSTODY RECORD

2/18/2014 9:17:03 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/18/2014
COC Number: 4

				Container:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	500 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) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A-R) Field Filtered Chromium	Metals (6020A) Field Filtered Chromium		Number of Containers	COMMENTS
1	MW-70-105-197	2/17/2014	14:22	Water	X			X		2	
2	MW-72BR-200-197	2/17/2014	14:08	Water	X			X		2	pH=2
3	MW-92-197	2/17/2014	7:00	Water	X			X		2	6020A
4	MW-95-197	2/17/2014	7:00	Water	X			X		2	
5	MW-208-197	2/18/2014	6:34	Water	X					1	
6	MW-209-197	2/18/2014	6:30	Water	X					1	
									TOTAL NUMBER OF CONTAINERS	68	

Rec'd 02/18/14
~~S14a~~ 812257

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		2-18-14
Sampled by		1525
Relinquished by		2-18-14
Received by	Shawn Ugo	1525
Relinquished by	Shawn Ugo	2-18-14 1940
Received by	Marshall Brady	2/18/14 @ 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:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/19/14	812256-3	9.5	NA	NA	NA	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	812257-1					
	-2					
	-3					
	-4					
	-5					
	-6					
2/20/14	812283-1	7.00	2ml/100ml	9.5	7:30	NE
	-2					
2/21/14	812302	7.00	1ml/50ml	9.5	7:15	NE

NE
2/21/14

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
812191	<1	<2	2/14/14	ES	yes			
812192	↓	↓	↓	↓	↓			
812204								
812205	↓							
812206	>1							
812197	↓							
812221	<1							
812225	>1	↓	↓	↓	↓			
812234(1-2)	<1	<2	2/19/14	ES	yes			
812238	↓	↓			↓			
812237	↓	↓			↓			
812246(1-3)	<1	>2			No	11:00	2/24/14 @ 12:00	pH <2
812251(1,3-4)	↓	↓	↓	↓	↓	↓	↓	↓
812239	<1	<2	↓	↓	yes			
812255(1-5,10-13)	<1	<2	2/20/14	ES	yes			
812256(1-7,10-11)	↓	↓	↓	↓	↓			
812257(1-4)	↓	↓						
812254	↓	>2	↓	↓	↓	11:00		pH <2
812260(1-4)	<1	>2	2/21/14	ES	No	2:00	2/24/14 @ 12	pH <2
812263	↓	<2	↓	↓	yes	↓	↓	↓
812264	↓	↓	↓	↓	↓	↓	↓	↓
812265	↓	↓	↓	↓	↓	↓	↓	↓
812266	↓	↓	↓	↓	↓	↓	↓	↓
812267	↓	↓	↓	↓	↓	↓	↓	↓
812276(1-2)	>1	↓	↓	↓	↓	↓	↓	↓
812291(10-12)	<1	>2 ES 2/21/14			No	2:00	2/24/14 @ 12	pH <2
812292(1-2)	↓	~~<2~~ >2	↓	↓	↓	↓	↓	↓
812310	↓	↓	↓	↓	yes			
812319	<1	<2	2/25/14	ES	yes			
812320	↓	↓	↓	↓	↓			
812328(1-2)	↓	↓	↓	↓	↓			
812321	↓	>2	↓	↓	No	10:00		
812330(1-2,4)	↓	>2	↓	↓	↓	↓		
812339	<1	<2	2/26/14	ES	yes			
812340	↓	↓	↓	↓	↓			
812346(1-2)	<1	>2	↓	↓	No	10:00		
812354(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 #** 912257

Date Delivered: 2 / 18 / 14 **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? Temperature (if yes)? 3.0 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.o.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: 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

March 11, 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 2014-GMP-197-Q1, GROUNDWATER MONITORING PROJECT, TLI NO.: 812352

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-GMP-197-Q1 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody February 25, 2014, 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 sample collection time on the chain of custody for sample MW-72-080-197 was 10:30 while the sample containers indicated a collection time of 12:46. Mr. Barry Collom of CH2M Hill was notified and he provided a corrected chain of custody with a sample collection time of 14:26.

Due to the discrepancy between the Total Dissolved Chromium (3.5 ug/L) and Hexavalent Chromium (2.6 ug/L) results for sample MW-21-197, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 3.8 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 4.0 ug/L. Mr. Duffy was notified and the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (2.0 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-60BR-245-197, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.2 ug/L and 3.2 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 2.7 ug/L. Mr. Duffy was notified 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.: 812352
Date Received: February 25, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812352-001	MW-71-035-197	E218.6	FLDFLT	2/18/2014	11:00	Chromium, Hexavalent	0.32	ug/L	0.20
812352-001	MW-71-035-197	SW6020	FLDFLT	2/18/2014	11:00	Chromium	ND	ug/L	1.0
812352-002	MW-72-080-197	E218.6	FLDFLT	2/18/2014	12:46	Chromium, Hexavalent	121	ug/L	2.0
812352-002	MW-72-080-197	SW6020	FLDFLT	2/18/2014	12:46	Chromium	125	ug/L	1.0
812352-003	MW-73-080-197	E218.6	FLDFLT	2/18/2014	10:30	Chromium, Hexavalent	48.5	ug/L	1.0
812352-003	MW-73-080-197	SW6020	FLDFLT	2/18/2014	10:30	Chromium	49.2	ug/L	1.0
812352-004	MW-210-197	E218.6	FLDFLT	2/19/2014	6:14	Chromium, Hexavalent	ND	ug/L	0.20
812352-005	MW-211-197	E218.6	FLDFLT	2/19/2014	6:10	Chromium, Hexavalent	ND	ug/L	0.20
812352-006	MW-21-197	E218.6	FLDFLT	2/19/2014	13:12	Chromium, Hexavalent	2.6	ug/L	0.20
812352-006	MW-21-197	SW6020	FLDFLT	2/19/2014	13:12	Chromium	3.5	ug/L	1.0
812352-007	MW-60BR-245-197	E218.6	FLDFLT	2/19/2014	11:45	Chromium, Hexavalent	ND	ug/L	1.0
812352-007	MW-60BR-245-197	SW6020	FLDFLT	2/19/2014	11:45	Chromium	2.0	ug/L	1.0
812352-008	MW-61-110-197	E218.6	FLDFLT	2/19/2014	11:28	Chromium, Hexavalent	588	ug/L	10.0
812352-008	MW-61-110-197	SW6020	FLDFLT	2/19/2014	11:28	Chromium	619	ug/L	5.0
812352-009	MW-62-110-197	E218.6	FLDFLT	2/19/2014	14:20	Chromium, Hexavalent	976	ug/L	10.0
812352-009	MW-62-110-197	SW6020	FLDFLT	2/19/2014	14:20	Chromium	927	ug/L	10.0
812352-010	MW-62-190-197	E218.6	FLDFLT	2/19/2014	14:25	Chromium, Hexavalent	ND	ug/L	1.0
812352-010	MW-62-190-197	SW6020	FLDFLT	2/19/2014	14:25	Chromium	ND	ug/L	1.0
812352-011	MW-65-160-197	E218.6	FLDFLT	2/19/2014	8:04	Chromium, Hexavalent	125	ug/L	2.0
812352-011	MW-65-160-197	SW6020	FLDFLT	2/19/2014	8:04	Chromium	126	ug/L	1.0
812352-012	MW-65-225-197	E218.6	FLDFLT	2/19/2014	8:32	Chromium, Hexavalent	513	ug/L	10.0
812352-012	MW-65-225-197	SW6020	FLDFLT	2/19/2014	8:32	Chromium	529	ug/L	5.0

005

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812352-013	MW-66-165-197	E218.6	FLDFLT	2/19/2014	9:32	Chromium, Hexavalent	594	ug/L	10.0
812352-013	MW-66-165-197	SW6020	FLDFLT	2/19/2014	9:32	Chromium	638	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.GM
P.O. Number: 423575.MP.02.GM
Release Number:

Laboratory No. 812352

Printed 3/11/2014

Samples Received on 2/25/2014 6:50:00 PM

Field ID	Lab ID	Collected	Matrix
MW-71-035-197	812352-001	02/18/2014 11:00	Water
MW-72-080-197	812352-002	02/18/2014 12:46	Water
MW-73-080-197	812352-003	02/18/2014 10:30	Water
MW-210-197	812352-004	02/19/2014 06:14	Water
MW-211-197	812352-005	02/19/2014 06:10	Water
MW-21-197	812352-006	02/19/2014 13:12	Water
MW-60BR-245-197	812352-007	02/19/2014 11:45	Water
MW-61-110-197	812352-008	02/19/2014 11:28	Water
MW-62-110-197	812352-009	02/19/2014 14:20	Water
MW-62-190-197	812352-010	02/19/2014 14:25	Water
MW-65-160-197	812352-011	02/19/2014 08:04	Water
MW-65-225-197	812352-012	02/19/2014 08:32	Water
MW-66-165-197	812352-013	02/19/2014 09:32	Water

Chrome VI by EPA 218.6 Batch 02CrH14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812352-001 Chromium, Hexavalent	ug/L	02/26/2014 12:25	1.00	0.00600	0.20	0.32
812352-002 Chromium, Hexavalent	ug/L	02/26/2014 12:35	10.0	0.0600	2.0	121
812352-003 Chromium, Hexavalent	ug/L	02/26/2014 15:18	5.00	0.0300	1.0	48.5
812352-004 Chromium, Hexavalent	ug/L	02/26/2014 12:56	1.00	0.00600	0.20	ND
812352-005 Chromium, Hexavalent	ug/L	02/26/2014 13:06	1.00	0.00600	0.20	ND
812352-006 Chromium, Hexavalent	ug/L	02/26/2014 13:17	1.00	0.00600	0.20	2.6
812352-008 Chromium, Hexavalent	ug/L	02/26/2014 13:58	50.0	0.300	10.0	588
812352-009 Chromium, Hexavalent	ug/L	02/26/2014 14:14	50.0	0.300	10.0	976
812352-011 Chromium, Hexavalent	ug/L	02/26/2014 15:46	10.0	0.0600	2.0	125
812352-012 Chromium, Hexavalent	ug/L	02/26/2014 14:45	50.0	0.300	10.0	513
812352-013 Chromium, Hexavalent	ug/L	02/26/2014 14:56	50.0	0.300	10.0	594

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 2 of 7
Project Number: 423575.MP.02.GM Printed 3/11/2014

Method Blank

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

Duplicate — Lab ID = 812352-004

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	99.2	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 = 812351-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.45	1.38(1.00)	106	90 - 110

Matrix Spike — Lab ID = 812352-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.41	1.32(1.00)	109	90 - 110

Matrix Spike — Lab ID = 812352-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	265	271(150)	96.1	90 - 110

Matrix Spike — Lab ID = 812352-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	96.5	98.5(50.0)	95.9	90 - 110

Matrix Spike — Lab ID = 812352-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.999	1.00(1.00)	99.9	90 - 110

Matrix Spike — Lab ID = 812352-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.990	1.00(1.00)	99.0	90 - 110

Matrix Spike — Lab ID = 812352-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.46	7.66(5.00)	96.1	90 - 110

Matrix Spike — Lab ID = 812352-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1270	1340(750)	91.3	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 = 812352-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1910	1980(1000)	93.8	90 - 110

Matrix Spike — Lab ID = 812352-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	272	275(150)	98.2	90 - 110

Matrix Spike — Lab ID = 812352-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1220	1260(750)	93.9	90 - 110

Matrix Spike — Lab ID = 812352-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1320	1340(750)	96.6	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	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 02CrH14 I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812352-007 Chromium, Hexavalent	ug/L	02/27/2014 14:27	5.00	0.0300	1.0	ND
812352-010 Chromium, Hexavalent	ug/L	02/27/2014 14:37	5.00	0.0300	1.0	ND

Method Blank

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

Duplicate — Lab ID = 812352-010

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	0.185	0.200	92.4	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 812352-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.00(5.00)	98.0	90 - 110

Matrix Spike — Lab ID = 812352-007

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 = 812352-010

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 = 812352-010

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

Matrix Spike — Lab ID = 812353-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.99	5.00(5.00)	99.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00	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 Page 6 of 7
Project Number: 423575.MP.02.GM Printed 3/11/2014

Metals by EPA 6020A, Dissolved

Batch 022714A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812352-001 Chromium	ug/L	02/27/2014 17:26	2.00	0.142	1.0	ND
812352-002 Chromium	ug/L	02/27/2014 17:32	2.00	0.142	1.0	125
812352-003 Chromium	ug/L	02/27/2014 17:44	2.00	0.142	1.0	49.2
812352-006 Chromium	ug/L	02/27/2014 17:50	2.00	0.142	1.0	3.5
812352-007 Chromium	ug/L	02/27/2014 17:57	2.00	0.142	1.0	2.0
812352-008 Chromium	ug/L	02/27/2014 18:03	10.0	0.710	5.0	619
812352-009 Chromium	ug/L	02/27/2014 18:15	20.0	1.42	10.0	927
812352-010 Chromium	ug/L	02/27/2014 18:21	2.00	0.142	1.0	ND
812352-011 Chromium	ug/L	02/27/2014 18:39	2.00	0.142	1.0	126
812352-012 Chromium	ug/L	02/27/2014 18:46	10.0	0.710	5.0	529
812352-013 Chromium	ug/L	02/27/2014 18:58	10.0	0.710	5.0	638

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 812351-001

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	0.556	0.500	111	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.8	50.0	93.7	85 - 115

Matrix Spike — Lab ID = 812351-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.6	50.0(50.0)	95.2	75 - 125

Matrix Spike Duplicate — Lab ID = 812351-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.4	50.0(50.0)	92.9	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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	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 AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.8	80 - 120

Serial Dilution — Lab ID = 812352-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	127	125	1.57	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** 2/26/2014 10:16:25 AM Page 1 OF 3

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/25/2014
COC Number: 10

Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	500 ml Poly	* Where provided w/multiple bottles for Cr6+CrT, please analyze 1 + hold 1				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						
	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A-R) Field Filtered Chromium	Metals (6020A) Field Filtered Chromium						
	DATE	TIME	Matrix								
MW-71-035-197	2/18/2014	11:00	Water	X				X		2	
MW-72-080-197	2/18/2014	12:46	Water	X				X		2	
MW-73-080-197	2/18/2014	10:30	Water	X				X		2	
MW-210-197	2/19/2014	6:14	Water	X						1	
MW-211-197	2/19/2014	6:10	Water	X						1	
MW-21-197	2/19/2014	13:12	Water		X		X			4	*
MW-21-197-EB	2/19/2014	13:00	Water	X				X		2	
MW-60BR-245-197	2/19/2014	11:45	Water	X				X		2	
MW-61-110-197	2/19/2014	11:28	Water	X				X		2	
MW-62-110-197	2/19/2014	14:20	Water	X				X		2	
MW-62-190-197	2/19/2014	14:25	Water	X				X		2	
MW-65-160-197	2/19/2014	8:04	Water	X				X		2	
MW-65-225-197	2/19/2014	8:32	Water	X				X		2	
MW-66-165-197	2/19/2014	9:32	Water	X				X		2	

Signatures		Date/Time
Approved by		2-25-14 1430
Sampled by		
Relinquished by		
Received by		
Relinquished by		
Received by		

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

ATTN:
Sample Custody

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Q4

812352

CH2MHILL

CHAIN OF CUSTODY RECORD

2/25/2014 8:55:25 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/25/2014
COC Number: 10

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 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	Field	Field			
				Holding Time:	28	28	28	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A-R) Field Filtered Chromium	Metals (6020A) Field Filtered Chromium		Number of Containers	COMMENTS
1	MW-71-035-197	2/18/2014	11:00	Water	x				x		2	pH=2 6020A
2	MW-72-080-197	2/18/2014	10:30	Water	x				x		2	
3	MW-73-080-197	2/18/2014	10:30	Water	x				x		2	
4	MW-210-197	2/19/2014	6:14	Water	x						1	
5	MW-211-197	2/19/2014	6:10	Water	x						1	
6	MW-21-197	2/19/2014	13:12	Water		x		x			4	*
	MW-21-197-EB	2/19/2014	13:00	Water	x				x		2	
7	MW-60BR-245-197	2/19/2014	11:45	Water	x				x		2	
8	MW-61-110-197	2/19/2014	11:28	Water	x				x		2	pH=2 6020A
9	MW-62-110-197	2/19/2014	14:20	Water	x				x		2	
10	MW-62-190-197	2/19/2014	14:25	Water	x				x		2	
11	MW-65-160-197	2/19/2014	8:04	Water	x				x		2	
12	MW-65-225-197	2/19/2014	8:32	Water	x				x		2	
13	MW-66-165-197	2/19/2014	9:32	Water	x				x		2	

* Where provided w/multiple bottles for Cr6 + CrT, please analyze 1 + hold 1

Rec'd 02/25/14
S13b 812352

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		2-25-14
Sampled by	[signature]	1430
Relinquished by	[signature]	2-25-14
Received by	[signature]	1430
Relinquished by	[signature]	2-25-14 1850
Received by	[signature]	2/25/14@1850

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:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/19/14	812256-3	9.5	N/A	N/A	N/A	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	812257-1					
	-2					
	-3					
	-4					
	-5					
	-6					
2/20/14	812283-1	7.00	2ml/100ml	9.5	7:30	NE
	-2					
2/21/14	812302	7.00	1ml/50ml	9.5	7:15	NE
2/25/14	812326-1					
	-2					
2/26/14	812347-1	8.00	5 pieces of 25% NaOH / 100ml	9.5	7:30	NE
	-2	9.00	3 pieces of 25% NaOH / 100ml			
	812351	7.00	2ml/100ml	9.5	7:30	~~NE~~ Felipe
	812352-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					

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
2/26/14	812352-9	9.5	N/A	N/A	N/A	CNE
	-10					
	-11					
	-12					
	-13					
	812253-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					

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
S12191	<1	<2	2/14/14	ES	Yes			
S12192	↓	↓	↓	↓	↓			
S12204								
S12205	↓							
S12206	>1							
S12197	↓							
S12221	<1							
S12225	↓	↓	↓	↓	↓			
S12234(1-2)	<1	<2	2/19/14	ES	Yes			
S12238	↓	↓	↓	↓	↓			
S12237								
S12246(1-3)	<1	>2			No	11:00	2/24/14 @ 12:00	pH <2
S12251(1,3-4)	↓	↓	↓	↓	↓	↓	↓	↓
S12239	<1	<2	↓	↓	Yes			
S12255(1-5,10-13)	<1	<2	2/20/14	ES	Yes			
S12256(1-7,10-11)	↓	↓	↓	↓	↓			
S12257(1-4)								
S12254	↓	>2	↓	↓	↓	11:00		pH <2
S12260(1-2,4)	<1	>2	2/21/14	ES	No	2:00	2/24/14 @ 12	pH <2
S12263	↓	<2	↓	↓	Yes			
S12264								
S12265								
S12266								
S12267	↓							
S12276(1-2)	>1	↓			↓			
S12291(10-12)	<1	>2 ES 2/21/14			No	2:00	2/24/14 @ 12	pH <2
S12292(1-2)	↓	>2			↓	↓	↓	↓
S12310	↓	↓	↓	↓	Yes			
S12319	<1	<2	2/25/14	ES	Yes			
S12320	↓	↓	↓	↓	↓			
S12324(1-2)								
S12321		>2			No	10:00	2/26/14 @ 12	pH <2
S12330(1-2,4)	↓	>2	↓	↓	↓	↓	↓	↓
S12334	<1	<2	2/26/14	ES	Yes			
S12340	↓	↓	↓	↓	↓			
S12346(1-2)	<1	>2	↓	↓	No	10:00		
S12350(1-2)	↓	↓	↓	↓	↓	↓		
S12351	<1	>2	2/27/14	ES	Yes	11:00		pH <2
S12352(1-3,6-13)	↓	<2	↓	↓	↓			
S12353(1,5-12,15)	↓	↓	↓	↓	↓			
S12366	<1	>2	2/27/14	ES	No	5:00		
S12365(10-12)	↓	↓	↓	↓	↓	↓		
S12386(1-3)	↓	↓	↓	↓	↓			
S12369	>1	<2	↓	↓	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 #** 812352

Date Delivered: 02/25/14 **Time:** 18:50 **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? Temperature (if yes)? 4.5 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☒Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

March 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 2014-GMP-197-Q1, GROUNDWATER MONITORING PROJECT, TLI NO.: 812353

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-GMP-197-Q1 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody February 25, 2014, 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 TW-01-197 was analyzed for Hexavalent Chromium by EPA 218.6 rather than SM 3500B as requested on the chain of custody. 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.

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.: 812353
Date Received: February 25, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812353-001	MW-69-195-197	E218.6	FLDFLT	2/19/2014	10:12	Chromium, Hexavalent	893	ug/L	10.0
812353-001	MW-69-195-197	SW6020	FLDFLT	2/19/2014	10:12	Chromium	905	ug/L	5.0
812353-002	MW-212-197	E218.6	FLDFLT	2/20/2014	6:40	Chromium, Hexavalent	ND	ug/L	0.20
812353-003	MW-213-197	E218.6	FLDFLT	2/20/2014	6:45	Chromium, Hexavalent	ND	ug/L	0.20
812353-004	MW-214-197	E218.6	FLDFLT	2/20/2014	14:50	Chromium, Hexavalent	ND	ug/L	0.20
812353-005	MW-24BR-197	E218.6	FLDFLT	2/20/2014	14:14	Chromium, Hexavalent	ND	ug/L	1.0
812353-005	MW-24BR-197	SW6020	FLDFLT	2/20/2014	14:14	Chromium	ND	ug/L	1.0
812353-006	MW-48-197	E218.6	FLDFLT	2/20/2014	12:00	Chromium, Hexavalent	ND	ug/L	1.0
812353-006	MW-48-197	SW6020	FLDFLT	2/20/2014	12:00	Chromium	ND	ug/L	1.0
812353-007	MW-62-065-197	E218.6	FLDFLT	2/20/2014	13:14	Chromium, Hexavalent	469	ug/L	5.0
812353-007	MW-62-065-197	SW6020	FLDFLT	2/20/2014	13:14	Chromium	474	ug/L	5.0
812353-008	TW-01-197	E218.6	FLDFLT	2/20/2014	8:18	Chromium, Hexavalent	2500	ug/L	50.0
812353-008	TW-01-197	SW6020	FLDFLT	2/20/2014	8:18	Chromium	2620	ug/L	25.0
812353-009	MW-57-070-197	E218.6	FLDFLT	2/24/2014	15:09	Chromium, Hexavalent	394	ug/L	5.0
812353-009	MW-57-070-197	SW6020	FLDFLT	2/24/2014	15:09	Chromium	409	ug/L	5.0
812353-010	MW-67-185-197	E218.6	FLDFLT	2/24/2014	9:30	Chromium, Hexavalent	1960	ug/L	20.0
812353-010	MW-67-185-197	SW6020	FLDFLT	2/24/2014	9:30	Chromium	2150	ug/L	25.0
812353-011	MW-67-225-197	E218.6	FLDFLT	2/24/2014	7:38	Chromium, Hexavalent	2890	ug/L	50.0
812353-011	MW-67-225-197	SW6020	FLDFLT	2/24/2014	7:38	Chromium	3120	ug/L	25.0
812353-012	MW-67-260-197	E218.6	FLDFLT	2/24/2014	8:11	Chromium, Hexavalent	1940	ug/L	20.0
812353-012	MW-67-260-197	SW6020	FLDFLT	2/24/2014	8:11	Chromium	2010	ug/L	25.0
812353-013	MW-215-197	E218.6	FLDFLT	2/25/2014	6:41	Chromium, Hexavalent	ND	ug/L	0.20
812353-014	MW-216-197	E218.6	FLDFLT	2/25/2014	6:42	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
812353-015	MW-60-125-197	E218.6	FLDFLT	2/25/2014	13:52	Chromium, Hexavalent	1030	ug/L	20.0
812353-015	MW-60-125-197	SW6020	FLDFLT	2/25/2014	13:52	Chromium	1070	ug/L	10.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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
P.O. Number: 423575.MP.02.GM
Release Number:

Laboratory No. 812353

Printed 3/10/2014

Samples Received on 2/25/2014 6:50:00 PM

Field ID	Lab ID	Collected	Matrix
MW-69-195-197	812353-001	02/19/2014 10:12	Water
MW-212-197	812353-002	02/20/2014 06:40	Water
MW-213-197	812353-003	02/20/2014 06:45	Water
MW-214-197	812353-004	02/20/2014 14:50	Water
MW-24BR-197	812353-005	02/20/2014 14:14	Water
MW-48-197	812353-006	02/20/2014 12:00	Water
MW-62-065-197	812353-007	02/20/2014 13:14	Water
TW-01-197	812353-008	02/20/2014 08:18	Water
MW-57-070-197	812353-009	02/24/2014 15:09	Water
MW-67-185-197	812353-010	02/24/2014 09:30	Water
MW-67-225-197	812353-011	02/24/2014 07:38	Water
MW-67-260-197	812353-012	02/24/2014 08:11	Water
MW-215-197	812353-013	02/25/2014 06:41	Water
MW-216-197	812353-014	02/25/2014 06:42	Water
MW-60-125-197	812353-015	02/25/2014 13:52	Water

Chrome VI by EPA 218.6

Batch 02CrH14 G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812353-001 Chromium, Hexavalent	ug/L	02/26/2014 16:00	50.0	0.300	10.0	893
812353-002 Chromium, Hexavalent	ug/L	02/26/2014 10:51	1.00	0.00600	0.20	ND
812353-003 Chromium, Hexavalent	ug/L	02/26/2014 11:01	1.00	0.00600	0.20	ND
812353-004 Chromium, Hexavalent	ug/L	02/26/2014 11:11	1.00	0.00600	0.20	ND
812353-006 Chromium, Hexavalent	ug/L	02/26/2014 15:48	5.00	0.0300	1.0	ND
812353-007 Chromium, Hexavalent	ug/L	02/26/2014 11:43	25.0	0.150	5.0	469
812353-008 Chromium, Hexavalent	ug/L	02/26/2014 12:48	250	1.50	50.0	2500
812353-009 Chromium, Hexavalent	ug/L	02/26/2014 13:19	25.0	0.150	5.0	394
812353-010 Chromium, Hexavalent	ug/L	02/26/2014 13:30	100	0.600	20.0	1960
812353-011 Chromium, Hexavalent	ug/L	02/26/2014 14:29	250	1.50	50.0	2890

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

812353-012 Chromium, Hexavalent	ug/L	02/26/2014 14:40	100	0.600	20.0	1940
812353-013 Chromium, Hexavalent	ug/L	02/26/2014 14:50	1.00	0.00600	0.20	ND
812353-014 Chromium, Hexavalent	ug/L	02/26/2014 15:01	1.00	0.00600	0.20	ND
812353-015 Chromium, Hexavalent	ug/L	02/26/2014 16:42	100	0.600	20.0	1030

Method Blank

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

Duplicate — Lab ID = 812353-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	895	893	0.235	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

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

Matrix Spike — Lab ID = 812353-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1870	1890(1000)	98.0	90 - 110

Matrix Spike — Lab ID = 812353-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.995	1.00(1.00)	98.9	90 - 110

Matrix Spike — Lab ID = 812353-003

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 = 812353-004

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 = 812353-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110

Matrix Spike — Lab ID = 812353-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.22	5.21(5.00)	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.

Matrix Spike — Lab ID = 812353-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.22	1.26(1.00)	96.5	90 - 110

Matrix Spike — Lab ID = 812353-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	964	969(500)	99.0	90 - 110

Matrix Spike — Lab ID = 812353-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6320	6250(3750)	102	90 - 110

Matrix Spike — Lab ID = 812353-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	884	894(500)	98.0	90 - 110

Matrix Spike — Lab ID = 812353-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4040	3960(2000)	104	90 - 110

Matrix Spike — Lab ID = 812353-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6590	6640(3750)	98.6	90 - 110

Matrix Spike — Lab ID = 812353-012

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 = 812353-013

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 = 812353-014

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

Matrix Spike — Lab ID = 812353-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	2530	2530(1500)	100	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.5	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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 02CrH14 I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812353-005 Chromium, Hexavalent	ug/L	02/27/2014 14:48	5.00	0.0300	1.0	ND

Method Blank

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

Duplicate — Lab ID = 812352-010

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	0.185	0.200	92.4	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 812352-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.00(5.00)	98.0	90 - 110

Matrix Spike — Lab ID = 812352-007

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 = 812352-010

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 = 812352-010

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

Matrix Spike — Lab ID = 812353-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.99	5.00(5.00)	99.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00	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 Page 7 of 8
Project Number: 423575.MP.02.GM Printed 3/10/2014

Metals by EPA 6020A, Dissolved

Batch 022714B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812353-001 Chromium	ug/L	02/27/2014 21:18	10.0	0.710	5.0	905
812353-005 Chromium	ug/L	02/27/2014 20:42	2.00	0.142	1.0	ND
812353-006 Chromium	ug/L	02/27/2014 21:31	2.00	0.142	1.0	ND
812353-007 Chromium	ug/L	02/27/2014 21:37	10.0	0.710	5.0	474
812353-008 Chromium	ug/L	02/27/2014 21:49	50.0	3.55	25.0	2620
812353-009 Chromium	ug/L	02/27/2014 21:55	10.0	0.710	5.0	409
812353-010 Chromium	ug/L	02/27/2014 22:07	50.0	3.55	25.0	2150
812353-011 Chromium	ug/L	02/27/2014 22:13	50.0	3.55	25.0	3120
812353-012 Chromium	ug/L	02/27/2014 22:32	50.0	3.55	25.0	2010
812353-015 Chromium	ug/L	02/27/2014 22:38	20.0	1.42	10.0	1070

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 812353-005

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	0.578	0.500	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.7	50.0	97.4	85 - 115

Matrix Spike — Lab ID = 812353-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.8	50.0(50.0)	93.5	75 - 125

Matrix Spike Duplicate — Lab ID = 812353-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.6	50.0(50.0)	93.1	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	19.0	20.0	95.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	90 - 110

Interference Check Standard A

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

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	19.1	20.0	95.4	80 - 120

Interference Check Standard AB

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

Serial Dilution — Lab ID = 812353-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	914	905	1.02	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

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.

812353

CH2MHILL **CHAIN OF CUSTODY RECORD** 2/25/2014 8:55:27 AM Page 2 OF 3

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/25/2014
COC Number: 10

	Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 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	Field	Field			
	Holding Time:	28	28	28	180	180			
		Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A-R) Field Filtered Chromium	Metals (6020A) Field Filtered Chromium		Number of Containers	COMMENTS
	DATE / TIME / Matrix								
1	MW-69-195-197 2/19/2014 10:12 Water	X				X		2	pH=7.2
2	MW-212-197 2/20/2014 6:40 Water	X						1	COC#4
3	MW-213-197 2/20/2014 6:45 Water	X						1	
4	MW-214-197 2/20/2014 14:50 Water	X						1	
5	MW-24BR-197 2/20/2014 14:14 Water	X				X		2	
6	MW-48-197 2/20/2014 12:00 Water	X				X		2	
7	MW-62-065-197 2/20/2014 13:14 Water	X				X		2	
8	TW-01-197 2/20/2014 8:18 Water			X		X		2	PH=7.2
9	MW-57-070-197 2/24/2014 15:09 Water	X				X		2	COC#4
10	MW-67-185-197 2/24/2014 9:30 Water	X				X		2	
11	MW-67-225-197 2/24/2014 7:38 Water	X				X		2	
12	MW-67-260-197 2/24/2014 8:11 Water	X				X		2	
13	MW-215-197 2/25/2014 6:41 Water	X						1	
14	MW-216-197 2/25/2014 6:42 Water	X						1	

Rec'd 02/25/14
~~S13b~~ 812353

ALERT !! Chr Sample Conditions
Level III QC See Form Attached

	Signatures	Date/Time
Approved by		2-25-14
Sampled by		1430
Relinquished by		2-25-14
Received by	Ehab Nigo	1430
Relinquished by	Ehab Nigo	2-25-14 1850
Received by	Shawn Duffy	2/25/14@1850

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:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

812353

CH2MHILL

CHAIN OF CUSTODY RECORD

2/25/2014 8:55:27 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/25/2014
COC Number: 10

	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A-R) Field Filtered Chromium	Metals (6020A) Field Filtered Chromium	Number of Containers	COMMENTS
Container:				250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 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	Field	Field		
Holding Time:				28	28	28	180	180		
15 MW-60-125-197	2/25/2014	13:52	Water	X				X	2	OH ~~72~~ 6020A
TOTAL NUMBER OF CONTAINERS									53	

Rec'd 02/25/14 812353
~~S13b~~

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		2-25-14
Sampled by	[signature]	1430
Relinquished by	[signature]	2-25-14
Received by	Ethan Ngo	1430
Relinquished by	Ethan Ngo	2-25-14 1850
Received by	Gardner Brady	2/25/14 @ 1850

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:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/26/14	812352-9	9.5	N/A	N/A	N/A	NE
	-10					
	-11					
	-12					
	-13					
	812353-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
↓	↓ -15	↓	↓	↓	↓	↓
2/27/14	812376-1	7.00	2ml/100ml	9.5	7:30	NE
↓	↓ -2	↓	↓	↓	↓	↓
2/27/14	813395-1	7.00	.5ml/25ml	9.5	16:40	NE
	-2					
	-3					
	-4					
	-5					
	-6					
↓	↓ -7	↓	↓	↓	↓	↓

NE
2/28/14

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
812191	<1	<2	2/14/14	ES	yes			
812192	↓	↓	↓	↓	↓			
812204								
812205								
812206	>1							
812197	~~N~~							
812221	<1							
812225	>1	↓	↓	↓	↓			
812234 (1-2)	<1	<2	2/19/14	ES	yes			
812238	↓	↓			↓			
812237								
812246 (1-3)	<1	>2			No	11:00	2/24/14 @ 12:00	pH <2
812251 (1,3-4)	↓	↓	↓	↓	↓	↓	↓	↓
812239	<1	<2	↓	↓	yes			
812255 (1-5, 10-13)	<1	<2	2/20/14	ES	yes			
812256 (1-7, 10-11)	↓	↓	↓	↓	↓			
812257 (1-4)								
812254	↓	>2	↓	↓	↓	11:00		pH <2
812260 (1-2, 4)	<1	>2	2/21/14	ES	NO	2:00	2/24/14 @ 12	pH <2
812263	↓	<2	↓	↓	yes			
812264								
812265								
812266								
812267	↓							
812276 (1-2)	>1	↓			↓			
812291 (10-12)	<1	>2 ES 2/21/14			NO	2:00	2/24/14 @ 12	pH <2
812292 (1-2)	↓	~~>~~ 2			↓	↓	↓	↓
812310	↓	↓	↓	↓	yes			
812319	<1	<2	2/25/14	ES	yes			
812320	↓	↓	↓	↓	↓			
812324 (1-2)								
812321		>2			NO	10:00	2/26/14 @ 12	pH <2
812330 (1-2, 4)	↓	>2	↓	↓	↓	↓	↓	↓
812334	<1	<2	2/26/14	ES	yes			
812340	↓	↓	↓	↓	↓			
812346 (1-2)	<1	>2	↓	↓	NO	10:00		
812350 (1-2)	↓	↓	↓	↓	↓	↓		
812351	<1	>2	2/27/14	ES	yes	11:00		pH <2
812352 (1-3, 6-13)	↓	<2	↓	↓	↓			
812353 (1, 5-12, 15)	↓	↓						
812366	<1	>2	2/27/14	ES	NO	5:00		
812365 (10-12)	↓	↓	↓	↓	↓	↓		
812386 (1-3)	↓	↓	↓	↓	↓			
812369	>1	<2	↓	↓	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 #** 812353

Date Delivered: 02/25/14 **Time:** 18:50 **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? Temperature (if yes)? 4.5 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See c.o.c	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☒Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

March 21, 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 IM3PLANT-EW-216, GROUNDWATER MONITORING PROJECT, TLI NO.: 812484

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-216 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 March 4, 2014, 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.

Mr. Duffy provided a revised chain of custody with the sample collection times added and the collection date corrected for sample TW-03D-216.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

fo- Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 812484
Date: March 21, 2014
Collected: March 4, 2014
Received: March 4, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 4500-H B	pH	Felipe Mendoza
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Himani Vaishnav / Felipe Mendoza
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

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

Laboratory No.: 812484
Date Received: March 4, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812484-001	PE-01-216	E120.1	NONE	3/4/2014	15:00	EC	3680	umhos/cm	2.00
812484-001	PE-01-216	E200.7	LABFLT	3/4/2014	15:00	Calcium	106000	ug/L	50000
812484-001	PE-01-216	E200.7	LABFLT	3/4/2014	15:00	Iron	ND	ug/L	20.0
812484-001	PE-01-216	E200.7	LABFLT	3/4/2014	15:00	Magnesium	24800	ug/L	5000
812484-001	PE-01-216	E200.7	LABFLT	3/4/2014	15:00	Sodium	773000	ug/L	50000
812484-001	PE-01-216	E200.8	LABFLT	3/4/2014	15:00	Chromium	4.8	ug/L	1.0
812484-001	PE-01-216	E200.8	LABFLT	3/4/2014	15:00	Manganese	56.0	ug/L	0.50
812484-001	PE-01-216	E218.6	LABFLT	3/4/2014	15:00	Chromium, Hexavalent	4.8	ug/L	0.20
812484-001	PE-01-216	E300	NONE	3/4/2014	15:00	Chloride	1090	mg/L	20.0
812484-001	PE-01-216	E300	NONE	3/4/2014	15:00	Nitrate as N	ND	mg/L	0.500
812484-001	PE-01-216	E300	NONE	3/4/2014	15:00	Sulfate	391	mg/L	25.0
812484-001	PE-01-216	SM2320B	NONE	3/4/2014	15:00	Alkalinity	215	mg/L	5.00
812484-001	PE-01-216	SM2320B	NONE	3/4/2014	15:00	Alkalinity, Bicarbonate (As CaCO3)	215	mg/L	5.00
812484-001	PE-01-216	SM2320B	NONE	3/4/2014	15:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
812484-001	PE-01-216	SM2540C	NONE	3/4/2014	15:00	Total Dissolved Solids	2510	mg/L	125
812484-001	PE-01-216	SM4500HB	NONE	3/4/2014	15:00	PH	7.50 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
812484-002	TW-03D-216	E120.1	NONE	3/4/2014	15:00	EC	7980	umhos/cm	2.00
812484-002	TW-03D-216	E200.7	LABFLT	3/4/2014	15:00	Calcium	234000	ug/L	50000
812484-002	TW-03D-216	E200.7	LABFLT	3/4/2014	15:00	Iron	ND	ug/L	20.0
812484-002	TW-03D-216	E200.7	LABFLT	3/4/2014	15:00	Magnesium	39200	ug/L	10000
812484-002	TW-03D-216	E200.7	LABFLT	3/4/2014	15:00	Sodium	1490000	ug/L	250000
812484-002	TW-03D-216	E200.8	LABFLT	3/4/2014	15:00	Chromium	752	ug/L	5.0
812484-002	TW-03D-216	E200.8	LABFLT	3/4/2014	15:00	Manganese	8.7	ug/L	0.50
812484-002	TW-03D-216	E300	NONE	3/4/2014	15:00	Chloride	2560	mg/L	50.0
812484-002	TW-03D-216	E300	NONE	3/4/2014	15:00	Nitrate as N	3.69	mg/L	0.500
812484-002	TW-03D-216	E300	NONE	3/4/2014	15:00	Sulfate	558	mg/L	25.0
812484-002	TW-03D-216	SM2320B	NONE	3/4/2014	15:00	Alkalinity	150	mg/L	5.00
812484-002	TW-03D-216	SM2320B	NONE	3/4/2014	15:00	Alkalinity, Bicarbonate (As CaCO3)	150	mg/L	5.00
812484-002	TW-03D-216	SM2320B	NONE	3/4/2014	15:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
812484-002	TW-03D-216	SM2540C	NONE	3/4/2014	15:00	Total Dissolved Solids	5050	mg/L	250
812484-002	TW-03D-216	SM3500-CrB	LABFLT	3/4/2014	15:00	Chromium, Hexavalent	816	ug/L	250
812484-002	TW-03D-216	SM4500HB	NONE	3/4/2014	15:00	PH	7.53 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

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. 812484

Printed 3/21/2014

Samples Received on 3/4/2014 7:10:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-216	812484-001	03/04/2014 15:00	Water
TW-03D-216	812484-002	03/04/2014 15:00	Water

Anions By I.C. - EPA 300.0

Batch 03AN14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812484-001 Chloride	mg/L	03/05/2014 15:03	200	6.98	20.0	1090
Nitrate as Nitrogen	mg/L	03/05/2014 12:23	5.00	0.0415	0.500	ND
Sulfate	mg/L	03/05/2014 15:26	50.0	1.54	25.0	391
812484-002 Chloride	mg/L	03/05/2014 15:15	500	17.4	50.0	2560
Nitrate as Nitrogen	mg/L	03/05/2014 12:34	5.00	0.0415	0.500	3.69
Sulfate	mg/L	03/05/2014 15:38	50.0	1.54	25.0	558

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 = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.30	2.30	0.130	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.95	2.97	0.540	0 - 20

Duplicate — Lab ID = 812495-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	78.3	79.7	1.80	0 - 20
Sulfate	mg/L	25.0	190	194	1.77	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.99	4.00	99.8	90 - 110
Fluoride	mg/L	1.00	4.16	4.00	104	90 - 110
Sulfate	mg/L	1.00	19.7	20.0	98.7	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.96	4.00	99.0	90 - 110

Matrix Spike Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.4	22.3(20.0)	101	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.5	23.0(20.0)	97.7	85 - 115

Matrix Spike Lab ID = 812495-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	177	180(100)	97.6	85 - 115
Sulfate	mg/L	25.0	422	444(250)	91.2	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	4.00	4.00	100.	90 - 110
Fluoride	mg/L	1.00	4.18	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.02	4.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.99	3.00	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.00	3.00	100	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	2.86	3.00	95.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.14	3.00	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: 428648.IM.CS.EX.AC

Printed 3/21/2014

Alkalinity by SM 2320B

Batch 03ALK14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812484-001 Alkalinity as CaCO3	mg/L	03/07/2014	1.00	1.68	5.00	215
Bicarbonate (Calculated)	mg/L	03/07/2014	1.00	1.68	5.00	215
Carbonate (Calculated)	mg/L	03/07/2014	1.00	1.68	5.00	ND
812484-002 Alkalinity as CaCO3	mg/L	03/07/2014	1.00	1.68	5.00	150
Bicarbonate (Calculated)	mg/L	03/07/2014	1.00	1.68	5.00	150
Carbonate (Calculated)	mg/L	03/07/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate — Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	149	150	0.669	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	105	100	105	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	103	100	103	90 - 110

Matrix Spike — Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	239	250(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.

Specific Conductivity - EPA 120.1

Batch 03EC14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812484-001 Specific Conductivity	umhos/cm	03/07/2014	1.00	0.606	2.00	3680
812484-002 Specific Conductivity	umhos/cm	03/07/2014	1.00	0.606	2.00	7980

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6840	6810	0.440	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	645	706	91.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	648	706	91.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	910	1000	91.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	910	1000	91.0	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.

Chrome VI by EPA 218.6

Batch 03CrH14 A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812484-001 Chromium, Hexavalent	ug/L	03/05/2014 10:36	1.00	0.00600	0.20	4.8

Method Blank

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

Duplicate — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.73	4.82	1.89	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	4.98	5.00	99.6	90 - 110

Matrix Spike — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.56	9.82(5.00)	94.8	90 - 110

Matrix Spike — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.27	1.22(1.00)	105	90 - 110

Matrix Spike — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.27	5.25(5.00)	100	90 - 110

Matrix Spike — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1380	1370(750)	100	90 - 110

Matrix Spike — Lab ID = 812486-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.50	7.33(5.00)	103	90 - 110

Matrix Spike — Lab ID = 812486-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.27	7.35(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.

Chromium, Hexavalent by SM 3500-Cr B

Batch 03CrH14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
812484-002 Chromium, Hexavalent	ug/L	03/11/2014 14:03	25.0	110	250	816	

Method Blank

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

Duplicate — Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	875	816	7.00	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

Matrix Spike — Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3320(2500)	103	85 - 115

MRCCS - Secondary

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	59.8	60.0	99.7	90 - 110

pH by SM 4500-H B

Batch 03PH14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
812484-001 pH	pH	03/20/2014 16:53	1.00	0.0250	4.00	7.50	J
812484-002 pH	pH	03/20/2014 16:55	1.00	0.0250	4.00	7.53	J

Duplicate — Lab ID = 812507-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.13	7.07	0.845	0 - 20

Lab Control Sample

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.09	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.

Total Dissolved Solids by SM 2540 C

Batch 03TDS14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812484-001 Total Dissolved Solids	mg/L	03/07/2014	1.00	1.76	125	2510
812484-002 Total Dissolved Solids	mg/L	03/07/2014	1.00	1.76	250	5050

Method Blank

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

Duplicate — Lab ID = 812500-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	526	518	1.53	0 - 10

Duplicate — Lab ID = 812525-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	670	686	2.36	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	494	500	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.

Metals by EPA 200.8, Dissolved

Batch 031114A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812484-001 Chromium	ug/L	03/11/2014 14:02	1.00	0.0710	1.0	4.8
Manganese	ug/L	03/11/2014 14:02	1.00	0.0600	0.50	56.0
812484-002 Chromium	ug/L	03/11/2014 15:03	10.0	0.710	5.0	752
Manganese	ug/L	03/11/2014 14:57	1.00	0.0600	0.50	8.7

Method Blank

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

Duplicate

Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	4.95	4.85	2.10	0 - 20
Manganese	ug/L	1.00	55.4	56.0	1.05	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.7	50.0	93.3	85 - 115
Manganese	ug/L	1.00	46.7	50.0	93.5	85 - 115

Matrix Spike

Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.0	54.8(50.0)	86.3	75 - 125
Manganese	ug/L	1.00	97.4	106(50.0)	82.8	75 - 125

Matrix Spike Duplicate

Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.2	54.8(50.0)	86.7	75 - 125
Manganese	ug/L	1.00	98.7	106(50.0)	85.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.0	90 - 110
Manganese	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	19.8	20.0	98.9	90 - 110

MRCVS - Primary

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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
Manganese	ug/L	1.00	19.9	20.0	99.6	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard 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	18.2	20.0	91.2	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.4	20.0	92.1	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

Serial Dilution Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	5.00	53.6	56.0	4.28	0 - 10

Serial Dilution Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	773	752	2.81	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 200.7, Dissolved

Batch 032014A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812484-001 Calcium	ug/L	03/20/2014 14:28	100	1700	50000	106000
Iron	ug/L	03/20/2014 17:28	1.00	3.00	20.0	ND
Magnesium	ug/L	03/20/2014 16:04	5.00	2340	5000	24800
Sodium	ug/L	03/20/2014 14:28	100	5980	50000	773000
812484-002 Calcium	ug/L	03/20/2014 14:35	100	1700	50000	234000
Iron	ug/L	03/20/2014 16:56	1.00	3.00	20.0	ND
Magnesium	ug/L	03/20/2014 15:33	10.0	4680	10000	39200
Sodium	ug/L	03/20/2014 13:42	500	29900	250000	1490000

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 = 812484-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	234000	234000	0.0427	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Sodium	ug/L	500	1560000	1490000	4.46	0 - 20
Magnesium	ug/L	10.0	40500	39200	3.24	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2000	2000	99.8	85 - 115
Iron	ug/L	1.00	2130	2000	107	85 - 115
Sodium	ug/L	1.00	1760	2000	87.9	85 - 115
Magnesium	ug/L	1.00	2060	2000	103	85 - 115

Matrix Spike — Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	432000	434000(200000)	99.0	75 - 125
Iron	ug/L	1.00	2050	2000(2000)	102	75 - 125
Sodium	ug/L	500	2560000	2490000(10000C	106	75 - 125
Magnesium	ug/L	10.0	61000	59200(20000)	109	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 = 812484-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2040	2000(2000)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5020	5000	100	95 - 105
Iron	ug/L	1.00	5160	5000	103	95 - 105
Sodium	ug/L	1.00	4870	5000	97.4	95 - 105
Magnesium	ug/L	1.00	5220	5000	104	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4730	5000	94.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4920	5000	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4770	5000	95.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4820	5000	96.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5360	5000	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5400	5000	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5200	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5180	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4870	5000	97.4	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.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

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.

Alkalinity by SM 2320B
Calculations

Analytical Batch:	03ALK14A
Matrix:	WATER
Date of Analysis:	3/7/2014

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	4.98	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
812394-21	7.90	50	0.02	0.00	0.0	5.45		109.0	5	109.0	109.0	ND	ND	
812395-1	8.99	50	0.02	2.05	41.0	10.90		218.0	5	218.0	136.0	82	ND	
812395-2	2.15	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
812395-3	9.38	50	0.02	4.10	82.0	11.10		222.0	5	222.0	58.0	164	ND	
812395-4	1.72	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
812395-5	9.12	50	0.02	7.05	141.0	24.50		490.0	5	490.0	208.0	282	ND	
812395-6	6.72	50	0.02	0.00	0.0	6.00		120.0	5	120.0	120.0	ND	ND	
812395-7	8.48	50	0.02	0.30	6.0	10.65		213.0	5	213.0	201.0	12	ND	
812484-1	7.76	50	0.02	0.00	0.0	10.75		215.0	5	215.0	215.0	ND	ND	
812484-2	7.72	50	0.02	0.00	0.0	7.50		150.0	5	150.0	150.0	ND	ND	
812485-2	7.54	50	0.02	0.00	0.0	7.85		157.0	5	157.0	157.0	ND	ND	
812525-16	7.88	50	0.02	0.0	0.0	5.80		116.0	5	116.0	116.0	ND	ND	
812525-20	8.04	50	0.02	0.0	0.0	6.35		127.0	5	127.0	127.0	ND	ND	
LCS	10.48	50	0.02	1.9	38.0	5.25		105.0	5	105.0	29.0	76	ND	
LCSD	10.40	50	0.02	1.8	36.0	5.15		103.0	5	103.0	31.0	72	ND	
LCS	10.43	50	0.02	2.1	41.0	4.95		99.0	5	99.0	17.0	82	ND	
LCS	10.35	50	0.02	2.0	39.0	5.05		101.0	5	101.0	23.0	78	ND	
812484-2 DUP	7.70	50	0.02	0.0	0.0	7.45		149.0	5	149.0	149.0	ND	ND	
812484-2 MS	9.03	50	0.02	2.0	40.0	11.95		239.0	5	239.0	159.0	80	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	105	100	105.0%	90-110	Yes
LCSD	103	100	103.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
812484-2	150	149	0.7%	≤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?
812484-2	150	1	100	100	239	250.00	89%	75-125	Yes			
				0								

Himani/Felipe
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

029

0314A

Truesdail Laboratories, Inc.

8 e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 03TDS14A
Date Analyzed: 3/7/2014

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	77.2329	77.2335	77.2332	0.0003	No	0.0003	3.0	25.0	ND	1
812484-1	20	29.4722	29.5226	29.5224	0.0002	No	0.0502	2510.0	125.0	2510.0	1
812484-2	10	28.8330	28.8837	28.8835	0.0002	No	0.0505	5050.0	250.0	5050.0	1
812485-1	20	30.3384	30.4291	30.4291	0.0000	No	0.0907	4535.0	125.0	4535.0	1
812485-2	20	29.3299	29.4223	29.4223	0.0000	No	0.0924	4620.0	125.0	4620.0	1
812458	100	72.3704	72.4504	72.4504	0.0000	No	0.0800	800.0	25.0	800.0	1
812495-7	100	75.2751	75.3286	75.3284	0.0002	No	0.0533	533.0	25.0	533.0	1
812499-1	100	74.4561	74.4840	74.4839	0.0001	No	0.0278	278.0	25.0	278.0	1
812500-1	100	75.8091	75.8614	75.8614	0.0000	No	0.0523	523.0	25.0	523.0	1
812500-2	100	75.6085	75.6614	75.6610	0.0004	No	0.0525	525.0	25.0	525.0	1
812500-3	100	72.5312	72.5834	72.5830	0.0004	No	0.0518	518.0	25.0	518.0	1
812500-3 Dup	100	76.5330	76.5860	76.5856	0.0004	No	0.0526	526.0	25.0	526.0	1
LCS	100	76.2510	76.3004	76.3004	0.0000	No	0.0494	494.0	25.0	494.0	1
812500-4	100	65.6766	65.7291	65.7291	0.0000	No	0.0525	525.0	25.0	525.0	1
812514-1	100	77.7729	77.8123	77.8123	0.0000	No	0.0394	394.0	25.0	394.0	1
812514-2	100	76.7906	76.8302	76.8300	0.0002	No	0.0394	394.0	25.0	394.0	1
812525-16	50	51.3349	51.3694	51.3692	0.0002	No	0.0343	686.0	50.0	686.0	1
812431-1	100	68.1111	68.1485	68.1485	0.0000	No	0.0374	374.0	25.0	374.0	1
812431-2	100	67.4857	67.5233	67.5233	0.0000	No	0.0376	376.0	25.0	376.0	1
812525-16 Dup	50	49.1128	49.1466	49.1463	0.0003	No	0.0335	670.0	50.0	670.0	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?
LCS	494.0	500	98.8%	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?
812500-3	0.0518	0.0526	0.8%	≤5%	Yes
812525-16	0.0343	0.0335	1.2%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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: 03TDS14A
Date Analyzed: 3/7/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812484-1	3680	0.68	2392	1.05
812484-2	7981	0.63	5187.65	0.97
812485-1	6800	0.67	4420	1.03
812485-2	6810	0.68	4426.5	1.04
812458	881	0.91	572.65	1.40
812495-7	769	0.69	499.85	1.07
812499-1	486	0.57	315.9	0.88
812500-1	912	0.57	592.8	0.88
812500-2	879	0.60	571.35	0.92
812500-3	929	0.56	603.85	0.86
812500-3 Dup	929	0.57	603.85	0.87
LCS				
812500-4	894	0.59	581.1	0.90
812514-1	722	0.55	469.3	0.84
812514-2	689	0.57	447.85	0.88
812525-16	1009	0.68	655.85	1.05
812431-1	685	0.55	445.25	0.84
812431-2	645	0.58	419.25	0.90
812525-16 Dup	1009	0.66	655.85	1.02

← Rechecked Confirm. A.

Please make the corrections below

Shawn P. Duffy
03/06/2014

812484

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-216]

TURNAROUND TIME 10 Days
DATE 03/04/14 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

Rec'd 03/04/14
S 812484
17a

	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-01-216	03/04/14	15:00	Ground water	X		X	X	X	X								4	pH=7
-2	TW-03D-216	~~02/04/14~~	15:00	Ground water	X	X	X	X		X								4	
		03/04/14	SPD																
																		8	TOTAL NUMBER OF CONTAINERS

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		Ryan Phelps	CH2MHILL	3-4-14 15:20
Signature (Received)	Blake Ngo	THANH NGO	TRUESDAIL	3-4-14 1520
Signature (Relinquished)	Blake Ngo	Thanh Ngo	TLI	3-4-14 1910
Signature (Received)	Marchea Brah	Marchea Brah	TLI	3/4/14@1910
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS
RECEIVED COOL ☒ WARM ☐ 2.9°C
CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

073

812484

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-216]

TURNAROUND TIME 10 Days
DATE 03/04/14 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

Rec'd 03/04/14
S 812484
17a

	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-01-216	03/04/14		Ground water	X		X	X	X	X									4	pH-7 (200.8/200.7)
-2	TW-03D-216	02/04/14		Ground water	X	X	X	X		X									4	
																			8	TOTAL NUMBER OF CONTAINERS

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Ryan Phelps	Company/ Agency CH2MHILL	Date/ Time 3-4-14 15:20
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 3-4-14 1520
Signature (Relinquished) Thanh Ngo	Printed Name Thanh Ngo	Company/ Agency TLI	Date/ Time 3-4-14 1910
Signature (Received) Marchead Brad	Printed Name Marchead Brad	Company/ Agency TLI	Date/ Time 3/4/14@1910
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
RECEIVED COOL ☒ WARM ☐ 2.9°C
CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

074

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/26/14	812352-9	9.5	N/A	N/A	N/A	WE
	-10					
	-11					
	-12					
	-13					
	812353-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
↓	↓ -15	↓	↓	↓	↓	↓
2/27/14	812376-1	7.00	2ml/100ml	9.5	7:30	WE
↓	↓ -2	↓	↓	↓	↓	↓
2/27/14	813395-1	7.00	.5ml/25ml	9.5	16:40	WE
	-2					
	-3					
	-4					
	-5					
	-6					
↓	↓ -7	↓	↓	↓	↓	↓
3/5/14	812484-1	7.00	2ml/100ml	9.5	7:30	WE
	812485-1	↓	↓	↓	↓	↓

WE
3/6/14

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
812520	3/10/14 <1	<2	3/10/14	ES	Yes			
812522(1-5)	ES >1	↓			↓			
812524	>1	↓			↓			
812525	<1	>2			NO	10:00	12:00 3/11/14	pH <2
812547	<1	<2			Yes			
812555(1-4)	>1	↓	↓	↓	↓			
812557	<1	>2	↓	↓	NO	10:00	12:00 3/11/14	pH <2
812558	<1	<2	↓	↓	Yes			
812484(1-2)	<1	>2	3/10/14	ES	yes	2:00		Filtered from acidify
TOTAL 812485(-2)	<1	<2						
-1	<1	>2	↓	↓	↓	2:00		pH <2
DISS -2	<1	>2	↓	↓	↓	2:00		Filtered from acidify
812486(1-5,7-11,14-15)	<1	<2	↓	↓	↓			
812579	<1	<2	3/12/14	MM	Yes			
812581	↓	↓	↓	↓	↓			
812563	<1	<2	3/12/14	MM	Yes			
812575	↓	↓	↓	↓	↓			
812576								
812577								
812578								
812585								
812589	↓	↓	↓	↓	↓			
812568	>1	>2	3/13/14	ES	yes	10:00		pH<2
812608	<1	<2	↓	↓	↓			
812614(1-2	>1	↓	↓	↓	↓			
812618	>1	↓	↓	↓	↓			
812597(1-2	<1	>2	↓	↓	NO	10:00	3/17/14 10:00	pH <2
812569	↓	↓	↓	↓	↓	↓	↓	↓
812605(1-2)								
812615(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
812632(1-4,7-13)	<1	<2	3/14/14	ES	yes			TOTAL/DISSOLVED
812594	<1	>2	↓	↓	↓	2:00		pH <2
812619(1-4)	<1	>2	3/17/14	ES	NO	11:00		
812624(1-3)	↓	↓	↓	↓	↓	↓		
812629	↓	<2	↓	↓	Yes			
812640(1-2)	>1	↓	↓	↓	↓			
812641	↓	↓	↓	↓	↓			
812633(1-4,7-14,16)	<1	<2	3/17/14	ES	yes			ES 3/17/14 TOTAL/DISSOLVED TOTAL
633(3-4,7-14,16)	↓	↓	↓	↓	↓			
812644	>1	<2	3/18/14	MM	yes			
812645	↓	↓	↓	↓	↓			
812651(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.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 812484

Date Delivered: 03/04/14 **Time:** 19:10 **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? Temperature (if yes)? 1.9 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐Truesdail ☐Client	☐Yes	☐No	☑N/A
12.	Were samples pH checked? pH = See C.O.C	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

March 18, 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 2014-GMP-197-Q1, GROUNDWATER MONITORING PROJECT, TLI NO.: 812486

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-GMP-197-Q1 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody March 4, 2014, 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 (3.1 ug/L) and Hexavalent Chromium (2.3 ug/L) results for sample MW-58BR-197, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 3.3 ug/L and 3.0 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of 3.3 ug/L. Mr. Duffy was notified 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

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

Laboratory No.: 812486
Date Received: March 4, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812486-001	MW-12-197	SM3500-CrB	FLDFLT	2/25/2014	8:56	Chromium, Hexavalent	2560	ug/L	250
812486-001	MW-12-197	SW6020	FLDFLT	2/25/2014	8:56	Chromium	2480	ug/L	25.0
812486-002	MW-58BR-197	E218.6	FLDFLT	2/25/2014	15:25	Chromium, Hexavalent	2.3	ug/L	1.0
812486-002	MW-58BR-197	SW6020	FLDFLT	2/25/2014	15:25	Chromium	3.1	ug/L	1.0
812486-003	MW-59-100-197	E218.6	FLDFLT	2/25/2014	10:21	Chromium, Hexavalent	3740	ug/L	50.0
812486-003	MW-59-100-197	SW6020	FLDFLT	2/25/2014	10:21	Chromium	3780	ug/L	10.0
812486-004	MW-68-240-197	E218.6	FLDFLT	2/25/2014	7:35	Chromium, Hexavalent	2020	ug/L	20.0
812486-004	MW-68-240-197	SW6020	FLDFLT	2/25/2014	7:35	Chromium	2050	ug/L	5.0
812486-005	MW-70BR-225-197	E218.6	FLDFLT	2/25/2014	13:02	Chromium, Hexavalent	1900	ug/L	20.0
812486-005	MW-70BR-225-197	SW6020	FLDFLT	2/25/2014	13:02	Chromium	2080	ug/L	5.0
812486-006	MW-217-197	E218.6	FLDFLT	2/26/2014	6:15	Chromium, Hexavalent	ND	ug/L	0.20
812486-007	MW-50-200-197	SM3500-CrB	FLDFLT	2/26/2014	10:14	Chromium, Hexavalent	7010	ug/L	500
812486-007	MW-50-200-197	SW6020	FLDFLT	2/26/2014	10:14	Chromium	6940	ug/L	20.0
812486-008	MW-64BR-197	E218.6	FLDFLT	2/26/2014	14:34	Chromium, Hexavalent	ND	ug/L	1.0
812486-008	MW-64BR-197	SW6020	FLDFLT	2/26/2014	14:34	Chromium	ND	ug/L	1.0
812486-009	MW-66-230-197	E218.6	FLDFLT	2/26/2014	7:09	Chromium, Hexavalent	5730	ug/L	50.0
812486-009	MW-66-230-197	SW6020	FLDFLT	2/26/2014	7:09	Chromium	6570	ug/L	20.0
812486-010	MW-66BR-270-197	E218.6	FLDFLT	2/26/2014	7:16	Chromium, Hexavalent	ND	ug/L	1.0
812486-010	MW-66BR-270-197	SW6020	FLDFLT	2/26/2014	7:16	Chromium	ND	ug/L	1.0
812486-011	MW-74-240-197	E218.6	FLDFLT	2/26/2014	8:08	Chromium, Hexavalent	ND	ug/L	0.20
812486-011	MW-74-240-197	SW6020	FLDFLT	2/26/2014	8:08	Chromium	ND	ug/L	1.0
812486-012	MW-218-197	E218.6	FLDFLT	2/27/2014	6:30	Chromium, Hexavalent	ND	ug/L	0.20
812486-013	MW-219-197	E218.6	FLDFLT	2/27/2014	10:55	Chromium, Hexavalent	0.66	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
812486-014	MW-68-180-197	E218.6	FLDFLT	2/27/2014	10:12	Chromium, Hexavalent	22900	ug/L	200
812486-014	MW-68-180-197	SW6020	FLDFLT	2/27/2014	10:12	Chromium	23800	ug/L	100
812486-015	MW-68BR-280-197	E218.6	FLDFLT	2/27/2014	9:22	Chromium, Hexavalent	ND	ug/L	1.0
812486-015	MW-68BR-280-197	SW6020	FLDFLT	2/27/2014	9:22	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
P.O. Number: 423575.MP.02.GM
Release Number:

Laboratory No. 812486

Printed 3/18/2014

Samples Received on 3/4/2014 7:10:00 PM

Field ID	Lab ID	Collected	Matrix
MW-12-197	812486-001	02/25/2014 08:56	Water
MW-58BR-197	812486-002	02/25/2014 15:25	Water
MW-59-100-197	812486-003	02/25/2014 10:21	Water
MW-68-240-197	812486-004	02/25/2014 07:35	Water
MW-70BR-225-197	812486-005	02/25/2014 13:02	Water
MW-217-197	812486-006	02/26/2014 06:15	Water
MW-50-200-197	812486-007	02/26/2014 10:14	Water
MW-64BR-197	812486-008	02/26/2014 14:34	Water
MW-66-230-197	812486-009	02/26/2014 07:09	Water
MW-66BR-270-197	812486-010	02/26/2014 07:16	Water
MW-74-240-197	812486-011	02/26/2014 08:08	Water
MW-218-197	812486-012	02/27/2014 06:30	Water
MW-219-197	812486-013	02/27/2014 10:55	Water
MW-68-180-197	812486-014	02/27/2014 10:12	Water
MW-68BR-280-197	812486-015	02/27/2014 09:22	Water

Chrome VI by EPA 218.6

Batch 03CrH14 A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812486-002 Chromium, Hexavalent	ug/L	03/05/2014 14:12	5.00	0.0300	1.0	2.3
812486-003 Chromium, Hexavalent	ug/L	03/05/2014 11:17	250	1.50	50.0	3740
812486-004 Chromium, Hexavalent	ug/L	03/05/2014 11:28	100	0.600	20.0	2020
812486-005 Chromium, Hexavalent	ug/L	03/05/2014 11:39	100	0.600	20.0	1900
812486-006 Chromium, Hexavalent	ug/L	03/05/2014 11:49	1.00	0.00600	0.20	ND
812486-008 Chromium, Hexavalent	ug/L	03/05/2014 15:04	5.00	0.0300	1.0	ND
812486-009 Chromium, Hexavalent	ug/L	03/05/2014 12:31	250	1.50	50.0	5730
812486-010 Chromium, Hexavalent	ug/L	03/05/2014 15:14	5.00	0.0300	1.0	ND
812486-011 Chromium, Hexavalent	ug/L	03/05/2014 12:51	1.00	0.00600	0.20	ND
812486-012 Chromium, Hexavalent	ug/L	03/05/2014 13:02	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.

812486-013 Chromium, Hexavalent	ug/L	03/05/2014 13:12	1.00	0.00600	0.20	0.66
812486-014 Chromium, Hexavalent	ug/L	03/05/2014 13:41	1000	6.00	200	22900
812486-015 Chromium, Hexavalent	ug/L	03/05/2014 15:25	5.00	0.0300	1.0	ND

Method Blank

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

Duplicate — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.73	4.82	1.89	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	4.98	5.00	99.6	90 - 110

Matrix Spike — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.56	9.82(5.00)	94.8	90 - 110

Matrix Spike — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.27	1.22(1.00)	105	90 - 110

Matrix Spike — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.27	5.25(5.00)	100	90 - 110

Matrix Spike — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1380	1370(750)	100	90 - 110

Matrix Spike — Lab ID = 812486-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.50	7.33(5.00)	103	90 - 110

Matrix Spike — Lab ID = 812486-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.27	7.35(5.00)	98.4	90 - 110

Matrix Spike — Lab ID = 812486-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	7530	7490(3750)	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 = 812486-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4500	4520(2500)	99.3	90 - 110

Matrix Spike — Lab ID = 812486-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3930	3900(2000)	102	90 - 110

Matrix Spike — Lab ID = 812486-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.01(1.00)	101	90 - 110

Matrix Spike — Lab ID = 812486-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.07	5.03(5.00)	101	90 - 110

Matrix Spike — Lab ID = 812486-008

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 = 812486-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	12500	12000(6250)	109	90 - 110

Matrix Spike — Lab ID = 812486-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.953	1.00(1.00)	95.3	90 - 110

Matrix Spike — Lab ID = 812486-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.99	5.02(5.00)	99.4	90 - 110

Matrix Spike — Lab ID = 812486-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.03(1.00)	102	90 - 110

Matrix Spike — Lab ID = 812486-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.06(1.00)	102	90 - 110

Matrix Spike — Lab ID = 812486-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.69	1.66(1.00)	103	90 - 110

Matrix Spike — Lab ID = 812486-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	48700	47900(25000)	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 = 812486-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.947	1.00(1.00)	94.7	90 - 110

Matrix Spike — Lab ID = 812486-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.11	5.04(5.00)	102	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.65	10.0	96.5	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	9.72	10.0	97.2	95 - 105

MRCVS - Primary

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 031114B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812486-003 Chromium	ug/L	03/11/2014 20:10	50.0	3.55	10.0	3780
812486-004 Chromium	ug/L	03/11/2014 20:16	25.0	1.78	5.0	2050
812486-005 Chromium	ug/L	03/11/2014 20:22	25.0	1.78	5.0	2080
812486-007 Chromium	ug/L	03/11/2014 20:53	100	7.10	20.0	6940
812486-008 Chromium	ug/L	03/11/2014 20:59	2.00	0.142	1.0	ND
812486-009 Chromium	ug/L	03/11/2014 21:05	100	7.10	20.0	6570
812486-010 Chromium	ug/L	03/11/2014 21:17	2.00	0.142	1.0	ND
812486-011 Chromium	ug/L	03/11/2014 21:23	2.00	0.142	1.0	ND
812486-014 Chromium	ug/L	03/11/2014 21:29	500	35.5	100	23800
812486-015 Chromium	ug/L	03/11/2014 21:35	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 812485-001

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	0.192	0.200	96.2	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 = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.1	50.0(50.0)	92.2	75 - 125

Matrix Spike Duplicate — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.9	50.0(50.0)	91.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.0	90 - 110

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 031214A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812486-001 Chromium	ug/L	03/12/2014 18:01	50.0	3.55	25.0	2480
812486-002 Chromium	ug/L	03/12/2014 18:14	2.00	0.142	1.0	3.1

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	0.516	0.500	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	52.3	50.0	104	85 - 115

Matrix Spike — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.9	50.0(50.0)	95.8	75 - 125

Matrix Spike Duplicate — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.5	50.0(50.0)	95.0	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

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

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		

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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	20.0	20.0	99.8	80 - 120

Interference Check Standard AB

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

Serial Dilution Lab ID = 812486-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	250	2680	2480	7.62	0 - 10

Chromium, Hexavalent by SM 3500-Cr B

Batch 03CrH14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812486-001 Chromium, Hexavalent	ug/L	03/11/2014 14:04	25.0	110	250	2560
812486-007 Chromium, Hexavalent	ug/L	03/11/2014 14:05	50.0	220	500	7010

Method Blank

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

Duplicate Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	875	816	7.00	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.2	60.0	104	90 - 110

Matrix Spike Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3320(2500)	103	85 - 115

MRCCS - Secondary

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	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.

812486

CH2MHILL

CHAIN OF CUSTODY RECORD

2/27/2014 10:59:50 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date:
COC Number: TLI-GMP197

				Container:	250 ml Poly	250 ml Poly	500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field			
				Holding Time:	28	28	180			
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A) Field Filtered Chromium		Number of Containers	COMMENTS
1	MW-12-197	2/25/2014	8:56	Water		x	x		2	
2	MW-58BR-197	2/25/2014	15:25	Water	x		x		2	pH-2
3	MW-59-100-197	2/25/2014	10:21	Water	x		x		2	6020A
4	MW-68-240-197	2/25/2014	7:35	Water	x		x		2	
5	MW-70BR-225-197	2/25/2014	13:02	Water	x		x		2	
6	MW-217-197	2/26/2014	6:15	Water	x				1	
7	MW-50-200-197	2/26/2014	10:14	Water		x	x		2	
8	MW-64BR-197	2/26/2014	14:34	Water	x		x		2	
9	MW-66-230-197	2/26/2014	7:09	Water	x		x		2	pH-2
10	MW-66BR-270-197	2/26/2014	7:16	Water	x		x		2	6020A
11	MW-74-240-197	2/26/2014	8:08	Water	x		x		2	
12	MW-218-197	2/27/2014	6:30	Water	x				1	
13	MW-219-197	2/27/2014	10:55	Water	x				1	
14	MW-68-180-197	2/27/2014	10:12	Water	x		x		2	pH-2

Rec'd 03/04/14
~~S17a~~ 812486

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		3-4-14
Sampled by	[signature]	1435
Relinquished by	[signature]	3-4-14
Received by	Shawn Ngo	1435
Relinquished by	Shawn Ngo	3-4-14 1910
Received by	Gardeal Brady	3/4/14 @1910

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:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

53

812486

CH2MHILL **CHAIN OF CUSTODY RECORD** 2/27/2014 10:59:51 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date:
COC Number: TLI-GMP197

			Container:	250 ml Poly	250 ml Poly	500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field			
			Holding Time:	28	28	180			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A) Field Filtered Chromium		Number of Containers	COMMENTS
15 MW-~~68~~BR-280-197	2/27/2014	9:22	Water	X		X		2	pH-2
							TOTAL NUMBER OF CONTAINERS	27	6020.7

ALERT !!
Level III QC

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		3-4-14
Sampled by		1435
Relinquished by		3-4-14
Received by	Shawn Mgo	1435
Relinquished by	Shawn Mgo	3-4-14 1910
Received by	Jandal Brady	3/4/14 @ 1910

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:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

054

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/5/14	812455-2	7.00	1 mL/100 mL	9.5	7:30	NE
↓	812486-1	9.5	N/A	N/A	N/A	NE
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
↓	-7	↓	↓	↓	↓	↓
↓	-8	↓	↓	↓	↓	↓
↓	-9	↓	↓	↓	↓	↓
↓	-10	↓	↓	↓	↓	↓
↓	-11	↓	↓	↓	↓	↓
↓	-12	↓	↓	↓	↓	↓
↓	-13	↓	↓	↓	↓	↓
↓	-14	↓	↓	↓	↓	↓
↓	-15	↓	↓	↓	↓	↓
3/6/14	812535-1	7.00	1 mL/50 mL	9.5	7:15	NR
↓	-3	↓	↓	↓	↓	↓

NR
3/6/14

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
812520	~~E3~~ 3/10/14 <1	<2	3/10/14	ES	Yes			
812522(1-5)	~~E3~~ <1	↓						
812524	<1	↓			↓			
812525	<1	<2			NO	10:00	12:00 3/11/14	pH <2
812547	<1	<2			Yes			
812555(1-4)	<1	↓	↓	↓	↓			
812557	<1	<2	↓	↓	NO	10:00	12:00 3/11/14	pH <2
812558	<1	<2	↓	↓	Yes			
812484(1-2)	<1	<2	3/10/14	ES	Yes	2:00		Filtered from acidify
TOTAL 812485(-2)	<1	<2						
-1	<1	<2	↓	↓	↓	2:00		pH <2
DISS -2	<1	<2	↓	↓	↓	2:00		Filtered from acidify
812486(1-5,7-11,14-15)	<1	<2	↓	↓	↓			
812579	<1	<2	3/12/14	MM	Yes			
812581	↓	↓	↓	↓	↓			
812563	<1	<2	3/12/14	MM	Yes			
812575	↓	↓	↓	↓	↓			
812576								
812577								
812578								
812585								
812589	↓	↓	↓	↓	↓			
812568	>1	>2	3/13/14	ES	Yes	10:00		pH <2
812608	<1	<2	↓	↓	↓			
812614(1-2	>1	↓	↓	↓	↓			
812616	>1	↓	↓	↓	↓			
812597(1-2	<1	>2	↓	↓	NO	10:00	3/17/14 10:00	pH <2
812569	↓	↓	↓	↓	↓	↓	↓	↓
812605(1-2)								
812615(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
812672(1-4,7-13)	<1	<2	3/14/14	ES	Yes			TOTAL/DISSOLVED
812594	<1	>2	↓	↓	↓	2:30		pH <2
812619(1-4)	<1	>2	3/17/14	ES	NO	11:00		
812624(1-3)	↓	↓			↓	↓		
812629	↓	<2	↓	↓	Yes			
812640(1-2)	>1	↓	↓	↓	↓			
812641	↓	↓	↓	↓	↓			
812633(1-4,7-14,16)	<1	<2	3/17/14	ES	Yes			~~TOTAL~~/DISSOLVED
633(3-4,7-14,16)	↓	↓	↓	↓	↓			TOTAL
812644	>1	<2	3/18/14	MM	Yes			
812645	↓	↓	↓	↓	↓			
812651(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.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 812486

Date Delivered: 03/04/14 **Time:** 19:10 **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? Temperature (if yes)? 4.8 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐Truesdail ☐Client	☐Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

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

March 24, 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 2014-RMP-195, SURFACEWATER MONITORING PROJECT, TLI NO.: 812632

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-RMP-195 surfacewater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on March 13, 2014, 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 2014-RMP-195 Cr by SW 6020, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
C-BNS-D-195	2.00	No			
C-I-3-D-195	2.00	No			
C-I-3-S-195	2.00	No			
C-MAR-D-195	2.00	No			
C-R22A-D-195	2.00	No			
C-R22A-S-195	2.00	No			
C-R27-D-195	2.00	No			
C-R27-S-195	2.00	No			
C-TAZ-D-195	2.00	No			
C-TAZ-S-195	2.00	No			
R63-195	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 2014-RMP-195 Cr (VI) by EPA 218.6, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-BNS-D-195	9.50	No			
C-I-3-D-195	9.50	No			
C-I-3-S-195	9.50	No			
C-MAR-D-195	9.50	No			
C-MW-80-195	9.50	No			
C-MW-81-195	9.50	No			
C-R22A-D-195	9.50	No			
C-R22A-S-195	9.50	No			
C-R27-D-195	9.50	No			
C-R27-S-195	9.50	No			
C-TAZ-D-195	9.50	No			
C-TAZ-S-195	9.50	No			
R63-195	9.50	No			
RMP-AB1-195	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

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

Laboratory No.: 812632
Date Received: March 13, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812632-001	C-BNS-D-195	E120.1	NONE	3/12/2014	11:40	EC	868	umhos/cm	2.00
812632-001	C-BNS-D-195	E218.6	FLDFLT	3/12/2014	11:40	Chromium, Hexavalent	ND	ug/L	0.20
812632-001	C-BNS-D-195	SM2540D	NONE	3/12/2014	11:40	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812632-001	C-BNS-D-195	SM4500HB	NONE	3/12/2014	11:40	PH	8.10 J	pH	4.00
812632-001	C-BNS-D-195	SW6010B	NONE	3/12/2014	11:40	Iron	48.3	ug/L	20.0
812632-001	C-BNS-D-195	SW6010B	FLDFLT	3/12/2014	11:40	Iron	ND	ug/L	20.0
812632-001	C-BNS-D-195	SW6020	FLDFLT	3/12/2014	11:40	Arsenic	2.4	ug/L	0.50
812632-001	C-BNS-D-195	SW6020	FLDFLT	3/12/2014	11:40	Barium	102	ug/L	5.0
812632-001	C-BNS-D-195	SW6020	FLDFLT	3/12/2014	11:40	Chromium	ND	ug/L	1.0
812632-001	C-BNS-D-195	SW6020	FLDFLT	3/12/2014	11:40	Manganese	0.98	ug/L	0.50
812632-001	C-BNS-D-195	SW6020	FLDFLT	3/12/2014	11:40	Molybdenum	3.9	ug/L	2.0
812632-001	C-BNS-D-195	SW6020	FLDFLT	3/12/2014	11:40	Selenium	ND	ug/L	5.0
812632-002	C-I-3-D-195	E120.1	NONE	3/12/2014	10:12	EC	853	umhos/cm	2.00
812632-002	C-I-3-D-195	E218.6	FLDFLT	3/12/2014	10:12	Chromium, Hexavalent	ND	ug/L	0.20
812632-002	C-I-3-D-195	SM2540D	NONE	3/12/2014	10:12	Suspended Solids (Residue, Non-Filterable)	11.6	mg/L	4.00
812632-002	C-I-3-D-195	SM4500HB	NONE	3/12/2014	10:12	PH	8.15 J	pH	4.00
812632-002	C-I-3-D-195	SW6010B	NONE	3/12/2014	10:12	Iron	58.6	ug/L	20.0
812632-002	C-I-3-D-195	SW6010B	FLDFLT	3/12/2014	10:12	Iron	ND	ug/L	20.0
812632-002	C-I-3-D-195	SW6020	FLDFLT	3/12/2014	10:12	Arsenic	2.6	ug/L	0.50
812632-002	C-I-3-D-195	SW6020	FLDFLT	3/12/2014	10:12	Barium	106	ug/L	5.0
812632-002	C-I-3-D-195	SW6020	FLDFLT	3/12/2014	10:12	Chromium	ND	ug/L	1.0
812632-002	C-I-3-D-195	SW6020	FLDFLT	3/12/2014	10:12	Manganese	1.2	ug/L	0.50
812632-002	C-I-3-D-195	SW6020	FLDFLT	3/12/2014	10:12	Molybdenum	4.0	ug/L	2.0
812632-002	C-I-3-D-195	SW6020	FLDFLT	3/12/2014	10:12	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
812632-003	C-I-3-S-195	E120.1	NONE	3/12/2014	10:22	EC	849	umhos/cm	2.00
812632-003	C-I-3-S-195	E218.6	FLDFLT	3/12/2014	10:22	Chromium, Hexavalent	ND	ug/L	0.20
812632-003	C-I-3-S-195	SM2540D	NONE	3/12/2014	10:22	Suspended Solids (Residue, Non-Filterable)	6.10	mg/L	4.00
812632-003	C-I-3-S-195	SM4500HB	NONE	3/12/2014	10:22	PH	8.22 J	pH	4.00
812632-003	C-I-3-S-195	SW6010B	NONE	3/12/2014	10:22	Iron	38.3	ug/L	20.0
812632-003	C-I-3-S-195	SW6010B	FLDFLT	3/12/2014	10:22	Iron	ND	ug/L	20.0
812632-003	C-I-3-S-195	SW6020	FLDFLT	3/12/2014	10:22	Arsenic	2.5	ug/L	0.50
812632-003	C-I-3-S-195	SW6020	FLDFLT	3/12/2014	10:22	Barium	107	ug/L	5.0
812632-003	C-I-3-S-195	SW6020	FLDFLT	3/12/2014	10:22	Chromium	ND	ug/L	1.0
812632-003	C-I-3-S-195	SW6020	FLDFLT	3/12/2014	10:22	Manganese	1.0	ug/L	0.50
812632-003	C-I-3-S-195	SW6020	FLDFLT	3/12/2014	10:22	Molybdenum	4.1	ug/L	2.0
812632-003	C-I-3-S-195	SW6020	FLDFLT	3/12/2014	10:22	Selenium	ND	ug/L	5.0
812632-004	C-MAR-D-195	E120.1	NONE	3/12/2014	12:44	EC	911	umhos/cm	2.00
812632-004	C-MAR-D-195	E218.6	FLDFLT	3/12/2014	12:44	Chromium, Hexavalent	ND	ug/L	0.20
812632-004	C-MAR-D-195	SM2540D	NONE	3/12/2014	12:44	Suspended Solids (Residue, Non-Filterable)	81.2	mg/L	6.30
812632-004	C-MAR-D-195	SM4500HB	NONE	3/12/2014	12:44	PH	7.88 J	pH	4.00
812632-004	C-MAR-D-195	SW6010B	NONE	3/12/2014	12:44	Iron	463	ug/L	20.0
812632-004	C-MAR-D-195	SW6010B	FLDFLT	3/12/2014	12:44	Iron	63.8	ug/L	20.0
812632-004	C-MAR-D-195	SW6020	FLDFLT	3/12/2014	12:44	Arsenic	2.4	ug/L	0.50
812632-004	C-MAR-D-195	SW6020	FLDFLT	3/12/2014	12:44	Barium	98.8	ug/L	5.0
812632-004	C-MAR-D-195	SW6020	FLDFLT	3/12/2014	12:44	Chromium	ND	ug/L	1.0
812632-004	C-MAR-D-195	SW6020	FLDFLT	3/12/2014	12:44	Manganese	24.8	ug/L	0.50
812632-004	C-MAR-D-195	SW6020	FLDFLT	3/12/2014	12:44	Molybdenum	4.0	ug/L	2.0
812632-004	C-MAR-D-195	SW6020	FLDFLT	3/12/2014	12:44	Selenium	ND	ug/L	5.0
812632-005	C-MW-80-195	E218.6	FLDFLT	3/12/2014	9:20	Chromium, Hexavalent	ND	ug/L	0.20
812632-006	C-MW-81-195	E218.6	FLDFLT	3/12/2014	10:05	Chromium, Hexavalent	ND	ug/L	0.20
812632-007	C-R22A-D-195	E120.1	NONE	3/12/2014	11:10	EC	862	umhos/cm	2.00
812632-007	C-R22A-D-195	E218.6	FLDFLT	3/12/2014	11:10	Chromium, Hexavalent	ND	ug/L	0.20
812632-007	C-R22A-D-195	SM2540D	NONE	3/12/2014	11:10	Suspended Solids (Residue, Non-Filterable)	5.10	mg/L	4.00
812632-007	C-R22A-D-195	SM4500HB	NONE	3/12/2014	11:10	PH	8.25 J	pH	4.00
812632-007	C-R22A-D-195	SW6010B	NONE	3/12/2014	11:10	Iron	38.4	ug/L	20.0
812632-007	C-R22A-D-195	SW6010B	FLDFLT	3/12/2014	11:10	Iron	ND	ug/L	20.0
812632-007	C-R22A-D-195	SW6020	FLDFLT	3/12/2014	11:10	Arsenic	2.5	ug/L	0.50
812632-007	C-R22A-D-195	SW6020	FLDFLT	3/12/2014	11:10	Barium	103	ug/L	5.0
812632-007	C-R22A-D-195	SW6020	FLDFLT	3/12/2014	11:10	Chromium	ND	ug/L	1.0
812632-007	C-R22A-D-195	SW6020	FLDFLT	3/12/2014	11:10	Manganese	1.4	ug/L	0.50
812632-007	C-R22A-D-195	SW6020	FLDFLT	3/12/2014	11:10	Molybdenum	3.9	ug/L	2.0
812632-007	C-R22A-D-195	SW6020	FLDFLT	3/12/2014	11:10	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812632-008	C-R22A-S-195	E120.1	NONE	3/12/2014	11:18	EC	853	umhos/cm	2.00
812632-008	C-R22A-S-195	E218.6	FLDFLT	3/12/2014	11:18	Chromium, Hexavalent	ND	ug/L	0.20
812632-008	C-R22A-S-195	SM2540D	NONE	3/12/2014	11:18	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812632-008	C-R22A-S-195	SM4500HB	NONE	3/12/2014	11:18	PH	8.24 J	pH	4.00
812632-008	C-R22A-S-195	SW6010B	NONE	3/12/2014	11:18	Iron	48.8	ug/L	20.0
812632-008	C-R22A-S-195	SW6010B	FLDFLT	3/12/2014	11:18	Iron	ND	ug/L	20.0
812632-008	C-R22A-S-195	SW6020	FLDFLT	3/12/2014	11:18	Arsenic	2.2	ug/L	0.50
812632-008	C-R22A-S-195	SW6020	FLDFLT	3/12/2014	11:18	Barium	98.4	ug/L	5.0
812632-008	C-R22A-S-195	SW6020	FLDFLT	3/12/2014	11:18	Chromium	ND	ug/L	1.0
812632-008	C-R22A-S-195	SW6020	FLDFLT	3/12/2014	11:18	Manganese	1.4	ug/L	0.50
812632-008	C-R22A-S-195	SW6020	FLDFLT	3/12/2014	11:18	Molybdenum	6.0	ug/L	2.0
812632-008	C-R22A-S-195	SW6020	FLDFLT	3/12/2014	11:18	Selenium	ND	ug/L	5.0
812632-009	C-R27-D-195	E120.1	NONE	3/12/2014	12:00	EC	852	umhos/cm	2.00
812632-009	C-R27-D-195	E218.6	FLDFLT	3/12/2014	12:00	Chromium, Hexavalent	ND	ug/L	0.20
812632-009	C-R27-D-195	SM2540D	NONE	3/12/2014	12:00	Suspended Solids (Residue, Non-Filterable)	5.40	mg/L	4.00
812632-009	C-R27-D-195	SM4500HB	NONE	3/12/2014	12:00	PH	8.26 J	pH	4.00
812632-009	C-R27-D-195	SW6010B	NONE	3/12/2014	12:00	Iron	44.9	ug/L	20.0
812632-009	C-R27-D-195	SW6010B	FLDFLT	3/12/2014	12:00	Iron	ND	ug/L	20.0
812632-009	C-R27-D-195	SW6020	FLDFLT	3/12/2014	12:00	Arsenic	2.3	ug/L	0.50
812632-009	C-R27-D-195	SW6020	FLDFLT	3/12/2014	12:00	Barium	98.8	ug/L	5.0
812632-009	C-R27-D-195	SW6020	FLDFLT	3/12/2014	12:00	Chromium	ND	ug/L	1.0
812632-009	C-R27-D-195	SW6020	FLDFLT	3/12/2014	12:00	Manganese	0.85	ug/L	0.50
812632-009	C-R27-D-195	SW6020	FLDFLT	3/12/2014	12:00	Molybdenum	3.7	ug/L	2.0
812632-009	C-R27-D-195	SW6020	FLDFLT	3/12/2014	12:00	Selenium	ND	ug/L	5.0
812632-010	C-R27-S-195	E120.1	NONE	3/12/2014	12:14	EC	848	umhos/cm	2.00
812632-010	C-R27-S-195	E218.6	FLDFLT	3/12/2014	12:14	Chromium, Hexavalent	ND	ug/L	0.20
812632-010	C-R27-S-195	SM2540D	NONE	3/12/2014	12:14	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812632-010	C-R27-S-195	SM4500HB	NONE	3/12/2014	12:14	PH	8.21 J	pH	4.00
812632-010	C-R27-S-195	SW6010B	NONE	3/12/2014	12:14	Iron	34.3	ug/L	20.0
812632-010	C-R27-S-195	SW6010B	FLDFLT	3/12/2014	12:14	Iron	ND	ug/L	20.0
812632-010	C-R27-S-195	SW6020	FLDFLT	3/12/2014	12:14	Arsenic	2.3	ug/L	0.50
812632-010	C-R27-S-195	SW6020	FLDFLT	3/12/2014	12:14	Barium	100	ug/L	5.0
812632-010	C-R27-S-195	SW6020	FLDFLT	3/12/2014	12:14	Chromium	ND	ug/L	1.0
812632-010	C-R27-S-195	SW6020	FLDFLT	3/12/2014	12:14	Manganese	1.1	ug/L	0.50
812632-010	C-R27-S-195	SW6020	FLDFLT	3/12/2014	12:14	Molybdenum	3.8	ug/L	2.0
812632-010	C-R27-S-195	SW6020	FLDFLT	3/12/2014	12:14	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
812632-011	C-TAZ-D-195	E120.1	NONE	3/12/2014	9:26	EC	851	umhos/cm	2.00
812632-011	C-TAZ-D-195	E218.6	FLDFLT	3/12/2014	9:26	Chromium, Hexavalent	ND	ug/L	0.20
812632-011	C-TAZ-D-195	SM2540D	NONE	3/12/2014	9:26	Suspended Solids (Residue, Non-Filterable)	10.4	mg/L	4.00
812632-011	C-TAZ-D-195	SM4500HB	NONE	3/12/2014	9:26	PH	8.28 J	pH	4.00
812632-011	C-TAZ-D-195	SW6010B	NONE	3/12/2014	9:26	Iron	64.8	ug/L	20.0
812632-011	C-TAZ-D-195	SW6010B	FLDFLT	3/12/2014	9:26	Iron	ND	ug/L	20.0
812632-011	C-TAZ-D-195	SW6020	FLDFLT	3/12/2014	9:26	Arsenic	2.2	ug/L	0.50
812632-011	C-TAZ-D-195	SW6020	FLDFLT	3/12/2014	9:26	Barium	93.5	ug/L	5.0
812632-011	C-TAZ-D-195	SW6020	FLDFLT	3/12/2014	9:26	Chromium	ND	ug/L	1.0
812632-011	C-TAZ-D-195	SW6020	FLDFLT	3/12/2014	9:26	Manganese	0.94	ug/L	0.50
812632-011	C-TAZ-D-195	SW6020	FLDFLT	3/12/2014	9:26	Molybdenum	3.5	ug/L	2.0
812632-011	C-TAZ-D-195	SW6020	FLDFLT	3/12/2014	9:26	Selenium	ND	ug/L	5.0
812632-012	C-TAZ-S-195	E120.1	NONE	3/12/2014	9:38	EC	857	umhos/cm	2.00
812632-012	C-TAZ-S-195	E218.6	FLDFLT	3/12/2014	9:38	Chromium, Hexavalent	ND	ug/L	0.20
812632-012	C-TAZ-S-195	SM2540D	NONE	3/12/2014	9:38	Suspended Solids (Residue, Non-Filterable)	5.60	mg/L	4.00
812632-012	C-TAZ-S-195	SM4500HB	NONE	3/12/2014	9:38	PH	8.28 J	pH	4.00
812632-012	C-TAZ-S-195	SW6010B	NONE	3/12/2014	9:38	Iron	49.5	ug/L	20.0
812632-012	C-TAZ-S-195	SW6010B	FLDFLT	3/12/2014	9:38	Iron	26.0	ug/L	20.0
812632-012	C-TAZ-S-195	SW6020	FLDFLT	3/12/2014	9:38	Arsenic	2.3	ug/L	0.50
812632-012	C-TAZ-S-195	SW6020	FLDFLT	3/12/2014	9:38	Barium	98.4	ug/L	5.0
812632-012	C-TAZ-S-195	SW6020	FLDFLT	3/12/2014	9:38	Chromium	ND	ug/L	1.0
812632-012	C-TAZ-S-195	SW6020	FLDFLT	3/12/2014	9:38	Manganese	1.2	ug/L	0.50
812632-012	C-TAZ-S-195	SW6020	FLDFLT	3/12/2014	9:38	Molybdenum	3.8	ug/L	2.0
812632-012	C-TAZ-S-195	SW6020	FLDFLT	3/12/2014	9:38	Selenium	ND	ug/L	5.0
812632-013	R63-195	E120.1	NONE	3/12/2014	10:42	EC	853	umhos/cm	2.00
812632-013	R63-195	E218.6	FLDFLT	3/12/2014	10:42	Chromium, Hexavalent	ND	ug/L	0.20
812632-013	R63-195	SM2540D	NONE	3/12/2014	10:42	Suspended Solids (Residue, Non-Filterable)	5.40	mg/L	4.00
812632-013	R63-195	SM4500HB	NONE	3/12/2014	10:42	PH	8.15 J	pH	4.00
812632-013	R63-195	SW6010B	NONE	3/12/2014	10:42	Iron	71.1	ug/L	20.0
812632-013	R63-195	SW6010B	FLDFLT	3/12/2014	10:42	Iron	ND	ug/L	20.0
812632-013	R63-195	SW6020	FLDFLT	3/12/2014	10:42	Arsenic	2.2	ug/L	0.50
812632-013	R63-195	SW6020	FLDFLT	3/12/2014	10:42	Barium	96.8	ug/L	5.0
812632-013	R63-195	SW6020	FLDFLT	3/12/2014	10:42	Chromium	ND	ug/L	1.0
812632-013	R63-195	SW6020	FLDFLT	3/12/2014	10:42	Manganese	1.7	ug/L	0.50
812632-013	R63-195	SW6020	FLDFLT	3/12/2014	10:42	Molybdenum	3.6	ug/L	2.0
812632-013	R63-195	SW6020	FLDFLT	3/12/2014	10:42	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812632-014	RMP-AB1-195	E218.6	FLDFLT	3/12/2014	12:55	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.RM
P.O. Number: 423575.MP.02.RM
Release Number:

Laboratory No. 812632

Printed 3/24/2014

Samples Received on 3/13/2014 7:20:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-195	812632-001	03/12/2014 11:40	Water
C-I-3-D-195	812632-002	03/12/2014 10:12	Water
C-I-3-S-195	812632-003	03/12/2014 10:22	Water
C-MAR-D-195	812632-004	03/12/2014 12:44	Water
C-MW-80-195	812632-005	03/12/2014 09:20	Water
C-MW-81-195	812632-006	03/12/2014 10:05	Water
C-R22A-D-195	812632-007	03/12/2014 11:10	Water
C-R22A-S-195	812632-008	03/12/2014 11:18	Water
C-R27-D-195	812632-009	03/12/2014 12:00	Water
C-R27-S-195	812632-010	03/12/2014 12:14	Water
C-TAZ-D-195	812632-011	03/12/2014 09:26	Water
C-TAZ-S-195	812632-012	03/12/2014 09:38	Water
R63-195	812632-013	03/12/2014 10:42	Water
RMP-AB1-195	812632-014	03/12/2014 12:55	Water

Specific Conductivity - EPA 120.1 Batch 03EC14J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812632-001 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	868
812632-002 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	853
812632-003 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	849
812632-004 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	911
812632-007 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	862
812632-008 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	853
812632-009 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	852
812632-010 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	848
812632-011 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	851
812632-012 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	857
812632-013 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	853

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812632-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	858	853	0.584	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	699	706	99.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	701	706	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	986	1000	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	997	1000	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.

Metals by EPA 6010B, Total

Batch 031714A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812632-001 Iron	ug/L	03/17/2014 17:07	1.00	3.00	20.0	48.3
812632-002 Iron	ug/L	03/17/2014 17:30	1.00	3.00	20.0	58.6
812632-003 Iron	ug/L	03/17/2014 17:36	1.00	3.00	20.0	38.3
812632-004 Iron	ug/L	03/17/2014 17:41	1.00	3.00	20.0	463
812632-007 Iron	ug/L	03/17/2014 17:47	1.00	3.00	20.0	38.4
812632-008 Iron	ug/L	03/17/2014 18:05	1.00	3.00	20.0	48.8
812632-009 Iron	ug/L	03/17/2014 18:10	1.00	3.00	20.0	44.9
812632-010 Iron	ug/L	03/17/2014 18:16	1.00	3.00	20.0	34.3
812632-011 Iron	ug/L	03/17/2014 18:22	1.00	3.00	20.0	64.8
812632-012 Iron	ug/L	03/17/2014 18:28	1.00	3.00	20.0	49.5
812632-013 Iron	ug/L	03/17/2014 18:34	1.00	3.00	20.0	71.1

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 812632-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	42.7	48.3	12.3	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2270	2000	113	85 - 115

Matrix Spike

Lab ID = 812632-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1950	2050(2000)	95.3	75 - 125

Matrix Spike Duplicate

Lab ID = 812632-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2030	2050(2000)	99.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5150	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5010	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.

Chrome VI by EPA 218.6

Batch 03CrH14 D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812632-001 Chromium, Hexavalent	ug/L	03/18/2014 12:07	1.00	0.00600	0.20	ND
812632-002 Chromium, Hexavalent	ug/L	03/18/2014 12:18	1.00	0.00600	0.20	ND
812632-003 Chromium, Hexavalent	ug/L	03/18/2014 12:28	1.00	0.00600	0.20	ND
812632-004 Chromium, Hexavalent	ug/L	03/18/2014 12:39	1.00	0.00600	0.20	ND
812632-005 Chromium, Hexavalent	ug/L	03/18/2014 12:49	1.00	0.00600	0.20	ND
812632-006 Chromium, Hexavalent	ug/L	03/18/2014 12:59	1.00	0.00600	0.20	ND
812632-007 Chromium, Hexavalent	ug/L	03/18/2014 13:10	1.00	0.00600	0.20	ND
812632-008 Chromium, Hexavalent	ug/L	03/18/2014 13:20	1.00	0.00600	0.20	ND
812632-009 Chromium, Hexavalent	ug/L	03/18/2014 13:51	1.00	0.00600	0.20	ND
812632-010 Chromium, Hexavalent	ug/L	03/18/2014 14:02	1.00	0.00600	0.20	ND
812632-011 Chromium, Hexavalent	ug/L	03/18/2014 14:12	1.00	0.00600	0.20	ND
812632-012 Chromium, Hexavalent	ug/L	03/18/2014 14:23	1.00	0.00600	0.20	ND
812632-013 Chromium, Hexavalent	ug/L	03/18/2014 14:33	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate

Lab ID = 812632-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0345	0.0346	0.289	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	90 - 110

Matrix Spike

Lab ID = 812632-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.03(1.00)	102	90 - 110

Matrix Spike

Lab ID = 812632-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.04(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 = 812632-003

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

Matrix Spike — Lab ID = 812632-004

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

Matrix Spike — Lab ID = 812632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.997	1.00(1.00)	99.7	90 - 110

Matrix Spike — Lab ID = 812632-006

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

Matrix Spike — Lab ID = 812632-007

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

Matrix Spike — Lab ID = 812632-008

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

Matrix Spike — Lab ID = 812632-009

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

Matrix Spike — Lab ID = 812632-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.04(1.00)	102	90 - 110

Matrix Spike — Lab ID = 812632-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.03(1.00)	102	90 - 110

Matrix Spike — Lab ID = 812632-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.04(1.00)	104	90 - 110

Matrix Spike — Lab ID = 812632-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.04(1.00)	103	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	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.

Chrome VI by EPA 218.6

Batch 03CrH14 E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812632-014 Chromium, Hexavalent	ug/L	03/19/2014 10:24	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.152	0.155	1.89	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.08	5.00	102	90 - 110

Matrix Spike Lab ID = 812632-014

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 = 812677-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.27	5.16(5.00)	102	90 - 110

Matrix Spike Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.22	1.15(1.00)	107	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.88	10.0	98.8	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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 031414A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812632-001 Arsenic	ug/L	03/14/2014 19:28	2.00	0.100	0.50	2.4
Barium	ug/L	03/14/2014 19:28	2.00	0.594	5.0	102
Chromium	ug/L	03/14/2014 19:28	2.00	0.142	1.0	ND
Manganese	ug/L	03/14/2014 19:28	2.00	0.120	0.50	0.98
Molybdenum	ug/L	03/14/2014 19:28	2.00	0.100	2.0	3.9
Selenium	ug/L	03/14/2014 19:28	2.00	0.424	5.0	ND
812632-002 Arsenic	ug/L	03/14/2014 19:34	2.00	0.100	0.50	2.6
Barium	ug/L	03/14/2014 19:34	2.00	0.594	5.0	106
Chromium	ug/L	03/14/2014 19:34	2.00	0.142	1.0	ND
Molybdenum	ug/L	03/14/2014 19:34	2.00	0.100	2.0	4.0
Selenium	ug/L	03/14/2014 19:34	2.00	0.424	5.0	ND
812632-003 Arsenic	ug/L	03/14/2014 19:40	2.00	0.100	0.50	2.5
Barium	ug/L	03/14/2014 19:40	2.00	0.594	5.0	107
Chromium	ug/L	03/14/2014 19:40	2.00	0.142	1.0	ND
Manganese	ug/L	03/14/2014 19:40	2.00	0.120	0.50	1.0
Molybdenum	ug/L	03/14/2014 19:40	2.00	0.100	2.0	4.1
Selenium	ug/L	03/14/2014 19:40	2.00	0.424	5.0	ND
812632-004 Arsenic	ug/L	03/14/2014 19:46	2.00	0.100	0.50	2.4
Barium	ug/L	03/14/2014 19:46	2.00	0.594	5.0	98.8
Chromium	ug/L	03/14/2014 19:46	2.00	0.142	1.0	ND
Manganese	ug/L	03/14/2014 19:46	2.00	0.120	0.50	24.8
Molybdenum	ug/L	03/14/2014 19:46	2.00	0.100	2.0	4.0
Selenium	ug/L	03/14/2014 19:46	2.00	0.424	5.0	ND
812632-007 Arsenic	ug/L	03/14/2014 19:52	2.00	0.100	0.50	2.5
Barium	ug/L	03/14/2014 19:52	2.00	0.594	5.0	103
Chromium	ug/L	03/14/2014 19:52	2.00	0.142	1.0	ND
Manganese	ug/L	03/14/2014 19:52	2.00	0.120	0.50	1.4
Molybdenum	ug/L	03/14/2014 19:52	2.00	0.100	2.0	3.9
Selenium	ug/L	03/14/2014 19:52	2.00	0.424	5.0	ND
812632-008 Arsenic	ug/L	03/14/2014 19:58	2.00	0.100	0.50	2.2
Barium	ug/L	03/14/2014 19:58	2.00	0.594	5.0	98.4
Chromium	ug/L	03/14/2014 19:58	2.00	0.142	1.0	ND
Manganese	ug/L	03/14/2014 19:58	2.00	0.120	0.50	1.4
Molybdenum	ug/L	03/14/2014 19:58	2.00	0.100	2.0	6.0

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.

812632-008	Selenium	ug/L	03/14/2014 19:58	2.00	0.424	5.0	ND
812632-009	Arsenic	ug/L	03/14/2014 20:04	2.00	0.100	0.50	2.3
	Barium	ug/L	03/14/2014 20:04	2.00	0.594	5.0	98.8
	Chromium	ug/L	03/14/2014 20:04	2.00	0.142	1.0	ND
	Manganese	ug/L	03/14/2014 20:04	2.00	0.120	0.50	0.85
	Molybdenum	ug/L	03/14/2014 20:04	2.00	0.100	2.0	3.7
	Selenium	ug/L	03/14/2014 20:04	2.00	0.424	5.0	ND
812632-010	Arsenic	ug/L	03/14/2014 20:10	2.00	0.100	0.50	2.3
	Barium	ug/L	03/14/2014 20:10	2.00	0.594	5.0	100
	Chromium	ug/L	03/14/2014 20:10	2.00	0.142	1.0	ND
	Manganese	ug/L	03/14/2014 20:10	2.00	0.120	0.50	1.1
	Molybdenum	ug/L	03/14/2014 20:10	2.00	0.100	2.0	3.8
	Selenium	ug/L	03/14/2014 20:10	2.00	0.424	5.0	ND
812632-011	Arsenic	ug/L	03/14/2014 20:17	2.00	0.100	0.50	2.2
	Barium	ug/L	03/14/2014 20:17	2.00	0.594	5.0	93.5
	Chromium	ug/L	03/14/2014 20:17	2.00	0.142	1.0	ND
	Manganese	ug/L	03/14/2014 20:17	2.00	0.120	0.50	0.94
	Molybdenum	ug/L	03/14/2014 20:17	2.00	0.100	2.0	3.5
	Selenium	ug/L	03/14/2014 20:17	2.00	0.424	5.0	ND
812632-012	Arsenic	ug/L	03/14/2014 20:23	2.00	0.100	0.50	2.3
	Barium	ug/L	03/14/2014 20:23	2.00	0.594	5.0	98.4
	Chromium	ug/L	03/14/2014 20:23	2.00	0.142	1.0	ND
	Manganese	ug/L	03/14/2014 20:23	2.00	0.120	0.50	1.2
	Molybdenum	ug/L	03/14/2014 20:23	2.00	0.100	2.0	3.8
	Selenium	ug/L	03/14/2014 20:23	2.00	0.424	5.0	ND
812632-013	Arsenic	ug/L	03/14/2014 20:53	2.00	0.100	0.50	2.2
	Barium	ug/L	03/14/2014 20:53	2.00	0.594	5.0	96.8
	Chromium	ug/L	03/14/2014 20:53	2.00	0.142	1.0	ND
	Manganese	ug/L	03/14/2014 20:53	2.00	0.120	0.50	1.7
	Molybdenum	ug/L	03/14/2014 20:53	2.00	0.100	2.0	3.6
	Selenium	ug/L	03/14/2014 20:53	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

Duplicate Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	ND	0	0	0 - 20
Barium	ug/L	2.00	11.6	11.3	2.71	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	4.18	4.04	3.37	0 - 20
Molybdenum	ug/L	2.00	18.2	18.6	2.12	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.251	0.200	125	70 - 130
Barium	ug/L	1.00	0.714	1.00	71.4	70 - 130
Chromium	ug/L	1.00	0.432	0.500	86.5	70 - 130
Selenium	ug/L	1.00	1.12	1.00	112	70 - 130
Manganese	ug/L	1.00	0.227	0.200	114	70 - 130
Molybdenum	ug/L	1.00	0.205	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	47.8	50.0	95.6	85 - 115
Barium	ug/L	1.00	46.7	50.0	93.5	85 - 115
Chromium	ug/L	1.00	47.5	50.0	95.0	85 - 115
Selenium	ug/L	1.00	45.8	50.0	91.6	85 - 115
Manganese	ug/L	1.00	46.6	50.0	93.1	85 - 115
Molybdenum	ug/L	1.00	48.0	50.0	96.0	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 = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.1	50.0(50.0)	102	75 - 125
Barium	ug/L	2.00	60.8	61.3(50.0)	99.1	75 - 125
Chromium	ug/L	2.00	47.4	50.0(50.0)	94.9	75 - 125
Selenium	ug/L	2.00	53.6	50.0(50.0)	107	75 - 125
Manganese	ug/L	2.00	51.7	54.0(50.0)	95.3	75 - 125
Molybdenum	ug/L	2.00	69.9	68.6(50.0)	103	75 - 125

Matrix Spike Duplicate — Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	49.6	50.0(50.0)	99.2	75 - 125
Barium	ug/L	2.00	59.0	61.3(50.0)	95.5	75 - 125
Chromium	ug/L	2.00	46.7	50.0(50.0)	93.4	75 - 125
Selenium	ug/L	2.00	52.4	50.0(50.0)	105	75 - 125
Manganese	ug/L	2.00	50.0	54.0(50.0)	92.0	75 - 125
Molybdenum	ug/L	2.00	69.3	68.6(50.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.5	20.0	97.6	90 - 110
Barium	ug/L	1.00	19.0	20.0	95.1	90 - 110
Chromium	ug/L	1.00	19.7	20.0	98.4	90 - 110
Selenium	ug/L	1.00	19.8	20.0	99.0	90 - 110
Manganese	ug/L	1.00	19.6	20.0	97.9	90 - 110
Molybdenum	ug/L	1.00	19.1	20.0	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.5	20.0	97.6	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	20.0	20.0	99.9	90 - 110
Barium	ug/L	1.00	19.1	20.0	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.2	20.0	96.1	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.

Serial Dilution Lab ID = 812632-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	107	102	4.80	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 031714A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812632-002 Manganese	ug/L	03/17/2014 15:04	2.00	0.120	0.50	1.2

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	4.02	3.92	2.46	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	49.0	50.0	98.1	85 - 115

Matrix Spike

Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	53.8	53.9(50.0)	99.8	75 - 125

Matrix Spike Duplicate

Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	52.4	53.9(50.0)	97.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.4	20.0	97.2	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.5	20.0	97.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.5	20.0	97.4	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.

Metals by EPA 6010B, Dissolved

Batch 031814A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812632-001 Iron	ug/L	03/18/2014 15:19	2.00	6.00	20.0	ND
812632-002 Iron	ug/L	03/18/2014 15:26	2.00	6.00	20.0	ND
812632-003 Iron	ug/L	03/18/2014 15:32	2.00	6.00	20.0	ND
812632-004 Iron	ug/L	03/18/2014 15:39	2.00	6.00	20.0	63.8
812632-007 Iron	ug/L	03/18/2014 15:45	2.00	6.00	20.0	ND
812632-008 Iron	ug/L	03/18/2014 15:53	2.00	6.00	20.0	ND
812632-009 Iron	ug/L	03/18/2014 16:00	2.00	6.00	20.0	ND
812632-010 Iron	ug/L	03/18/2014 16:07	2.00	6.00	20.0	ND
812632-011 Iron	ug/L	03/18/2014 16:15	2.00	6.00	20.0	ND
812632-012 Iron	ug/L	03/18/2014 16:35	2.00	6.00	20.0	26.0
812632-013 Iron	ug/L	03/18/2014 16:42	2.00	6.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 812594-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	52.5	50.0	105	85 - 115

Matrix Spike

Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	49.9	50.0(50.0)	99.8	75 - 125

Matrix Spike Duplicate

Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	49.2	50.0(50.0)	98.4	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5190	5000	104	90 - 110

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

pH by SM 4500-H B Batch 03PH14M

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
812632-001 pH	pH	03/14/2014 10:57	1.00	0.0250	4.00	8.10	J
812632-002 pH	pH	03/14/2014 10:59	1.00	0.0250	4.00	8.15	J
812632-003 pH	pH	03/14/2014 11:01	1.00	0.0250	4.00	8.22	J
812632-004 pH	pH	03/14/2014 11:04	1.00	0.0250	4.00	7.88	J
812632-007 pH	pH	03/14/2014 11:06	1.00	0.0250	4.00	8.25	J
812632-008 pH	pH	03/14/2014 11:09	1.00	0.0250	4.00	8.24	J
812632-009 pH	pH	03/14/2014 11:11	1.00	0.0250	4.00	8.26	J
812632-010 pH	pH	03/14/2014 11:13	1.00	0.0250	4.00	8.21	J
812632-011 pH	pH	03/14/2014 11:16	1.00	0.0250	4.00	8.28	J
812632-012 pH	pH	03/14/2014 11:18	1.00	0.0250	4.00	8.28	J
812632-013 pH	pH	03/14/2014 11:23	1.00	0.0250	4.00	8.15	J

Duplicate — Lab ID = 812632-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.27	8.28	0.121	0 - 20

Duplicate — Lab ID = 812633-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.24	8.21	0.365	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	7.09	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.07	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.

Total Suspended Solids by SM 2540 D Batch 03TSS14I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812632-001 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	ND
812632-002 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	11.6
812632-003 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	6.10
812632-004 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	6.30	81.2
812632-007 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	5.10
812632-008 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	ND
812632-009 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	5.40
812632-010 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	ND
812632-011 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	10.4
812632-012 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	5.60
812632-013 Total Suspended Solids	mg/L	03/17/2014	1.00	0.349	4.00	5.40

Method Blank

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

Duplicate Lab ID = 812642-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	26.0	26.8	3.03	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	92.0	100	92.0	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.

f.

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 Suspended Solids by SM 2540 D

Calculations

Batch: 03TSS14I

Date Analyzed: 03/17/14

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	BLANK	1000	1.4546	1.4546	1.4546	0.0000	No	0.0000	0.0	2.5	**ND**
2	812614-1	250	1.4624	1.4808	1.4808	0.0000	No	0.0184	73.6	10.0	**73.6**
3	812614-2	500	1.4806	1.4820	1.4820	0.0000	No	0.0014	2.8	5.0	**ND**
4	812616	250	1.4400	1.4482	1.4482	0.0000	No	0.0082	32.8	10.0	**32.8**
5	812621	250	1.4537	1.4618	1.4618	0.0000	No	0.0081	32.4	10.0	**32.4**
6	812625	700	1.4135	1.4135	1.4135	0.0000	No	0.0000	0.0	3.6	**ND**
7	812632-1	700	1.4626	1.4653	1.4653	0.0000	No	0.0027	3.9	3.6	**3.9**
8	812632-2	700	1.4671	1.4752	1.4752	0.0000	No	0.0081	11.6	3.6	**11.6**
9	812632-3	700	1.4332	1.4375	1.4375	0.0000	No	0.0043	6.1	3.6	**6.1**
10	812632-4	400	1.4693	1.5018	1.5018	0.0000	No	0.0325	81.2	6.3	**81.2**
11	812632-7	700	1.4715	1.4751	1.4751	0.0000	No	0.0036	5.1	3.6	**5.1**
12	812614-1 Dup	250	1.4851	1.5027	1.5027	0.0000	No	0.0176	70.4	10.0	**70.4**
13	LCS	100	1.4713	1.4805	1.4805	0.0000	No	0.0092	92.0	25.0	**92.0**
14	812632-8	700	1.4555	1.4578	1.4578	0.0000	No	0.0023	3.3	3.6	**ND**
15	812632-9	700	1.4716	1.4754	1.4754	0.0000	No	0.0038	5.4	3.6	**5.4**
16	812632-10	700	1.4139	1.4165	1.4165	0.0000	No	0.0026	3.7	3.6	**3.7**
17	812632-11	700	1.4628	1.4701	1.4701	0.0000	No	0.0073	10.4	3.6	**10.4**
18	812632-12	700	1.4642	1.4681	1.4681	0.0000	No	0.0039	5.6	3.6	**5.6**
19	812632-13	700	1.4615	1.4653	1.4653	0.0000	No	0.0038	5.4	3.6	**5.4**
20	812639	500	1.3921	1.4041	1.4041	0.0000	No	0.0120	24.0	5.0	**24.0**
21	812640-1	700	1.4424	1.4448	1.4448	0.0000	No	0.0024	3.4	3.6	**ND**
22	812640-2	700	1.4558	1.4583	1.4583	0.0000	No	0.0025	3.6	3.6	**ND**
23	812642	250	1.4690	1.4757	1.4757	0.0000	No	0.0067	26.8	10.0	**26.8**
24	812642 Dup	250	1.4569	1.4634	1.4634	0.0000	No	0.0065	26.0	10.0	**26.0**
25	LCSD	100	1.4662	1.4757	1.4757	0.0000	No	0.0095	95.0	25.0	**95.0**

Calculation as follows: Non- Filterable residue (TSS), mg/L = $\left(\frac{A-B}{C}\right) x\ 1\ 0^{6}$

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	92.0	100	92.0%	90-110%	**Yes**
LCSD	95.0	100	95.0%	90-110%	**Yes**

LCS Recovery

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

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

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

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?
812614-1	0.0184	0.0176	2.2%	≤5%	**Yes**
812642	0.0067	0.0065	1.5%	5%	**Yes**

Himani
Analyst Name

Analyst Signature

Maksim
Reviewer Signature

Reviewer Signature

812632

CH2MHILL

CHAIN OF CUSTODY RECORD

3/13/2014 3:17:49 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 2014-RMP-195
Turnaround Time 10 Days
Shipping Date: 3/13/2014
COC Number: 1

				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1x1 Liter	1x1 Liter	1x1 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		
				Filtered:	Field	NA	NA	Field	Field	NA	NA	NA		
				Holding Time:	28	28	180	180	180	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)	PH (SM4500HB)	TSS (SM2540)	Number of Containers	COMMENTS
		DATE	TIME	Matrix										
1	C-BNS-D-195	3/12/2014	11:40	Water	X		X	X	X	X	X	X	8	
2	C-I-3-D-195	3/12/2014	10:12	Water	X		X	X	X	X	X	X	8	
3	C-I-3-S-195	3/12/2014	10:22	Water	X		X	X	X	X	X	X	8	
4	C-MAR-D-195	3/12/2014	12:44	Water	X		X	X	X	X	X	X	8	
5	C-MW-80-195	3/12/2014	9:20	Water		X							1	
6	C-MW-81-195	3/12/2014	10:05	Water		X							1	
7	C-R22A-D-195	3/12/2014	11:10	Water	X		X	X	X	X	X	X	8	
8	C-R22A-S-195	3/12/2014	11:18	Water	X		X	X	X	X	X	X	8	
9	C-R27-D-195	3/12/2014	12:00	Water	X		X	X	X	X	X	X	8	
10	C-R27-S-195	3/12/2014	12:14	Water	X		X	X	X	X	X	X	8	
11	C-TAZ-D-195	3/12/2014	9:26	Water	X		X	X	X	X	X	X	8	
12	C-TAZ-S-195	3/12/2014	9:38	Water	X		X	X	X	X	X	X	8	
13	R63-195	3/12/2014	10:42	Water	X		X	X	X	X	X	X	8	
14	RMP-AB1-195	3/12/2014	12:55	Water		X							1	

* Where provided w/multiple bottles for Cr6 + CrT, please analyze 1 + hold 2

Rec'd 03/13/14
S180 812632

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

Signatures	Date/Time
Approved by	3-13-14
Sampled by	1525
Relinquished by	3-13-14
Received by	1525
Relinquished by	3.13.14 1920
Received by	3/13/14 1920

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:
March 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/5/14	812485-2	7.00	1ml/100ml	9.5	7:30	NE
	812486-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
3/6/14	812535-1	7.00	1ml/50ml	9.5	7:15	NE
	-3					
3/10/14	812566-1	7.00	1ml/50ml	9.5	14:50	NE
	-2					
3/11/14	812587-1	7.00	.5ml/25ml	9.5	15:10	NE
	-2					
3/12/14	812594	7.00	1ml/100ml	9.5	7:40	NE
	812609-1	7.00	.5ml/25ml	9.5	15:35	NE
	-2					
	-3					
3/14/14	812632-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					

NR 3/19/14

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/14/14	812632-6	9.5	N/A	N/A	N/A	NE
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	812633-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					

NE
3/19/14

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
812520	<1	<2	3/10/14	ES	Yes			
812522(1-5)	<1	↓			↓			
812524	>1	↓			↓			
812525	<1	>2			No	10:00	12:00 3/11/14	pH <2
812547	<1	<2			Yes			
812555(1-4)	>1	↓			↓			
812557	<1	>2			No	10:00	12:00 3/11/14	pH <2
812558	<1	<2			Yes			
812484(1-2)	<1	>2	3/10/14	ES	Yes	2:00		Filtered from acidify
TOTAL 812485(-2)	<1	<2						
-1	<1	>2				2:00		pH <2
DISS -2	<1	>2				2:00		Filtered from acidify
812486(1-5,7-11,14-15)	<1	<2	↓	↓	↓			
812579	<1	<2	3/12/14	MM	Yes			
812581	↓	↓	↓	↓	↓			
812563	<1	<2	3/12/14	MM	Yes			
812575	↓	↓	↓	↓	↓			
812576								
812577								
812578								
812585								
812589								
812568	>1	>2	3/13/14	ES	Yes	10:00		pH <2
812608	<1	<2	↓	↓	↓			
812614(1-2	>1	↓						
812618	>1	↓	↓	↓	↓			
812597(1-2	<1	>2			No	10:00	3/17/14 10:00	pH <2
812569	↓	↓	↓	↓	↓	↓	↓	↓
812605(1-2)								
812615(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
812672(1-4,7-13)	<1	<2	3/14/14	ES	Yes			TOTAL/DISSOLVED
812594	<1	>2	↓	↓	↓	2:30		pH <2
812619(1-4)	<1	>2	3/17/14	ES	No	11:00	3/18/14 10:00	pH <2
812624(1-3)	↓	↓			↓	↓	↓ ↓	↓
812629	↓	<2			Yes			
812640(1-2)	>1	↓			↓			
812641	↓	↓	↓	↓	↓			E 3/17/14 TOTAL/DISSOLVED
812633(1-4,7-14,16)	<1	<2	3/17/14	ES	Yes			TOTAL
631(3-4,7-14,16)	↓	↓	↓	↓	↓			
812644	>1	<2	3/18/14	MM	Yes			
812645	↓	↓	↓	↓	↓			
812651(1-2)	↓	↓	↓	↓	↓			
812668	<1	<2	3/19/14	MM	Yes			
812666	↓	↓	↓	↓	↓			

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 #** 812632

Date Delivered: 03/13/14 **Time:** 19:20 **By:** ☐Mail ☑Field Service ☐Client

1.	Was a Chain of Custody received and signed?	☑Yes	☐No	☐N/A
2.	Does Customer require an acknowledgement of the COC?	☐Yes	☑No	☐N/A
3.	Are there any special requirements or notes on the COC?	☐Yes	☑No	☐N/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes	☐No	☑N/A
5.	Were all requested analyses understood and acceptable?	☑Yes	☐No	☐N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? 4.8 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level II QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

March 24, 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 2014-RMP-195, SURFACEWATER MONITORING PROJECT, TLI NO.: 812633

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-RMP-195 surfacewater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on March 13, 2014, 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 2014-RMP-195 Cr by SW 6020, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
SW1-195	2.00	No			
SW2-195	2.00	No			
C-CON-D-195	2.00	No			
C-CON-S-195	2.00	No			
C-NR1-D-195	2.00	No			
C-NR1-S-195	2.00	No			
C-NR3-D-195	2.00	No			
C-NR3-S-195	2.00	No			
C-NR4-D-195	2.00	No			
C-NR4-S-195	2.00	No			
R-19-195	2.00	No			
R-28-195	2.00	No			
RRB-195	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 2014-RMP-195 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
SW1-195	9.50	No			
SW2-195	9.50	No			
C-CON-D-195	9.50	No			
C-CON-S-195	9.50	No			
C-MW-82-195	9.50	No			
C-MW-83-195	9.50	No			
C-NR1-D-195	9.50	No			
C-NR1-S-195	9.50	No			
C-NR3-D-195	9.50	No			
C-NR3-S-195	9.50	No			
C-NR4-D-195	9.50	No			
C-NR4-S-195	9.50	No			
R-19-195	9.50	No			
R-28-195	9.50	No			
RMP-AB2-195	9.50	No			
RRB-195	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.: 812633
Date Received: March 13, 2014

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
812633-001	SW1-195	E120.1	NONE	3/12/2014	7:50	EC	896	umhos/cm	2.00
812633-001	SW1-195	E218.6	FLDFLT	3/12/2014	7:50	Chromium, Hexavalent	ND	ug/L	0.20
812633-001	SW1-195	SM4500HB	NONE	3/12/2014	7:50	PH	7.49 J	pH	4.00
812633-001	SW1-195	SW6020	FLDFLT	3/12/2014	7:50	Chromium	ND	ug/L	1.0
812633-002	SW2-195	E120.1	NONE	3/12/2014	8:08	EC	864	umhos/cm	2.00
812633-002	SW2-195	E218.6	FLDFLT	3/12/2014	8:08	Chromium, Hexavalent	ND	ug/L	0.20
812633-002	SW2-195	SM4500HB	NONE	3/12/2014	8:08	PH	7.79 J	pH	4.00
812633-002	SW2-195	SW6020	FLDFLT	3/12/2014	8:08	Chromium	ND	ug/L	1.0
812633-003	C-CON-D-195	E120.1	NONE	3/13/2014	10:15	EC	840	umhos/cm	2.00
812633-003	C-CON-D-195	E218.6	FLDFLT	3/13/2014	10:15	Chromium, Hexavalent	ND	ug/L	0.20
812633-003	C-CON-D-195	SM2540D	NONE	3/13/2014	10:15	Suspended Solids (Residue, Non-Filterable)	10.4	mg/L	4.00
812633-003	C-CON-D-195	SM4500HB	NONE	3/13/2014	10:15	PH	8.28 J	pH	4.00
812633-003	C-CON-D-195	SW6010B	NONE	3/13/2014	10:15	Iron	52.0	ug/L	20.0
812633-003	C-CON-D-195	SW6010B	FLDFLT	3/13/2014	10:15	Iron	ND	ug/L	20.0
812633-003	C-CON-D-195	SW6020	FLDFLT	3/13/2014	10:15	Arsenic	2.5	ug/L	0.50
812633-003	C-CON-D-195	SW6020	FLDFLT	3/13/2014	10:15	Barium	95.0	ug/L	5.0
812633-003	C-CON-D-195	SW6020	FLDFLT	3/13/2014	10:15	Chromium	ND	ug/L	1.0
812633-003	C-CON-D-195	SW6020	FLDFLT	3/13/2014	10:15	Manganese	0.98	ug/L	0.50
812633-003	C-CON-D-195	SW6020	FLDFLT	3/13/2014	10:15	Molybdenum	3.8	ug/L	2.0
812633-003	C-CON-D-195	SW6020	FLDFLT	3/13/2014	10:15	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
812633-004	C-CON-S-195	E120.1	NONE	3/13/2014	10:32	EC	843	umhos/cm	2.00
812633-004	C-CON-S-195	E218.6	FLDFLT	3/13/2014	10:32	Chromium, Hexavalent	ND	ug/L	0.20
812633-004	C-CON-S-195	SM2540D	NONE	3/13/2014	10:32	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812633-004	C-CON-S-195	SM4500HB	NONE	3/13/2014	10:32	PH	8.25 J	pH	4.00
812633-004	C-CON-S-195	SW6010B	NONE	3/13/2014	10:32	Iron	27.4	ug/L	20.0
812633-004	C-CON-S-195	SW6010B	FLDFLT	3/13/2014	10:32	Iron	ND	ug/L	20.0
812633-004	C-CON-S-195	SW6020	FLDFLT	3/13/2014	10:32	Arsenic	2.4	ug/L	0.50
812633-004	C-CON-S-195	SW6020	FLDFLT	3/13/2014	10:32	Barium	94.5	ug/L	5.0
812633-004	C-CON-S-195	SW6020	FLDFLT	3/13/2014	10:32	Chromium	ND	ug/L	1.0
812633-004	C-CON-S-195	SW6020	FLDFLT	3/13/2014	10:32	Manganese	0.91	ug/L	0.50
812633-004	C-CON-S-195	SW6020	FLDFLT	3/13/2014	10:32	Molybdenum	3.7	ug/L	2.0
812633-004	C-CON-S-195	SW6020	FLDFLT	3/13/2014	10:32	Selenium	ND	ug/L	5.0
812633-005	C-MW-82-195	E218.6	FLDFLT	3/13/2014	8:50	Chromium, Hexavalent	ND	ug/L	0.20
812633-006	C-MW-83-195	E218.6	FLDFLT	3/13/2014	9:08	Chromium, Hexavalent	ND	ug/L	0.20
812633-007	C-NR1-D-195	E120.1	NONE	3/13/2014	10:58	EC	847	umhos/cm	2.00
812633-007	C-NR1-D-195	E218.6	FLDFLT	3/13/2014	10:58	Chromium, Hexavalent	ND	ug/L	0.20
812633-007	C-NR1-D-195	SM2540D	NONE	3/13/2014	10:58	Suspended Solids (Residue, Non-Filterable)	6.10	mg/L	4.00
812633-007	C-NR1-D-195	SM4500HB	NONE	3/13/2014	10:58	PH	8.27 J	pH	4.00
812633-007	C-NR1-D-195	SW6010B	NONE	3/13/2014	10:58	Iron	46.9	ug/L	20.0
812633-007	C-NR1-D-195	SW6010B	FLDFLT	3/13/2014	10:58	Iron	ND	ug/L	20.0
812633-007	C-NR1-D-195	SW6020	FLDFLT	3/13/2014	10:58	Arsenic	2.5	ug/L	0.50
812633-007	C-NR1-D-195	SW6020	FLDFLT	3/13/2014	10:58	Barium	95.6	ug/L	5.0
812633-007	C-NR1-D-195	SW6020	FLDFLT	3/13/2014	10:58	Chromium	ND	ug/L	1.0
812633-007	C-NR1-D-195	SW6020	FLDFLT	3/13/2014	10:58	Manganese	0.98	ug/L	0.50
812633-007	C-NR1-D-195	SW6020	FLDFLT	3/13/2014	10:58	Molybdenum	3.8	ug/L	2.0
812633-007	C-NR1-D-195	SW6020	FLDFLT	3/13/2014	10:58	Selenium	ND	ug/L	5.0
812633-008	C-NR1-S-195	E120.1	NONE	3/13/2014	11:10	EC	855	umhos/cm	2.00
812633-008	C-NR1-S-195	E218.6	FLDFLT	3/13/2014	11:10	Chromium, Hexavalent	ND	ug/L	0.20
812633-008	C-NR1-S-195	SM2540D	NONE	3/13/2014	11:10	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812633-008	C-NR1-S-195	SM4500HB	NONE	3/13/2014	11:10	PH	8.28 J	pH	4.00
812633-008	C-NR1-S-195	SW6010B	NONE	3/13/2014	11:10	Iron	36.7	ug/L	20.0
812633-008	C-NR1-S-195	SW6010B	FLDFLT	3/13/2014	11:10	Iron	ND	ug/L	20.0
812633-008	C-NR1-S-195	SW6020	FLDFLT	3/13/2014	11:10	Arsenic	2.4	ug/L	0.50
812633-008	C-NR1-S-195	SW6020	FLDFLT	3/13/2014	11:10	Barium	93.8	ug/L	5.0
812633-008	C-NR1-S-195	SW6020	FLDFLT	3/13/2014	11:10	Chromium	ND	ug/L	1.0
812633-008	C-NR1-S-195	SW6020	FLDFLT	3/13/2014	11:10	Manganese	0.93	ug/L	0.50
812633-008	C-NR1-S-195	SW6020	FLDFLT	3/13/2014	11:10	Molybdenum	3.7	ug/L	2.0
812633-008	C-NR1-S-195	SW6020	FLDFLT	3/13/2014	11:10	Selenium	ND	ug/L	5.0

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812633-009	C-NR3-D-195	E120.1	NONE	3/13/2014	11:42	EC	851	umhos/cm	2.00
812633-009	C-NR3-D-195	E218.6	FLDFLT	3/13/2014	11:42	Chromium, Hexavalent	ND	ug/L	0.20
812633-009	C-NR3-D-195	SM2540D	NONE	3/13/2014	11:42	Suspended Solids (Residue, Non-Filterable)	4.40	mg/L	4.00
812633-009	C-NR3-D-195	SM4500HB	NONE	3/13/2014	11:42	PH	8.27 J	pH	4.00
812633-009	C-NR3-D-195	SW6010B	NONE	3/13/2014	11:42	Iron	45.8	ug/L	20.0
812633-009	C-NR3-D-195	SW6010B	FLDFLT	3/13/2014	11:42	Iron	ND	ug/L	20.0
812633-009	C-NR3-D-195	SW6020	FLDFLT	3/13/2014	11:42	Arsenic	2.5	ug/L	0.50
812633-009	C-NR3-D-195	SW6020	FLDFLT	3/13/2014	11:42	Barium	96.6	ug/L	5.0
812633-009	C-NR3-D-195	SW6020	FLDFLT	3/13/2014	11:42	Chromium	ND	ug/L	1.0
812633-009	C-NR3-D-195	SW6020	FLDFLT	3/13/2014	11:42	Manganese	1.4	ug/L	0.50
812633-009	C-NR3-D-195	SW6020	FLDFLT	3/13/2014	11:42	Molybdenum	3.9	ug/L	2.0
812633-009	C-NR3-D-195	SW6020	FLDFLT	3/13/2014	11:42	Selenium	ND	ug/L	5.0
812633-010	C-NR3-S-195	E120.1	NONE	3/13/2014	11:58	EC	852	umhos/cm	2.00
812633-010	C-NR3-S-195	E218.6	FLDFLT	3/13/2014	11:58	Chromium, Hexavalent	ND	ug/L	0.20
812633-010	C-NR3-S-195	SM2540D	NONE	3/13/2014	11:58	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812633-010	C-NR3-S-195	SM4500HB	NONE	3/13/2014	11:58	PH	8.10 J	pH	4.00
812633-010	C-NR3-S-195	SW6010B	NONE	3/13/2014	11:58	Iron	28.2	ug/L	20.0
812633-010	C-NR3-S-195	SW6010B	FLDFLT	3/13/2014	11:58	Iron	ND	ug/L	20.0
812633-010	C-NR3-S-195	SW6020	FLDFLT	3/13/2014	11:58	Arsenic	2.4	ug/L	0.50
812633-010	C-NR3-S-195	SW6020	FLDFLT	3/13/2014	11:58	Barium	90.0	ug/L	5.0
812633-010	C-NR3-S-195	SW6020	FLDFLT	3/13/2014	11:58	Chromium	ND	ug/L	1.0
812633-010	C-NR3-S-195	SW6020	FLDFLT	3/13/2014	11:58	Manganese	0.86	ug/L	0.50
812633-010	C-NR3-S-195	SW6020	FLDFLT	3/13/2014	11:58	Molybdenum	3.6	ug/L	2.0
812633-010	C-NR3-S-195	SW6020	FLDFLT	3/13/2014	11:58	Selenium	ND	ug/L	5.0
812633-011	C-NR4-D-195	E120.1	NONE	3/13/2014	12:30	EC	847	umhos/cm	2.00
812633-011	C-NR4-D-195	E218.6	FLDFLT	3/13/2014	12:30	Chromium, Hexavalent	ND	ug/L	0.20
812633-011	C-NR4-D-195	SM2540D	NONE	3/13/2014	12:30	Suspended Solids (Residue, Non-Filterable)	7.60	mg/L	4.00
812633-011	C-NR4-D-195	SM4500HB	NONE	3/13/2014	12:30	PH	8.21 J	pH	4.00
812633-011	C-NR4-D-195	SW6010B	NONE	3/13/2014	12:30	Iron	29.3	ug/L	20.0
812633-011	C-NR4-D-195	SW6010B	FLDFLT	3/13/2014	12:30	Iron	ND	ug/L	20.0
812633-011	C-NR4-D-195	SW6020	FLDFLT	3/13/2014	12:30	Arsenic	2.4	ug/L	0.50
812633-011	C-NR4-D-195	SW6020	FLDFLT	3/13/2014	12:30	Barium	93.4	ug/L	5.0
812633-011	C-NR4-D-195	SW6020	FLDFLT	3/13/2014	12:30	Chromium	ND	ug/L	1.0
812633-011	C-NR4-D-195	SW6020	FLDFLT	3/13/2014	12:30	Manganese	0.81	ug/L	0.50
812633-011	C-NR4-D-195	SW6020	FLDFLT	3/13/2014	12:30	Molybdenum	3.8	ug/L	2.0
812633-011	C-NR4-D-195	SW6020	FLDFLT	3/13/2014	12:30	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
812633-012	C-NR4-S-195	E120.1	NONE	3/13/2014	12:42	EC	832	umhos/cm	2.00
812633-012	C-NR4-S-195	E218.6	FLDFLT	3/13/2014	12:42	Chromium, Hexavalent	ND	ug/L	0.20
812633-012	C-NR4-S-195	SM2540D	NONE	3/13/2014	12:42	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812633-012	C-NR4-S-195	SM4500HB	NONE	3/13/2014	12:42	PH	8.25 J	pH	4.00
812633-012	C-NR4-S-195	SW6010B	NONE	3/13/2014	12:42	Iron	22.8	ug/L	20.0
812633-012	C-NR4-S-195	SW6010B	FLDFLT	3/13/2014	12:42	Iron	ND	ug/L	20.0
812633-012	C-NR4-S-195	SW6020	FLDFLT	3/13/2014	12:42	Arsenic	2.5	ug/L	0.50
812633-012	C-NR4-S-195	SW6020	FLDFLT	3/13/2014	12:42	Barium	93.9	ug/L	5.0
812633-012	C-NR4-S-195	SW6020	FLDFLT	3/13/2014	12:42	Chromium	ND	ug/L	1.0
812633-012	C-NR4-S-195	SW6020	FLDFLT	3/13/2014	12:42	Manganese	0.78	ug/L	0.50
812633-012	C-NR4-S-195	SW6020	FLDFLT	3/13/2014	12:42	Molybdenum	3.8	ug/L	2.0
812633-012	C-NR4-S-195	SW6020	FLDFLT	3/13/2014	12:42	Selenium	ND	ug/L	5.0
812633-013	R-19-195	E120.1	NONE	3/13/2014	9:15	EC	823	umhos/cm	2.00
812633-013	R-19-195	E218.6	FLDFLT	3/13/2014	9:15	Chromium, Hexavalent	ND	ug/L	0.20
812633-013	R-19-195	SM2540D	NONE	3/13/2014	9:15	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812633-013	R-19-195	SM4500HB	NONE	3/13/2014	9:15	PH	8.30 J	pH	4.00
812633-013	R-19-195	SW6010B	NONE	3/13/2014	9:15	Iron	42.4	ug/L	20.0
812633-013	R-19-195	SW6010B	FLDFLT	3/13/2014	9:15	Iron	ND	ug/L	20.0
812633-013	R-19-195	SW6020	FLDFLT	3/13/2014	9:15	Arsenic	2.4	ug/L	0.50
812633-013	R-19-195	SW6020	FLDFLT	3/13/2014	9:15	Barium	92.6	ug/L	5.0
812633-013	R-19-195	SW6020	FLDFLT	3/13/2014	9:15	Chromium	ND	ug/L	1.0
812633-013	R-19-195	SW6020	FLDFLT	3/13/2014	9:15	Manganese	1.2	ug/L	0.50
812633-013	R-19-195	SW6020	FLDFLT	3/13/2014	9:15	Molybdenum	3.7	ug/L	2.0
812633-013	R-19-195	SW6020	FLDFLT	3/13/2014	9:15	Selenium	ND	ug/L	5.0
812633-014	R-28-195	E120.1	NONE	3/13/2014	8:54	EC	822	umhos/cm	2.00
812633-014	R-28-195	E218.6	FLDFLT	3/13/2014	8:54	Chromium, Hexavalent	ND	ug/L	0.20
812633-014	R-28-195	SM2540D	NONE	3/13/2014	8:54	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	4.00
812633-014	R-28-195	SM4500HB	NONE	3/13/2014	8:54	PH	8.31 J	pH	4.00
812633-014	R-28-195	SW6010B	NONE	3/13/2014	8:54	Iron	41.3	ug/L	20.0
812633-014	R-28-195	SW6010B	FLDFLT	3/13/2014	8:54	Iron	ND	ug/L	20.0
812633-014	R-28-195	SW6020	FLDFLT	3/13/2014	8:54	Arsenic	2.3	ug/L	0.50
812633-014	R-28-195	SW6020	FLDFLT	3/13/2014	8:54	Barium	99.3	ug/L	5.0
812633-014	R-28-195	SW6020	FLDFLT	3/13/2014	8:54	Chromium	ND	ug/L	1.0
812633-014	R-28-195	SW6020	FLDFLT	3/13/2014	8:54	Manganese	1.3	ug/L	0.50
812633-014	R-28-195	SW6020	FLDFLT	3/13/2014	8:54	Molybdenum	4.0	ug/L	2.0
812633-014	R-28-195	SW6020	FLDFLT	3/13/2014	8:54	Selenium	ND	ug/L	5.0
812633-015	RMP-AB2-195	E218.6	FLDFLT	3/13/2014	13:00	Chromium, Hexavalent	ND	ug/L	0.20

600

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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
812633-016	RRB-195	E120.1	NONE	3/13/2014	9:36	EC	827	umhos/cm	2.00
812633-016	RRB-195	E218.6	FLDFLT	3/13/2014	9:36	Chromium, Hexavalent	ND	ug/L	0.20
812633-016	RRB-195	SM2540D	NONE	3/13/2014	9:36	Suspended Solids (Residue, Non-Filterable)	7.60	mg/L	4.00
812633-016	RRB-195	SM4500HB	NONE	3/13/2014	9:36	PH	8.19 J	pH	4.00
812633-016	RRB-195	SW6010B	NONE	3/13/2014	9:36	Iron	116	ug/L	20.0
812633-016	RRB-195	SW6010B	FLDFLT	3/13/2014	9:36	Iron	29.0	ug/L	20.0
812633-016	RRB-195	SW6020	FLDFLT	3/13/2014	9:36	Arsenic	2.4	ug/L	0.50
812633-016	RRB-195	SW6020	FLDFLT	3/13/2014	9:36	Barium	94.5	ug/L	5.0
812633-016	RRB-195	SW6020	FLDFLT	3/13/2014	9:36	Chromium	ND	ug/L	1.0
812633-016	RRB-195	SW6020	FLDFLT	3/13/2014	9:36	Manganese	5.5	ug/L	0.50
812633-016	RRB-195	SW6020	FLDFLT	3/13/2014	9:36	Molybdenum	3.8	ug/L	2.0
812633-016	RRB-195	SW6020	FLDFLT	3/13/2014	9:36	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. 812633

Printed 3/24/2014

Samples Received on 3/13/2014 7:20:00 PM

Field ID	Lab ID	Collected	Matrix
SW1-195	812633-001	03/12/2014 07:50	Water
SW2-195	812633-002	03/12/2014 08:08	Water
C-CON-D-195	812633-003	03/13/2014 10:15	Water
C-CON-S-195	812633-004	03/13/2014 10:32	Water
C-MW-82-195	812633-005	03/13/2014 08:50	Water
C-MW-83-195	812633-006	03/13/2014 09:08	Water
C-NR1-D-195	812633-007	03/13/2014 10:58	Water
C-NR1-S-195	812633-008	03/13/2014 11:10	Water
C-NR3-D-195	812633-009	03/13/2014 11:42	Water
C-NR3-S-195	812633-010	03/13/2014 11:58	Water
C-NR4-D-195	812633-011	03/13/2014 12:30	Water
C-NR4-S-195	812633-012	03/13/2014 12:42	Water
R-19-195	812633-013	03/13/2014 09:15	Water
R-28-195	812633-014	03/13/2014 08:54	Water
RMP-AB2-195	812633-015	03/13/2014 13:00	Water
RRB-195	812633-016	03/13/2014 09:36	Water

Specific Conductivity - EPA 120.1

Batch 03EC14I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812633-001 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	896
812633-002 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	864
812633-003 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	840
812633-004 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	843
812633-007 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	847
812633-008 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	855
812633-009 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	851
812633-010 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	852
812633-011 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	847
812633-012 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	832

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

812633-013 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	823	
812633-014 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	822	
812633-016 Specific Conductivity	umhos/cm	03/18/2014	1.00	0.606	2.00	827	

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812633-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	843	851	0.944	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	697	706	98.7	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	694	706	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

MRCVS - Primary

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

Metals by EPA 6010B, Total

Batch 031914A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812633-003 Iron	ug/L	03/19/2014 14:50	2.00	6.00	20.0	52.0
812633-004 Iron	ug/L	03/19/2014 15:28	2.00	6.00	20.0	27.4
812633-007 Iron	ug/L	03/19/2014 15:35	2.00	6.00	20.0	46.9
812633-008 Iron	ug/L	03/19/2014 15:41	2.00	6.00	20.0	36.7
812633-009 Iron	ug/L	03/19/2014 15:47	2.00	6.00	20.0	45.8
812633-010 Iron	ug/L	03/19/2014 15:54	2.00	6.00	20.0	28.2
812633-011 Iron	ug/L	03/19/2014 16:00	2.00	6.00	20.0	29.3
812633-012 Iron	ug/L	03/19/2014 16:06	2.00	6.00	20.0	22.8
812633-013 Iron	ug/L	03/19/2014 16:13	2.00	6.00	20.0	42.4
812633-014 Iron	ug/L	03/19/2014 16:35	2.00	6.00	20.0	41.3
812633-016 Iron	ug/L	03/19/2014 16:41	2.00	6.00	20.0	116

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 812633-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	2.00	52.8	52.0	1.53	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2000	107	85 - 115

Matrix Spike — Lab ID = 812633-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	2000	2050(2000)	97.2	75 - 125

Matrix Spike Duplicate — Lab ID = 812633-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	2050	2050(2000)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5130	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5200	5000	104	90 - 110

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

Chrome VI by EPA 218.6

Batch 03CrH14 C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812633-001 Chromium, Hexavalent	ug/L	03/14/2014 10:58	1.00	0.00600	0.20	ND
812633-002 Chromium, Hexavalent	ug/L	03/14/2014 11:08	1.00	0.00600	0.20	ND
812633-003 Chromium, Hexavalent	ug/L	03/14/2014 11:18	1.00	0.00600	0.20	ND
812633-004 Chromium, Hexavalent	ug/L	03/14/2014 11:29	1.00	0.00600	0.20	ND
812633-005 Chromium, Hexavalent	ug/L	03/14/2014 11:39	1.00	0.00600	0.20	ND
812633-006 Chromium, Hexavalent	ug/L	03/14/2014 11:50	1.00	0.00600	0.20	ND
812633-007 Chromium, Hexavalent	ug/L	03/14/2014 12:00	1.00	0.00600	0.20	ND
812633-008 Chromium, Hexavalent	ug/L	03/14/2014 12:10	1.00	0.00600	0.20	ND
812633-009 Chromium, Hexavalent	ug/L	03/14/2014 12:42	1.00	0.00600	0.20	ND
812633-010 Chromium, Hexavalent	ug/L	03/14/2014 12:52	1.00	0.00600	0.20	ND
812633-011 Chromium, Hexavalent	ug/L	03/14/2014 13:02	1.00	0.00600	0.20	ND
812633-012 Chromium, Hexavalent	ug/L	03/14/2014 13:13	1.00	0.00600	0.20	ND
812633-013 Chromium, Hexavalent	ug/L	03/14/2014 13:23	1.00	0.00600	0.20	ND
812633-014 Chromium, Hexavalent	ug/L	03/14/2014 13:34	1.00	0.00600	0.20	ND
812633-015 Chromium, Hexavalent	ug/L	03/14/2014 13:44	1.00	0.00600	0.20	ND
812633-016 Chromium, Hexavalent	ug/L	03/14/2014 13:54	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 812633-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0166	0.0167	0.601	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.184	0.200	92.0	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 = 812633-001

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that 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 = 812633-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.01(1.00)	104	90 - 110

Matrix Spike — Lab ID = 812633-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.01(1.00)	104	90 - 110

Matrix Spike — Lab ID = 812633-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.02(1.00)	104	90 - 110

Matrix Spike — Lab ID = 812633-005

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 = 812633-006

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 = 812633-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.01(1.00)	106	90 - 110

Matrix Spike — Lab ID = 812633-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.01(1.00)	104	90 - 110

Matrix Spike — Lab ID = 812633-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.01(1.00)	104	90 - 110

Matrix Spike — Lab ID = 812633-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.01(1.00)	105	90 - 110

Matrix Spike — Lab ID = 812633-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.01(1.00)	104	90 - 110

Matrix Spike — Lab ID = 812633-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.01(1.00)	104	90 - 110

Matrix Spike — Lab ID = 812633-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.01(1.00)	104	90 - 110

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

Matrix Spike — Lab ID = 812633-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.02(1.00)	103	90 - 110

Matrix Spike — Lab ID = 812633-015

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 = 812633-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.02(1.00)	105	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.70	10.0	97.0	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.72	10.0	97.2	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.79	10.0	97.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.66	10.0	96.6	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.

Metals by EPA 6020A, Dissolved Batch 031714A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812633-001 Chromium	ug/L	03/17/2014 16:43	2.00	0.142	1.0	ND
812633-002 Chromium	ug/L	03/17/2014 17:26	2.00	0.142	1.0	ND
812633-003 Arsenic	ug/L	03/17/2014 17:32	2.00	0.100	0.50	2.5
Barium	ug/L	03/17/2014 17:32	2.00	0.594	5.0	95.0
Chromium	ug/L	03/17/2014 17:32	2.00	0.142	1.0	ND
Manganese	ug/L	03/17/2014 17:32	2.00	0.120	0.50	0.98
Molybdenum	ug/L	03/17/2014 17:32	2.00	0.100	2.0	3.8
Selenium	ug/L	03/17/2014 17:32	2.00	0.424	5.0	ND
812633-004 Arsenic	ug/L	03/17/2014 17:38	2.00	0.100	0.50	2.4
Barium	ug/L	03/17/2014 17:38	2.00	0.594	5.0	94.5
Chromium	ug/L	03/17/2014 17:38	2.00	0.142	1.0	ND
Manganese	ug/L	03/17/2014 17:38	2.00	0.120	0.50	0.91
Molybdenum	ug/L	03/17/2014 17:38	2.00	0.100	2.0	3.7
Selenium	ug/L	03/17/2014 17:38	2.00	0.424	5.0	ND
812633-007 Arsenic	ug/L	03/17/2014 17:44	2.00	0.100	0.50	2.5
Barium	ug/L	03/17/2014 17:44	2.00	0.594	5.0	95.6
Chromium	ug/L	03/17/2014 17:44	2.00	0.142	1.0	ND
Manganese	ug/L	03/17/2014 17:44	2.00	0.120	0.50	0.98
Molybdenum	ug/L	03/17/2014 17:44	2.00	0.100	2.0	3.8
Selenium	ug/L	03/17/2014 17:44	2.00	0.424	5.0	ND
812633-008 Arsenic	ug/L	03/17/2014 17:50	2.00	0.100	0.50	2.4
Barium	ug/L	03/17/2014 17:50	2.00	0.594	5.0	93.8
Chromium	ug/L	03/17/2014 17:50	2.00	0.142	1.0	ND
Manganese	ug/L	03/17/2014 17:50	2.00	0.120	0.50	0.93
Molybdenum	ug/L	03/17/2014 17:50	2.00	0.100	2.0	3.7
Selenium	ug/L	03/17/2014 17:50	2.00	0.424	5.0	ND
812633-009 Arsenic	ug/L	03/17/2014 17:56	2.00	0.100	0.50	2.5
Barium	ug/L	03/17/2014 17:56	2.00	0.594	5.0	96.6
Chromium	ug/L	03/17/2014 17:56	2.00	0.142	1.0	ND
Manganese	ug/L	03/17/2014 17:56	2.00	0.120	0.50	1.4
Molybdenum	ug/L	03/17/2014 17:56	2.00	0.100	2.0	3.9
Selenium	ug/L	03/17/2014 17:56	2.00	0.424	5.0	ND
812633-010 Arsenic	ug/L	03/17/2014 18:03	2.00	0.100	0.50	2.4
Barium	ug/L	03/17/2014 18:03	2.00	0.594	5.0	90.0

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.

812633-010	Chromium	ug/L	03/17/2014 18:03	2.00	0.142	1.0	ND
	Manganese	ug/L	03/17/2014 18:03	2.00	0.120	0.50	0.86
	Molybdenum	ug/L	03/17/2014 18:03	2.00	0.100	2.0	3.6
	Selenium	ug/L	03/17/2014 18:03	2.00	0.424	5.0	ND
812633-011	Arsenic	ug/L	03/17/2014 18:09	2.00	0.100	0.50	2.4
	Barium	ug/L	03/17/2014 18:09	2.00	0.594	5.0	93.4
	Chromium	ug/L	03/17/2014 18:09	2.00	0.142	1.0	ND
	Manganese	ug/L	03/17/2014 18:09	2.00	0.120	0.50	0.81
	Molybdenum	ug/L	03/17/2014 18:09	2.00	0.100	2.0	3.8
	Selenium	ug/L	03/17/2014 18:09	2.00	0.424	5.0	ND
812633-012	Arsenic	ug/L	03/17/2014 18:15	2.00	0.100	0.50	2.5
	Barium	ug/L	03/17/2014 18:15	2.00	0.594	5.0	93.9
	Chromium	ug/L	03/17/2014 18:15	2.00	0.142	1.0	ND
	Manganese	ug/L	03/17/2014 18:15	2.00	0.120	0.50	0.78
	Molybdenum	ug/L	03/17/2014 18:15	2.00	0.100	2.0	3.8
	Selenium	ug/L	03/17/2014 18:15	2.00	0.424	5.0	ND
812633-013	Arsenic	ug/L	03/17/2014 18:33	2.00	0.100	0.50	2.4
	Barium	ug/L	03/17/2014 18:33	2.00	0.594	5.0	92.6
	Chromium	ug/L	03/17/2014 18:33	2.00	0.142	1.0	ND
	Manganese	ug/L	03/17/2014 18:33	2.00	0.120	0.50	1.2
	Molybdenum	ug/L	03/17/2014 18:33	2.00	0.100	2.0	3.7
	Selenium	ug/L	03/17/2014 18:33	2.00	0.424	5.0	ND
812633-014	Arsenic	ug/L	03/17/2014 18:39	2.00	0.100	0.50	2.3
	Barium	ug/L	03/17/2014 18:39	2.00	0.594	5.0	99.3
	Chromium	ug/L	03/17/2014 18:39	2.00	0.142	1.0	ND
	Manganese	ug/L	03/17/2014 18:39	2.00	0.120	0.50	1.3
	Molybdenum	ug/L	03/17/2014 18:39	2.00	0.100	2.0	4.0
	Selenium	ug/L	03/17/2014 18:39	2.00	0.424	5.0	ND
812633-016	Arsenic	ug/L	03/17/2014 18:45	2.00	0.100	0.50	2.4
	Barium	ug/L	03/17/2014 18:45	2.00	0.594	5.0	94.5
	Chromium	ug/L	03/17/2014 18:45	2.00	0.142	1.0	ND
	Manganese	ug/L	03/17/2014 18:45	2.00	0.120	0.50	5.5
	Molybdenum	ug/L	03/17/2014 18:45	2.00	0.100	2.0	3.8
	Selenium	ug/L	03/17/2014 18:45	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

Duplicate

Lab ID = 812633-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.21	2.25	1.72	0 - 20
Barium	ug/L	2.00	96.1	94.0	2.18	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	11.5	11.1	3.62	0 - 20
Molybdenum	ug/L	2.00	4.27	4.13	3.36	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.214	0.200	107	70 - 130
Barium	ug/L	1.00	0.914	1.00	91.4	70 - 130
Chromium	ug/L	1.00	0.494	0.500	98.8	70 - 130
Selenium	ug/L	1.00	1.12	1.00	112	70 - 130
Manganese	ug/L	1.00	0.204	0.200	102	70 - 130
Molybdenum	ug/L	1.00	0.217	0.200	109	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.9	50.0	99.7	85 - 115
Barium	ug/L	1.00	46.3	50.0	92.6	85 - 115
Chromium	ug/L	1.00	50.4	50.0	101	85 - 115
Selenium	ug/L	1.00	47.2	50.0	94.4	85 - 115
Manganese	ug/L	1.00	48.8	50.0	97.6	85 - 115
Molybdenum	ug/L	1.00	48.8	50.0	97.6	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 = 812633-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.3	52.2(50.0)	98.0	75 - 125
Barium	ug/L	2.00	144	144(50.0)	99.7	75 - 125
Chromium	ug/L	2.00	48.0	50.0(50.0)	96.1	75 - 125
Selenium	ug/L	2.00	45.9	50.0(50.0)	91.8	75 - 125
Manganese	ug/L	2.00	58.0	61.1(50.0)	93.9	75 - 125
Molybdenum	ug/L	2.00	53.0	54.1(50.0)	97.8	75 - 125

Matrix Spike Duplicate — Lab ID = 812633-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.7	52.2(50.0)	96.8	75 - 125
Barium	ug/L	2.00	138	144(50.0)	88.3	75 - 125
Chromium	ug/L	2.00	47.1	50.0(50.0)	94.3	75 - 125
Selenium	ug/L	2.00	45.8	50.0(50.0)	91.7	75 - 125
Manganese	ug/L	2.00	56.9	61.1(50.0)	91.6	75 - 125
Molybdenum	ug/L	2.00	51.8	54.1(50.0)	95.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.3	20.0	96.3	90 - 110
Barium	ug/L	1.00	19.3	20.0	96.6	90 - 110
Chromium	ug/L	1.00	19.4	20.0	97.0	90 - 110
Selenium	ug/L	1.00	18.6	20.0	93.2	90 - 110
Manganese	ug/L	1.00	19.4	20.0	97.2	90 - 110
Molybdenum	ug/L	1.00	19.5	20.0	97.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	99.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	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	19.4	20.0	97.2	90 - 110

MRCVS - Primary

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

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

Serial Dilution Lab ID = 812633-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	99.3	94.0	5.53	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 031914B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812633-003 Iron	ug/L	03/19/2014 18:21	2.00	6.00	20.0	ND
812633-004 Iron	ug/L	03/19/2014 19:02	2.00	6.00	20.0	ND
812633-007 Iron	ug/L	03/19/2014 19:08	2.00	6.00	20.0	ND
812633-008 Iron	ug/L	03/19/2014 19:14	2.00	6.00	20.0	ND
812633-010 Iron	ug/L	03/19/2014 19:27	2.00	6.00	20.0	ND
812633-011 Iron	ug/L	03/19/2014 19:33	2.00	6.00	20.0	ND
812633-012 Iron	ug/L	03/19/2014 19:40	2.00	6.00	20.0	ND
812633-013 Iron	ug/L	03/19/2014 19:46	2.00	6.00	20.0	ND
812633-014 Iron	ug/L	03/19/2014 19:53	2.00	6.00	20.0	ND
812633-016 Iron	ug/L	03/19/2014 19:59	2.00	6.00	20.0	29.0

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 812633-003

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2000	108	85 - 115

Matrix Spike — Lab ID = 812633-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	1980	2000(2000)	99.0	75 - 125

Matrix Spike Duplicate — Lab ID = 812633-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	2.00	1990	2000(2000)	99.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5110	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5350	5000	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.

Metals by EPA 6010B, Dissolved

Batch 032114A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812633-009 Iron	ug/L	03/21/2014 15:12	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 812633-009

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	2110	2000	106	85 - 115

Matrix Spike — Lab ID = 812633-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2030	2000(2000)	102	75 - 125

Matrix Spike Duplicate — Lab ID = 812633-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2060	2000(2000)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5190	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5180	5000	104	90 - 110

MRCVS - Primary

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2000	107	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 03PH14M

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
812633-001 pH	pH	03/14/2014 11:27	1.00	0.0250	4.00	7.49	J
812633-002 pH	pH	03/14/2014 11:29	1.00	0.0250	4.00	7.79	J
812633-003 pH	pH	03/14/2014 11:31	1.00	0.0250	4.00	8.28	J
812633-004 pH	pH	03/14/2014 11:33	1.00	0.0250	4.00	8.25	J
812633-007 pH	pH	03/14/2014 11:35	1.00	0.0250	4.00	8.27	J
812633-008 pH	pH	03/14/2014 11:38	1.00	0.0250	4.00	8.28	J
812633-009 pH	pH	03/14/2014 11:41	1.00	0.0250	4.00	8.27	J
812633-010 pH	pH	03/14/2014 11:44	1.00	0.0250	4.00	8.10	J
812633-011 pH	pH	03/14/2014 11:45	1.00	0.0250	4.00	8.21	J

Duplicate — Lab ID = 812632-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.27	8.28	0.121	0 - 20

Duplicate — Lab ID = 812633-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.24	8.21	0.365	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	7.09	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.07	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.

pH by SM 4500-H B Batch 03PH14N

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
812633-012 pH	pH	03/14/2014 12:00	1.00	0.0250	4.00	8.25	J
812633-013 pH	pH	03/14/2014 12:02	1.00	0.0250	4.00	8.30	J
812633-014 pH	pH	03/14/2014 12:05	1.00	0.0250	4.00	8.31	J
812633-016 pH	pH	03/14/2014 12:07	1.00	0.0250	4.00	8.19	J

Duplicate — Lab ID = 812633-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.20	8.19	0.122	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.07	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.10	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.

Total Suspended Solids by SM 2540 D Batch 03TSS14J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812633-003 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	10.4
812633-004 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	ND
812633-007 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	6.10
812633-008 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	ND
812633-009 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	4.40
812633-010 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	ND
812633-011 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	7.60
812633-012 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	ND
812633-013 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	ND
812633-014 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	ND
812633-016 Total Suspended Solids	mg/L	03/18/2014	1.00	0.349	4.00	7.60

Method Blank

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

Duplicate — Lab ID = 812648-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	43.6	48.0	9.61	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	93.0	100	93.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	91.0	100	91.0	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.

4

Total Suspended Solids by SM 2540 D

Calculations

Batch: 03TSS14J

Date Analyzed: 03/18/14

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	BLANK	1000	1.4759	1.4759	1.4759	0.0000	No	0.0000	0.0	2.5	**ND**
2	812633-3	700	1.4608	1.4681	1.4681	0.0000	No	0.0073	10.4	3.6	**10.4**
3	812633-4	700	1.4702	1.4724	1.4724	0.0000	No	0.0022	3.1	3.6	**ND**
4	812633-7	700	1.4622	1.4665	1.4665	0.0000	No	0.0043	6.1	3.6	**6.1**
5	812633-8	700	1.4580	1.4603	1.4603	0.0000	No	0.0023	3.3	3.6	**ND**
6	812633-9	700	1.4558	1.4589	1.4589	0.0000	No	0.0031	4.4	3.6	**4.4**
7	812633-10	700	1.4308	1.4328	1.4328	0.0000	No	0.0020	2.9	3.6	**ND**
8	812633-11	700	1.4578	1.4631	1.4631	0.0000	No	0.0053	7.6	3.6	**7.6**
9	812633-12	700	1.4345	1.4365	1.4365	0.0000	No	0.0020	2.9	3.6	**ND**
10	812633-13	700	1.4755	1.4774	1.4774	0.0000	No	0.0019	2.7	3.6	**ND**
11	812644	250	1.4400	1.4503	1.4503	0.0000	No	0.0103	41.2	10.0	**41.2**
12	812644 Dup	250	1.4646	1.4748	1.4748	0.0000	No	0.0102	40.8	10.0	**40.8**
13	LCS	100	1.4756	1.4849	1.4849	0.0000	No	0.0093	93.0	25.0	**93.0**
14	812633-14	700	1.4514	1.4535	1.4535	0.0000	No	0.0021	3.0	3.6	**ND**
15	812633-16	700	1.4495	1.4548	1.4548	0.0000	No	0.0053	7.6	3.6	**7.6**
16	812648-1	250	1.4400	1.4487	1.4487	0.0000	No	0.0087	34.8	10.0	**34.8**
17	812648-2	100	1.4534	1.4697	1.4697	0.0000	No	0.0163	163.0	25.0	**163.0**
18	812648-3	250	1.4606	1.4726	1.4726	0.0000	No	0.0120	48.0	10.0	**48.0**
19	812652	700	1.4702	1.4707	1.4707	0.0000	No	0.0005	0.7	3.6	**ND**
22	812660	700	1.4849	1.4851	1.4851	0.0000	No	0.0002	0.3	3.6	**ND**
20	812648-3 Dup	250	1.4422	1.4531	1.4531	0.0000	No	0.0109	43.6	10.0	**43.6**
21	LCSD	100	1.4569	1.4660	1.4660	0.0000	No	0.0091	91.0	25.0	**91.0**

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	93.0	100	93.0%	90-110%	**Yes**
LCSD	91.0	100	91.0%	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?
812644	0.0103	0.0102	0.5%	≤5%	**Yes**
812648-3	0.012	0.0109	4.8%	5%	**Yes**

Himani
Analyst Name

Analyst Signature

Maksim
Reviewer Signature

Reveiwer Signature

812633

CH2MHILL

CHAIN OF CUSTODY RECORD

3/13/2014 3:17:50 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 2014-RMP-195
Turnaround Time 10 Days
Shipping Date: 3/13/2014
COC Number: 1

			Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1x1 Liter	1x1 Liter	1x1 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			
			Filtered:	Field	NA	NA	Field	Field	NA	NA	NA			
			Holding Time:	28	28	180	180	180	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)	PH (SM4500HB)	TSS (SM2540)		Number of Containers	COMMENTS
1	SW1-195	3/12/2014	7:50	Water	x				x	x	x		~~6~~	7 Rec
2	SW2-195	3/12/2014	8:08	Water	x				x	x	x		~~6~~	7
3	C-CON-D-195	3/13/2014	10:15	Water	x		x	x	x	x	x	x	8	
4	C-CON-S-195	3/13/2014	10:32	Water	x		x	x	x	x	x	x	8	pH=2
5	C-MW-82-195	3/13/2014	8:50	Water		x							1	Metals
6	C-MW-83-195	3/13/2014	9:08	Water		x							1	
7	C-NR1-D-195	3/13/2014	10:58	Water	x		x	x	x	x	x	x	8	
8	C-NR1-S-195	3/13/2014	11:10	Water	x		x	x	x	x	x	x	8	
9	C-NR3-D-195	3/13/2014	11:42	Water	x		x	x	x	x	x	x	8	
0	C-NR3-S-195	3/13/2014	11:58	Water	x		x	x	x	x	x	x	8	
1	C-NR4-D-195	3/13/2014	12:30	Water	x		x	x	x	x	x	x	8	pH=2 Metals
2	C-NR4-S-195	3/13/2014	12:42	Water	x		x	x	x	x	x	x	8	
3	R-19-195	3/13/2014	9:15	Water	x		x	x	x	x	x	x	8	
4	R-28-195	3/13/2014	8:54	Water	x		x	x	x	x	x	x	8	

* Where provided w/ multiple bottles for Cr6 + CrT, please analyze 1 + hold 2

Rec'd 03/13/14
~~S18c~~ 812633

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		3-13-14
Sampled by		1525
Relinquished by	[signature]	3-13-14
Received by	Shawn Ngo	1525
Relinquished by	Shawn Ngo	3-13-14 1920
Received by	Marshal Brady	3/13/14 @ 1920

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:
March 2014

Report Copy to
Shawn Duffy
(530) 229-3303

812633

CH2MHILL

CHAIN OF CUSTODY RECORD

3/13/2014 3:17:50 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 2014-RMP-195
Turnaround Time 10 Days
Shipping Date: 3/13/2014
COC Number: 1

	DATE	TIME	Matrix	Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6–river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo,Ba	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	PH (SM4500HB)	TSS (SM2540)	Number of Containers	COMMENTS
Container:				3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1x1 Liter	1x1 Liter	1x1 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		
Filtered:				Field	NA	NA	Field	Field	NA	NA	NA		
Holding Time:				28	28	180	180	180	7	7	7		
15 RMP-AB2-195	3/13/2014	13:00	Water		x							1	
16 RRB-195	3/13/2014	9:36	Water	x		x	x	x	x	x	x	8	PH 2 Metals
TOTAL NUMBER OF CONTAINERS												~~194~~ 196	

*Where provided w/multiple bottles for Cr6 + CrT, please analyze 1 + hold 2

Rec'd 03/13/14
~~S186~~ 812633

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		3-13-14
Sampled by	[signature]	1525
Relinquished by	[signature]	3-13-14
Received by	Elsa Ingo	1525
Relinquished by	Elsa Ingo	3-13-14 1920
Received by	Michael Brady	3/13/14 @1920

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:
March 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/14/14	812632-6	9.5	N/A	N/A	N/A	NE
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	812633-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
↓	-16	↓	↓	↓	↓	↓

NE 3/17/14

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
812520	ES 3/10/14 <1	<2	3/10/14	ES	Yes			
812522(1-5)	ES <1	↓			↓			
812524	>1	↓			↓			
812525	<1	>2			No	10:00	12:00 3/11/14	pH <2
812547	<1	<2			Yes			
812555(1-4)	>1	↓	↓	↓	↓			
812557	<1	>2	↓	↓	No	10:00	12:00 3/11/14	pH <2
812558	<1	<2	↓	↓	Yes			
812484(1-2)	<1	>2	3/10/14	ES	yes	2:00		Filtered from acidify
TOTAL 812485(-2)	<1	<2						
-1	<1	>2				2:00		pH <2
DISS -2	<1	>2				2:00		Filtered from acidify
812486(1-5,7-11,14-15)	<1	<2	↓	↓	↓			
812579	<1	<2	3/12/14	MM	yes			
812581	↓	↓	↓	↓	↓			
812563	<1	<2	3/12/14	MM	yes			
812575	↓	↓	↓	↓	↓			
812576								
812577								
812578								
812585								
812589	↓	↓	↓	↓	↓			
812568	>1	>2	3/13/14	ES	yes	10:00		pH<2
812608	<1	<2	↓	↓	↓			
812614(1-2	>1	↓	↓	↓	↓			
812618	>1	↓	↓	↓	↓			
812597(1-2	<1	>2			No	10:00	3/17/14 10:00	pH <2
812569	↓	↓	↓	↓	↓	↓	↓	↓
812605(1-2)								
812615(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
812672(1-4,7-13)	<1	<2	3/14/14	ES	yes			Total/DISSOLVED
812594	<1	>2	↓	↓	↓	2:30		pH <2
812619(1-4)	<1	>2	3/17/14	ES	No	11:00	3/18/14 10:00	pH <2
812624(1-3)	↓	↓			↓	↓	↓ ↓	↓
812629	↓	<2			Yes			
812640(1-2)	>1	↓	↓	↓	↓			
812641	↓	↓	↓	↓	↓			ES 3/17/14
812633(1-4,7-14,16)	<1	<2	3/17/14	ES	yes			~~Total~~/DISSOLVED
633(3-4,7-14,16)	↓	↓	↓	↓	↓			TOTAL
812644	>1	<2	3/18/14	MM	yes			
812645	↓	↓	↓	↓	↓			
812651(1-2)	↓	↓	↓	↓	↓			
812668	<1	<2	3/19/14	MM	yes			
812666	↓	↓	↓	↓	↓			

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 #** 812633

Date Delivered: 03 / 13 / 14 **Time:** 19:20 **By:** ☐Mail ☑Field Service ☐Client

1.	Was a Chain of Custody received and signed?	☑Yes	☐No	☐N/A
2.	Does Customer require an acknowledgement of the COC?	☐Yes	☑No	☐N/A
3.	Are there any special requirements or notes on the COC?	☐Yes	☑No	☐N/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes	☐No	☑N/A
5.	Were all requested analyses understood and acceptable?	☑Yes	☐No	☐N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? 4.8 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☐Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level II QC

February 25, 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-00922

Workorder No.: N011982

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 11, 2014 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N011982

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary on sample N011982-002 due to precipitation of sample upon the addition of eluent.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011982-009 and N011982-011 due to failed Internal Standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.

Date: *25-Feb-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N011982
Contract No: 2014-GMP-197-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011982-001A	MW-27-060-197	Water	2/10/2014 2:20:00 PM	2/11/2014	2/25/2014
N011982-001B	MW-27-060-197	Water	2/10/2014 2:20:00 PM	2/11/2014	2/25/2014
N011982-002A	MW-27-085-197	Water	2/10/2014 3:32:00 PM	2/11/2014	2/25/2014
N011982-002B	MW-27-085-197	Water	2/10/2014 3:32:00 PM	2/11/2014	2/25/2014
N011982-003A	MW-34-080-197	Water	2/10/2014 12:12:00 PM	2/11/2014	2/25/2014
N011982-004A	MW-34-100-197	Water	2/10/2014 9:46:00 AM	2/11/2014	2/25/2014
N011982-005A	MW-42-055-197	Water	2/11/2014 8:08:00 AM	2/11/2014	2/25/2014
N011982-006A	MW-42-065-197	Water	2/11/2014 9:46:00 AM	2/11/2014	2/25/2014
N011982-007A	MW-44-115-197	Water	2/11/2014 12:10:00 PM	2/11/2014	2/25/2014
N011982-007B	MW-44-115-197	Water	2/11/2014 12:10:00 PM	2/11/2014	2/25/2014
N011982-008A	MW-44-125-197	Water	2/11/2014 2:55:00 PM	2/11/2014	2/25/2014
N011982-008B	MW-44-125-197	Water	2/11/2014 2:55:00 PM	2/11/2014	2/25/2014
N011982-009A	MW-46-175-197	Water	2/11/2014 2:02:00 PM	2/11/2014	2/25/2014
N011982-009B	MW-46-175-197	Water	2/11/2014 2:02:00 PM	2/11/2014	2/25/2014
N011982-010A	MW-93-197	Water	2/11/2014 12:10:00 PM	2/11/2014	2/25/2014
N011982-010B	MW-93-197	Water	2/11/2014 12:10:00 PM	2/11/2014	2/25/2014
N011982-011A	MW-94-197	Water	2/11/2014 7:00:00 AM	2/11/2014	2/25/2014
N011982-011B	MW-94-197	Water	2/11/2014 7:00:00 AM	2/11/2014	2/25/2014

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-197
Lab Order:	N011982	**Collection Date:**	2/10/2014 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140212B**	QC Batch: **R92339**			PrepDate:			Analyst: **LCC**
Specific Conductance	860	0.10	0.10		umhos/cm	1	2/12/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-197
Lab Order:	N011982	**Collection Date:**	2/10/2014 3:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140212B**	QC Batch: **R92339**			PrepDate:			Analyst: **LCC**
Specific Conductance	9600	0.10	0.10		umhos/cm	1	2/12/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140212B**	QC Batch: **R92339**			PrepDate:			Analyst: **LCC**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	2/12/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 2:55:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140212B**	QC Batch: **R92339**			PrepDate:			Analyst: **LCC**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	2/12/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 2:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140212B**	QC Batch: **R92339**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	2/12/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-93-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140212B**	QC Batch: **R92339**			PrepDate:			Analyst: **LCC**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	2/12/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-94-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140212B**	QC Batch: **R92339**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	2/12/2014

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
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: N011982
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011982-001B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **92339**
Client ID: **ZZZZZZ** Batch ID: **R92339** TestNo: **EPA 120.1** Analysis Date: **2/12/2014** SeqNo: **1735781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	864.000	0.10						863.0	0.116	10	

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-197
Lab Order:	N011982	**Collection Date:**	2/10/2014 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_140212A**	QC Batch: **R92358**			PrepDate:			Analyst: **QBM**
Fluoride	0.70	0.0068	0.10		mg/L	1	2/12/2014 01:30 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-197
Lab Order:	N011982	**Collection Date:**	2/10/2014 3:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_140212A**	QC Batch: **R92358**			PrepDate:			Analyst: **QBM**
Fluoride	ND	0.034	0.50		mg/L	5	2/12/2014 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		

CLIENT: CH2M HILL
Work Order: N011982
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R92358_F**	SampType: **MBLK**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92358**			
Client ID: **PBW**	Batch ID: **R92358**	TestNo: **EPA 300.0**		Analysis Date: **2/12/2014**			SeqNo: **1737221**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID: **LCS-R92358_F**	SampType: **LCS**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92358**			
Client ID: **LCSW**	Batch ID: **R92358**	TestNo: **EPA 300.0**		Analysis Date: **2/12/2014**			SeqNo: **1737222**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.398	0.10	2.500	0	95.9	90	110				

Sample ID: **N011981-001EDUP**	SampType: **DUP**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92358**			
Client ID: **ZZZZZZ**	Batch ID: **R92358**	TestNo: **EPA 300.0**		Analysis Date: **2/12/2014**			SeqNo: **1737224**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	4.295	0.50						4.300	0.116	20	

Sample ID: **N011981-001EMS**	SampType: **MS**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92358**			
Client ID: **ZZZZZZ**	Batch ID: **R92358**	TestNo: **EPA 300.0**		Analysis Date: **2/12/2014**			SeqNo: **1737225**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	16.575	0.50	12.50	4.300	98.2	80	120				

Sample ID: **N011981-001EMSD**	SampType: **MSD**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92358**			
Client ID: **ZZZZZZ**	Batch ID: **R92358**	TestNo: **EPA 300.0**		Analysis Date: **2/12/2014**			SeqNo: **1737226**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	16.405	0.50	12.50	4.300	96.8	80	120	16.58	1.03	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	**Client Sample ID:**	MW-27-060-197
Lab Order:	N011982	**Collection Date:**	2/10/2014 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Arsenic	6.5	0.027	0.10		µg/L	1	2/13/2014 02:21 PM
Manganese	170	0.026	0.50		µg/L	1	2/13/2014 02:21 PM
Molybdenum	4.1	0.15	0.50		µg/L	1	2/13/2014 02:21 PM
Selenium	ND	0.069	0.50		µg/L	1	2/13/2014 02:21 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-197
Lab Order:	N011982	**Collection Date:**	2/10/2014 3:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Arsenic	1.4	0.027	0.10		µg/L	1	2/13/2014 02:32 PM
Manganese	21	0.026	0.50		µg/L	1	2/13/2014 02:32 PM
Molybdenum	22	0.15	0.50		µg/L	1	2/13/2014 02:32 PM
Selenium	ND	0.069	0.50		µg/L	1	2/13/2014 02:32 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-197
Lab Order:	N011982	**Collection Date:**	2/10/2014 12:12:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Arsenic	1.3	0.027	0.10		µg/L	1	2/13/2014 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-197
Lab Order:	N011982	**Collection Date:**	2/10/2014 9:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Arsenic	1.6	0.027	0.10		µg/L	1	2/13/2014 03:12 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 8:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Arsenic	13	0.027	0.10		µg/L	1	2/13/2014 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 9:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Arsenic	2.2	0.027	0.10		µg/L	1	2/13/2014 03:57 PM
Manganese	1100	0.64	12		µg/L	25	2/13/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Arsenic	5.5	0.027	0.10		µg/L	1	2/13/2014 04:35 PM
Manganese	ND	0.026	0.50		µg/L	1	2/13/2014 04:35 PM
Molybdenum	81	0.15	0.50		µg/L	1	2/13/2014 04:35 PM
Selenium	ND	0.069	0.50		µg/L	1	2/13/2014 04:35 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 2:55:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:		**2/12/2014**	Analyst: **CEI**
Arsenic	3.4	0.027	0.10		µg/L	1	2/13/2014 04:46 PM
Manganese	410	0.13	2.5		µg/L	5	2/14/2014 02:06 PM
Molybdenum	160	0.15	0.50		µg/L	1	2/13/2014 04:46 PM
Selenium	ND	0.069	0.50		µg/L	1	2/13/2014 04:46 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 2:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Molybdenum	190	0.76	2.5		µg/L	5	2/13/2014 05:03 PM
Selenium	ND	0.34	2.5		µg/L	5	2/13/2014 05:03 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 12:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Arsenic	3.5	0.027	0.10		µg/L	1	2/13/2014 05:09 PM
Manganese	420	0.13	2.5		µg/L	5	2/14/2014 02:12 PM
Molybdenum	160	0.15	0.50		µg/L	1	2/13/2014 05:09 PM
Selenium	ND	0.069	0.50		µg/L	1	2/13/2014 05:09 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-197
Lab Order:	N011982	**Collection Date:**	2/11/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011982-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140213A**	QC Batch: **45016**			PrepDate:	**2/12/2014**		Analyst: **CEI**
Molybdenum	200	0.76	2.5		µg/L	5	2/13/2014 06:16 PM
Selenium	ND	0.34	2.5		µg/L	5	2/13/2014 06:16 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

CLIENT: CH2M HILL
Work Order: N011982
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-45016**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/12/2014**	RunNo: **92387**
Client ID: **PBW**	Batch ID: **45016**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/13/2014**	SeqNo: **1737707**

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-45016**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/12/2014**	RunNo: **92387**
Client ID: **LCSW**	Batch ID: **45016**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/13/2014**	SeqNo: **1737708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.875	0.10	10.00	0	98.7	85	115				
Manganese	96.743	0.50	100.0	0	96.7	85	115				
Molybdenum	9.948	0.50	10.00	0	99.5	85	115				
Selenium	9.642	0.50	10.00	0	96.4	85	115				

Sample ID: **N011981-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/12/2014**	RunNo: **92387**
Client ID: **ZZZZZZ**	Batch ID: **45016**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/13/2014**	SeqNo: **1737714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	28.204	0.10	10.00	18.18	100	75	125				
Manganese	98.641	0.50	100.0	0	98.6	75	125				
Molybdenum	24.072	0.50	10.00	12.09	120	75	125				
Selenium	10.789	0.50	10.00	0.9245	98.6	75	125				

Sample ID: **N011981-001D-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/12/2014**	RunNo: **92387**
Client ID: **ZZZZZZ**	Batch ID: **45016**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/13/2014**	SeqNo: **1737716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	28.443	0.10	10.00	18.18	103	75	125	28.20	0.844	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: N011982
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011981-001D-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/12/2014** RunNo: **92387**
Client ID: **ZZZZZZ** Batch ID: **45016** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/13/2014** SeqNo: **1737716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	97.430	0.50	100.0	0	97.4	75	125	98.64	1.24	20	
Molybdenum	23.828	0.50	10.00	12.09	117	75	125	24.07	1.02	20	
Selenium	10.942	0.50	10.00	0.9245	100	75	125	10.79	1.41	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** *2/11/2014 3:53:35 PM* Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/11/2014
COC Number: 2

	Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1x1 Liter	1x1 Liter			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C			
	Filtered:	Field	Field	Field	Field	NA	NA			
	Holding Time:	180	180	180	180	28	28			
		Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mn	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Anions (E300.0) Fluoride	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-27-060-197	2/10/2014 14:20 Water	X			X	X	X	N011982-1	2	
MW-27-085-197	2/10/2014 15:32 Water	X			X	X	X	-2	2	
MW-34-080-197	2/10/2014 12:12 Water	X						-3	1	
MW-34-100-197	2/10/2014 9:46 Water	X						-4	1	
MW-42-055-197	2/11/2014 8:08 Water	X						-5	1	
MW-42-065-197	2/11/2014 9:46 Water	X	X					-6	1	
MW-44-115-197	2/11/2014 12:10 Water	X			X		X	-7	2	
MW-44-125-197	2/11/2014 14:55 Water	X			X		X	-8	2	
MW-46-175-197	2/11/2014 14:02 Water			X			X	-9	2	
MW-93-197	2/11/2014 12:10 Water	X			X		X	-10	2	
MW-94-197	2/11/2014 7:00 Water			X			X	-11	2	
								TOTAL NUMBER OF CONTAINERS	18	

Signatures	Date/Time
Approved by	2-11-14
Sampled by	1600
Relinquished by	
Received by	JEFFREY SAYLES 11FEB14 1600
Relinquished by	JEFFREY SAYLES 11FEB14 1817
Received by	Johnny HGLODOVIZA 2/11/14 1817

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 2.6°C IR2
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 2/11/2014 Workorder: N011982

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 2/12/2014

Reviewed By: 2014-02-13

Sample Calculation

METHOD: EPA 300.0
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 **N011982-001B** concentration in mg/L is calculated as follows:

Fluoride, mg/L = 0.699 * 1

= 0.699

Reporting result in two significant figures,

Fluoride, mg/L = 0.70

2/25/2014

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 **N011982-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 6.54067375239355 * 1 * (25/25)

= 6.54067375239355

Reporting results in two significant figures,

Arsenic, ug/L = 6.5

2/25/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011982
Test Method: EPA 6020
Analysis Date: 02/13/14

Matrix: Water
Batch No.: 45016

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

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011981-001D-DT 5X	Arsenic	µg/L	18.72658	PASS	18.18444877	2.98%	10
N011981-001D-DT 5X	Manganese	µg/L	0	NA	0		10
N011981-001D-DT 5X	Molybdenum	µg/L	12.02773911	NA	12.09438417	0.55%	10
N011981-001D-DT 5X	Selenium	µg/L	0.89524046	NA	0.924481918	3.16%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N011982
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011981-001D-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **92387**
Client ID: **ZZZZZZ** Batch ID: **45016** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/13/2014** SeqNo: **1737712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	39.754	0.20	20.00	18.18	108	80	120				
Manganese	193.887	1.0	200.0	0	96.9	80	120				
Molybdenum	35.281	1.0	20.00	12.09	116	80	120				
Selenium	20.652	1.0	20.00	0.9245	98.6	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		

February 26, 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-00922

Workorder No.: N011988

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 12, 2014 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.

Analytical Comments for EPA 300.0:

Dilution was necessary on samples N011988-004, N011988-005 and N011988-007 due to precipitation of samples upon the addition of eluent.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N011988-004, N011988-005 and N011988-007 due to failed Internal Standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.

Date: *26-Feb-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N011988
Contract No: 2014-GMP-197-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N011988-001A	MW-28-090-197	Water	2/12/2014 7:36:00 AM	2/12/2014	2/26/2014
N011988-001B	MW-28-090-197	Water	2/12/2014 7:36:00 AM	2/12/2014	2/26/2014
N011988-002A	MW-33-040-197	Water	2/12/2014 9:44:00 AM	2/12/2014	2/26/2014
N011988-002B	MW-33-040-197	Water	2/12/2014 9:44:00 AM	2/12/2014	2/26/2014
N011988-003A	MW-33-090-197	Water	2/12/2014 10:51:00 AM	2/12/2014	2/26/2014
N011988-003B	MW-33-090-197	Water	2/12/2014 10:51:00 AM	2/12/2014	2/26/2014
N011988-004A	MW-33-150-197	Water	2/12/2014 11:41:00 AM	2/12/2014	2/26/2014
N011988-004B	MW-33-150-197	Water	2/12/2014 11:41:00 AM	2/12/2014	2/26/2014
N011988-005A	MW-33-210-197	Water	2/12/2014 12:33:00 PM	2/12/2014	2/26/2014
N011988-005B	MW-33-210-197	Water	2/12/2014 12:33:00 PM	2/12/2014	2/26/2014
N011988-006A	MW-63-065-197	Water	2/12/2014 2:28:00 PM	2/12/2014	2/26/2014
N011988-006B	MW-63-065-197	Water	2/12/2014 2:28:00 PM	2/12/2014	2/26/2014
N011988-007A	MW-91-197	Water	2/12/2014 7:00:00 AM	2/12/2014	2/26/2014
N011988-007B	MW-91-197	Water	2/12/2014 7:00:00 AM	2/12/2014	2/26/2014

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 7:36:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140213A**	QC Batch: **R92362**			PrepDate:			Analyst: **LCC**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	2/13/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 9:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140213A**	QC Batch: **R92362**			PrepDate:			Analyst: **LCC**
Specific Conductance	7100	0.10	0.10		umhos/cm	1	2/13/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-33-090-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 10:51:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140213A**	QC Batch: **R92362**			PrepDate:			Analyst: **LCC**
Specific Conductance	9900	0.10	0.10		umhos/cm	1	2/13/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 11:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140213A**	QC Batch: **R92362**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	2/13/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-33-210-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 12:33:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140213A**	QC Batch: **R92362**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	2/13/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-63-065-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 2:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140213A**	QC Batch: **R92362**			PrepDate:			Analyst: **LCC**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	2/13/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-91-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140213A**	QC Batch: **R92362**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	2/13/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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: N011988
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N011988-001B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **92362**
Client ID: **ZZZZZZ** Batch ID: **R92362** TestNo: **EPA 120.1** Analysis Date: **2/13/2014** SeqNo: **1736585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6930.000	0.10						6950	0.288	10	

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	**Client Sample ID:**	MW-28-090-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 7:36:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_140213A**	QC Batch: **R92388**			PrepDate:			Analyst: **QBM**
Fluoride	4.1	0.068	1.0		mg/L	10	2/13/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 9:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_140213A**	QC Batch: **R92388**			PrepDate:			Analyst: **QBM**
Fluoride	12	0.068	1.0		mg/L	10	2/13/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 10:51:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_140213A**	QC Batch: **R92388**			PrepDate:			Analyst: **QBM**
Fluoride	5.2	0.068	1.0		mg/L	10	2/13/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 11:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_140213A**	QC Batch: **R92388**			PrepDate:			Analyst: **QBM**
Fluoride	ND	0.068	1.0		mg/L	10	2/13/2014 04:00 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 12:33:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_140213A**	QC Batch: **R92388**			PrepDate:			Analyst: **QBM**
Fluoride	ND	0.068	1.0		mg/L	10	2/13/2014 04:13 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_140213A**	QC Batch: **R92388**			PrepDate:			Analyst: **QBM**
Fluoride	ND	0.068	1.0		mg/L	10	2/13/2014 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

CLIENT: CH2M HILL
Work Order: N011988
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R92388_F**	SampType: **MBLK**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92388**			
Client ID: **PBW**	Batch ID: **R92388**	TestNo: **EPA 300.0**		Analysis Date: **2/13/2014**			SeqNo: **1738044**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID: **LCS-R92388_F**	SampType: **LCS**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92388**			
Client ID: **LCSW**	Batch ID: **R92388**	TestNo: **EPA 300.0**		Analysis Date: **2/13/2014**			SeqNo: **1738045**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.454	0.10	2.500	0	98.2	90	110				

Sample ID: **N011987-001EDUP**	SampType: **DUP**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92388**			
Client ID: **ZZZZZZ**	Batch ID: **R92388**	TestNo: **EPA 300.0**		Analysis Date: **2/13/2014**			SeqNo: **1738047**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	3.825	0.50						3.970	3.72	20	

Sample ID: **N011987-001EMS**	SampType: **MS**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92388**			
Client ID: **ZZZZZZ**	Batch ID: **R92388**	TestNo: **EPA 300.0**		Analysis Date: **2/13/2014**			SeqNo: **1738048**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	16.115	0.50	12.50	3.970	97.2	80	120				

Sample ID: **N011987-001EMSD**	SampType: **MSD**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:			RunNo: **92388**			
Client ID: **ZZZZZZ**	Batch ID: **R92388**	TestNo: **EPA 300.0**		Analysis Date: **2/13/2014**			SeqNo: **1738049**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	16.135	0.50	12.50	3.970	97.3	80	120	16.12	0.124	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	**Client Sample ID:**	MW-28-090-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 7:36:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140218A**	QC Batch: **45057**			PrepDate:	**2/18/2014**		Analyst: **CEI**
Arsenic	1.7	0.027	0.10		µg/L	1	2/18/2014 02:41 PM
Manganese	100	0.026	0.50		µg/L	1	2/18/2014 02:41 PM
Molybdenum	20	0.15	0.50		µg/L	1	2/18/2014 02:41 PM
Selenium	ND	0.069	0.50		µg/L	1	2/18/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 9:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140218A**	QC Batch: **45057**			PrepDate:	**2/18/2014**		Analyst: **CEI**
Arsenic	13	0.027	0.10		µg/L	1	2/18/2014 03:51 PM
Manganese	ND	0.026	0.50		µg/L	1	2/18/2014 03:51 PM
Molybdenum	170	0.15	0.50		µg/L	1	2/18/2014 03:51 PM
Selenium	0.55	0.069	0.50		µg/L	1	2/18/2014 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		

CLIENT: CH2M HILL
Lab Order: N011988
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N011988-003

Client Sample ID: MW-33-090-197
Collection Date: 2/12/2014 10:51:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140218A**	QC Batch: **45057**			PrepDate:		**2/18/2014**	Analyst: **CEI**
Arsenic	1.3	0.027	0.10		µg/L	1	2/18/2014 05:10 PM
Manganese	ND	0.026	0.50		µg/L	1	2/18/2014 05:10 PM
Molybdenum	17	0.15	0.50		µg/L	1	2/18/2014 05:10 PM
Selenium	0.55	0.069	0.50		µg/L	1	2/18/2014 05:10 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 11:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140218A**	QC Batch: **45057**			PrepDate:	**2/18/2014**		Analyst: **CEI**
Arsenic	1.6	0.027	0.10		µg/L	1	2/18/2014 04:15 PM
Manganese	3.9	0.026	0.50		µg/L	1	2/18/2014 04:15 PM
Molybdenum	36	0.15	0.50		µg/L	1	2/18/2014 04:15 PM
Selenium	ND	0.34	2.5		µg/L	5	2/18/2014 04:21 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 12:33:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140218A**	QC Batch: **45057**			PrepDate:	**2/18/2014**		Analyst: **CEI**
Arsenic	1.1	0.027	0.10		µg/L	1	2/18/2014 04:26 PM
Manganese	4.8	0.026	0.50		µg/L	1	2/18/2014 04:26 PM
Molybdenum	18	0.76	2.5		µg/L	5	2/18/2014 04:32 PM
Selenium	ND	0.34	2.5		µg/L	5	2/18/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 2:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140218A**	QC Batch: **45057**			PrepDate:	**2/18/2014**		Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	2/18/2014 04:43 PM
Manganese	ND	0.026	0.50		µg/L	1	2/18/2014 04:43 PM
Molybdenum	20	0.15	0.50		µg/L	1	2/18/2014 04:43 PM
Selenium	1.0	0.069	0.50		µg/L	1	2/18/2014 04:43 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-197
Lab Order:	N011988	**Collection Date:**	2/12/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N011988-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140218A**	QC Batch: **45057**			PrepDate:	**2/18/2014**		Analyst: **CEI**
Arsenic	1.7	0.027	0.10		µg/L	1	2/18/2014 04:48 PM
Manganese	4.1	0.026	0.50		µg/L	1	2/18/2014 04:48 PM
Molybdenum	40	0.76	2.5		µg/L	5	2/18/2014 05:41 PM
Selenium	ND	0.34	2.5		µg/L	5	2/18/2014 05:41 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		

CLIENT: CH2M HILL
Work Order: N011988
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-45057**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/18/2014**	RunNo: **92433**
Client ID: **PBW**	Batch ID: **45057**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/18/2014**	SeqNo: **1739292**

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-45057**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/18/2014**	RunNo: **92433**
Client ID: **LCSW**	Batch ID: **45057**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/18/2014**	SeqNo: **1739293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.151	0.10	10.00	0	112	85	115				
Manganese	107.414	0.50	100.0	0	107	85	115				
Molybdenum	10.895	0.50	10.00	0	109	85	115				
Selenium	10.669	0.50	10.00	0	107	85	115				

Sample ID: **N011987-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/18/2014**	RunNo: **92433**
Client ID: **ZZZZZZ**	Batch ID: **45057**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/18/2014**	SeqNo: **1739297**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	26.511	0.10	10.00	15.63	109	75	125				
Manganese	98.066	0.50	100.0	0	98.1	75	125				
Molybdenum	20.965	0.50	10.00	9.014	120	75	125				
Selenium	10.965	0.50	10.00	0.7869	102	75	125				

Sample ID: **N011987-001D-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/18/2014**	RunNo: **92433**
Client ID: **ZZZZZZ**	Batch ID: **45057**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/18/2014**	SeqNo: **1739298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	26.607	0.10	10.00	15.63	110	75	125	26.51	0.361	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

CLIENT: CH2M HILL
Work Order: N011988
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011987-001D-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/18/2014** RunNo: **92433**
Client ID: **ZZZZZZ** Batch ID: **45057** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/18/2014** SeqNo: **1739298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	97.840	0.50	100.0	0	97.8	75	125	98.07	0.231	20	
Molybdenum	20.959	0.50	10.00	9.014	119	75	125	20.96	0.0286	20	
Selenium	11.022	0.50	10.00	0.7869	102	75	125	10.96	0.517	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** *2/12/2014 3:14:09 PM* Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/14/2014
COC Number: 5

				Container:	500 ml Poly	500 ml Poly	1x1 Liter	1x1 Liter			
				Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C			
				Filtered:	Field	Field	NA	NA			
				Holding Time:	180	180	28	28			
	DATE	TIME	Matrix		Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mo,Se,Mn	Anions (E300.0) Fluoride	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-28-090-197	2/12/2014	7:36	Water		X	X	X	X	N011988-1	2	
MW-33-040-197	2/12/2014	9:44	Water		X	X	X	X	-2	2	
MW-33-090-197	2/12/2014	10:51	Water		X	X	X	X	-3	2	
MW-33-150-197	2/12/2014	11:41	Water		X	X	X	X	-4	2	
MW-33-210-197	2/12/2014	12:33	Water		X	X	X	X	-5	2	
MW-63-065-197	2/12/2014	14:28	Water		X	X		X	-6	2	
MW-91-197	2/12/2014	7:00	Water		X	X	X	X	-7	2	
									TOTAL NUMBER OF CONTAINERS	14	

	Signatures	Date/Time
Approved by		2-12-14
Sampled by		1575
Relinquished by		2/12/14 1515
Received by		2/12/14 1710
Relinquished by		2/12/14 1710
Received by		

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 5.5 °C
Airbill No: 1244
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 2/12/2014 Workorder: N011988

Rep sample Temp (Deg C): 3.3 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 B HG 2/13/2014

Reviewed By: 2014-02-14

Sample Calculation

METHOD: EPA 300.0
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 **N011988-002B** concentration in mg/L is calculated as follows:

Fluoride, mg/L = 1.198 * 10

= 11.98

Reporting result in two significant figures,

Fluoride, mg/L = 12

2/26/2014

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 **N011988-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.65470907307424 * 1 * (25/25)

= 1.65470907307424

Reporting results in two significant figures,

Arsenic, ug/L = 1.7

Nancy 2/25/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N011988
Test Method: EPA 6020
Analysis Date: 02/18/14

Matrix: Water
Batch No.: 45057

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

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N011987-001D-DT 5X	Arsenic	µg/L	17.01992439	PASS	15.62778575	8.91%	10
N011987-001D-DT 5X	Manganese	µg/L	0	NA	0		10
N011987-001D-DT 5X	Molybdenum	µg/L	9.47	NA	9.014	5.06%	10
N011987-001D-DT 5X	Selenium	µg/L	0.840292002	NA	0.786869408	6.79%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N011988
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N011987-001D-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **92433**
Client ID: **ZZZZZZ** Batch ID: **45057** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/18/2014** SeqNo: **1739296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	38.308	0.20	20.00	15.63	113	80	120				
Manganese	194.634	1.0	200.0	0	97.3	80	120				
Molybdenum	31.998	1.0	20.00	9.014	115	80	120				
Selenium	20.811	1.0	20.00	0.7869	100	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

March 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-00922

Workorder No.: N012017

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 20, 2014 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.

Analytical Comments for EPA 6010B_Dissolved:

Dilution was necessary on samples N012017-003, N012017-006, N012017-008, N012017-010, N012017-012, N012017-013, N012017-014, N012017-015, N012017-017 and N012017-020 due to failed Internal Standard when samples were analyzed at no dilution.

Dilution was necessary on sample N012017-001 for Arsenic due to failed Internal Standard on N012017-001A-MS/MSD when QC samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.

Date: *06-Mar-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N012017
Contract No: 2014-GMP-197-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012017-001A	MW-23-060-197	Water	2/13/2014 1:56:00 PM	2/20/2014	3/6/2014
N012017-002A	MW-23-080-197	Water	2/13/2014 3:22:00 PM	2/20/2014	3/6/2014
N012017-003A	MW-57-185-197	Water	2/13/2014 11:19:00 AM	2/20/2014	3/6/2014
N012017-003B	MW-57-185-197	Water	2/13/2014 11:19:00 AM	2/20/2014	3/6/2014
N012017-004A	MW-35-060-197	Water	2/17/2014 8:24:00 AM	2/20/2014	3/6/2014
N012017-004B	MW-35-060-197	Water	2/17/2014 8:24:00 AM	2/20/2014	3/6/2014
N012017-005A	MW-70-105-197	Water	2/17/2014 2:22:00 PM	2/20/2014	3/6/2014
N012017-005B	MW-70-105-197	Water	2/17/2014 2:22:00 PM	2/20/2014	3/6/2014
N012017-006A	MW-72BR-200-197	Water	2/17/2014 2:08:00 PM	2/20/2014	3/6/2014
N012017-006B	MW-72BR-200-197	Water	2/17/2014 2:08:00 PM	2/20/2014	3/6/2014
N012017-007A	MW-92-197	Water	2/17/2014 7:00:00 AM	2/20/2014	3/6/2014
N012017-007B	MW-92-197	Water	2/17/2014 7:00:00 AM	2/20/2014	3/6/2014
N012017-008A	MW-95-197	Water	2/17/2014 7:00:00 AM	2/20/2014	3/6/2014
N012017-008B	MW-95-197	Water	2/17/2014 7:00:00 AM	2/20/2014	3/6/2014
N012017-009A	MW-71-035-197	Water	2/18/2014 11:00:00 AM	2/20/2014	3/6/2014
N012017-009B	MW-71-035-197	Water	2/18/2014 11:00:00 AM	2/20/2014	3/6/2014
N012017-010A	MW-72-080-197	Water	2/18/2014 10:30:00 AM	2/20/2014	3/6/2014
N012017-010B	MW-72-080-197	Water	2/18/2014 10:30:00 AM	2/20/2014	3/6/2014
N012017-011A	MW-73-080-197	Water	2/18/2014 10:30:00 AM	2/20/2014	3/6/2014
N012017-011B	MW-73-080-197	Water	2/18/2014 10:30:00 AM	2/20/2014	3/6/2014
N012017-012A	MW-60BR-245-197	Water	2/19/2014 11:45:00 AM	2/20/2014	3/6/2014
N012017-012B	MW-60BR-245-197	Water	2/19/2014 11:45:00 AM	2/20/2014	3/6/2014
N012017-013A	MW-61-110-197	Water	2/19/2014 11:28:00 AM	2/20/2014	3/6/2014
N012017-013B	MW-61-110-197	Water	2/19/2014 11:28:00 AM	2/20/2014	3/6/2014
N012017-014A	MW-62-110-197	Water	2/19/2014 2:20:00 PM	2/20/2014	3/6/2014
N012017-014B	MW-62-110-197	Water	2/19/2014 2:20:00 PM	2/20/2014	3/6/2014
N012017-015A	MW-62-190-197	Water	2/19/2014 2:25:00 PM	2/20/2014	3/6/2014
N012017-015B	MW-62-190-197	Water	2/19/2014 2:25:00 PM	2/20/2014	3/6/2014
N012017-016A	MW-65-160-197	Water	2/19/2014 8:04:00 AM	2/20/2014	3/6/2014

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

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N012017
Contract No: 2014-GMP-197-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012017-016B	MW-65-160-197	Water	2/19/2014 8:04:00 AM	2/20/2014	3/6/2014
N012017-017A	MW-65-225-197	Water	2/19/2014 8:32:00 AM	2/20/2014	3/6/2014
N012017-017B	MW-65-225-197	Water	2/19/2014 8:32:00 AM	2/20/2014	3/6/2014
N012017-018A	MW-66-165-197	Water	2/19/2014 9:32:00 AM	2/20/2014	3/6/2014
N012017-018B	MW-66-165-197	Water	2/19/2014 9:32:00 AM	2/20/2014	3/6/2014
N012017-019A	MW-69-195-197	Water	2/19/2014 10:12:00 AM	2/20/2014	3/6/2014
N012017-019B	MW-69-195-197	Water	2/19/2014 10:12:00 AM	2/20/2014	3/6/2014
N012017-020A	TW-01-197	Water	2/20/2014 8:18:00 AM	2/20/2014	3/6/2014
N012017-020B	TW-01-197	Water	2/20/2014 8:18:00 AM	2/20/2014	3/6/2014

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-197
Lab Order:	N012017	**Collection Date:**	2/13/2014 11:19:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-35-060-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 8:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72BR-200-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 2:08:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-92-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	6400	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-95-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-197
Lab Order:	N012017	**Collection Date:**	2/18/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	8400	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-72-080-197
Lab Order:	N012017	**Collection Date:**	2/18/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-73-080-197
Lab Order:	N012017	**Collection Date:**	2/18/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-60BR-245-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-61-110-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 11:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-62-110-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	8600	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-62-190-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 2:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 8:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	4000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-65-225-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 8:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 9:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	4400	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 10:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	TW-01-197
Lab Order:	N012017	**Collection Date:**	2/20/2014 8:18:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140221B**	QC Batch: **R92480**			PrepDate:			Analyst: **LCC**
Specific Conductance	7200	0.10	0.10		umhos/cm	1	2/21/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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: N012017
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N012017-010B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **92480**
Client ID: **ZZZZZZ** Batch ID: **R92480** TestNo: **EPA 120.1** Analysis Date: **2/21/2014** SeqNo: **1740846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16210.000	0.10						16190	0.123	10	

Sample ID: **N012017-020B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **92480**
Client ID: **ZZZZZZ** Batch ID: **R92480** TestNo: **EPA 120.1** Analysis Date: **2/21/2014** SeqNo: **1740858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7220.000	0.10						7220	0	10	

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-197
Lab Order:	N012017	**Collection Date:**	2/13/2014 1:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	3.6	0.13	0.50		µg/L	5	2/24/2014 11:54 AM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 11:49 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-080-197
Lab Order:	N012017	**Collection Date:**	2/13/2014 3:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	3.6	0.027	0.10		µg/L	1	2/24/2014 12:17 PM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 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		

CLIENT: CH2M HILL
Lab Order: N012017
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012017-003

Client Sample ID: MW-57-185-197
Collection Date: 2/13/2014 11:19:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	13	0.027	0.10		µg/L	1	2/24/2014 12:28 PM
Manganese	180	0.13	2.5		µg/L	5	2/24/2014 01:17 PM
Molybdenum	87	0.76	2.5		µg/L	5	2/24/2014 01:17 PM
Selenium	ND	0.34	2.5		µg/L	5	2/24/2014 01:17 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 8:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	1.1	0.027	0.10		µg/L	1	2/24/2014 01:23 PM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 01:23 PM
Molybdenum	9.5	0.15	0.50		µg/L	1	2/24/2014 01:23 PM
Selenium	1.1	0.069	0.50		µg/L	1	2/24/2014 01:23 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	5.0	0.027	0.10		µg/L	1	2/24/2014 01:28 PM
Manganese	140	0.026	0.50		µg/L	1	2/24/2014 01:28 PM
Molybdenum	94	0.15	0.50		µg/L	1	2/24/2014 01:28 PM
Selenium	4.0	0.069	0.50		µg/L	1	2/24/2014 01:28 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72BR-200-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 2:08:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	15	0.027	0.10		µg/L	1	2/24/2014 01:34 PM
Manganese	7.2	0.026	0.50		µg/L	1	2/24/2014 01:34 PM
Molybdenum	79	0.76	2.5		µg/L	5	2/24/2014 01:39 PM
Selenium	ND	0.34	2.5		µg/L	5	2/24/2014 01:39 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**	Analyst: **CEI**	
Arsenic	1.0	0.027	0.10		µg/L	1	2/24/2014 01:45 PM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 01:45 PM
Molybdenum	9.9	0.15	0.50		µg/L	1	2/24/2014 01:45 PM
Selenium	1.1	0.069	0.50		µg/L	1	2/24/2014 01:45 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-95-197
Lab Order:	N012017	**Collection Date:**	2/17/2014 7:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	15	0.027	0.10		µg/L	1	2/24/2014 01:50 PM
Manganese	7.1	0.026	0.50		µg/L	1	2/24/2014 01:50 PM
Molybdenum	78	0.76	2.5		µg/L	5	2/24/2014 01:56 PM
Selenium	ND	0.34	2.5		µg/L	5	2/24/2014 01:56 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-197
Lab Order:	N012017	**Collection Date:**	2/18/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**	Analyst: **CEI**	
Arsenic	1.5	0.027	0.10		µg/L	1	2/24/2014 02:01 PM
Manganese	16	0.026	0.50		µg/L	1	2/24/2014 02:01 PM
Molybdenum	62	0.15	0.50		µg/L	1	2/24/2014 02:01 PM
Selenium	3.9	0.069	0.50		µg/L	1	2/24/2014 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-197
Lab Order:	N012017	**Collection Date:**	2/18/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**	Analyst: **CEI**	
Arsenic	12	0.027	0.10		µg/L	1	2/24/2014 02:07 PM
Manganese	36	0.026	0.50		µg/L	1	2/24/2014 02:07 PM
Molybdenum	80	0.76	2.5		µg/L	5	2/24/2014 02:44 PM
Selenium	ND	0.34	2.5		µg/L	5	2/24/2014 02:44 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-197
Lab Order:	N012017	**Collection Date:**	2/18/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	1.5	0.027	0.10		µg/L	1	2/24/2014 02:49 PM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 02:49 PM
Molybdenum	21	0.76	2.5		µg/L	5	2/24/2014 02:55 PM
Selenium	5.5	0.34	2.5		µg/L	5	2/24/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 11:45:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	6.4	0.027	0.10		µg/L	1	2/24/2014 03:01 PM
Manganese	25	0.026	0.50		µg/L	1	2/24/2014 03:01 PM
Molybdenum	61	0.76	2.5		µg/L	5	2/24/2014 03:06 PM
Selenium	ND	0.34	2.5		µg/L	5	2/24/2014 03:06 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 11:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	3.5	0.027	0.10		µg/L	1	2/24/2014 03:12 PM
Manganese	120	0.026	0.50		µg/L	1	2/24/2014 03:12 PM
Molybdenum	22	0.76	2.5		µg/L	5	2/24/2014 03:17 PM
Selenium	ND	0.34	2.5		µg/L	5	2/24/2014 03:17 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 2:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	5.6	0.027	0.10		µg/L	1	2/24/2014 03:23 PM
Manganese	59	0.026	0.50		µg/L	1	2/24/2014 03:23 PM
Molybdenum	47	0.15	0.50		µg/L	1	2/24/2014 03:23 PM
Selenium	3.4	0.34	2.5		µg/L	5	2/25/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 2:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	4.9	0.027	0.10		µg/L	1	2/24/2014 03:28 PM
Manganese	500	0.13	2.5		µg/L	5	2/24/2014 03:34 PM
Molybdenum	80	0.76	2.5		µg/L	5	2/24/2014 03:34 PM
Selenium	ND	0.34	2.5		µg/L	5	2/24/2014 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 8:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**	Analyst: **CEI**	
Arsenic	0.89	0.027	0.10		µg/L	1	2/24/2014 03:51 PM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 03:51 PM
Molybdenum	24	0.15	0.50		µg/L	1	2/24/2014 03:51 PM
Selenium	8.6	0.069	0.50		µg/L	1	2/24/2014 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 8:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	2.4	0.027	0.10		µg/L	1	2/24/2014 03:56 PM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 03:56 PM
Molybdenum	36	0.76	2.5		µg/L	5	2/24/2014 04:02 PM
Selenium	6.6	0.34	2.5		µg/L	5	2/24/2014 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-197
Lab Order:	N012017	**Collection Date:**	2/19/2014 9:32:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Arsenic	1.2	0.027	0.10		µg/L	1	2/24/2014 04:07 PM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 04:07 PM
Molybdenum	5.8	0.15	0.50		µg/L	1	2/24/2014 04:07 PM
Selenium	38	0.069	0.50		µg/L	1	2/24/2014 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

CLIENT: CH2M HILL
Lab Order: N012017
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012017-019

Client Sample ID: MW-69-195-197
Collection Date: 2/19/2014 10:12:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**	Analyst: **CEI**	
Arsenic	2.4	0.027	0.10		µg/L	1	2/24/2014 04:13 PM
Manganese	ND	0.026	0.50		µg/L	1	2/24/2014 04:13 PM
Molybdenum	81	0.15	0.50		µg/L	1	2/24/2014 04:13 PM
Selenium	12	0.069	0.50		µg/L	1	2/24/2014 04:13 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-197
Lab Order:	N012017	**Collection Date:**	2/20/2014 8:18:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012017-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140224A**	QC Batch: **45093**			PrepDate:	**2/21/2014**		Analyst: **CEI**
Molybdenum	15	0.15	0.50		µg/L	1	2/24/2014 04:18 PM
Selenium	20	0.34	2.5		µg/L	5	2/24/2014 04:24 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		

CLIENT: CH2M HILL
Work Order: N012017
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-45093** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/21/2014** RunNo: **92503**
Client ID: **PBW** Batch ID: **45093** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/24/2014** SeqNo: **1741642**

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-45093** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/21/2014** RunNo: **92503**
Client ID: **LCSW** Batch ID: **45093** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/24/2014** SeqNo: **1741643**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.189	0.10	10.00	0	102	85	115				
Manganese	97.181	0.50	100.0	0	97.2	85	115				
Molybdenum	9.824	0.50	10.00	0	98.2	85	115				
Selenium	9.947	0.50	10.00	0	99.5	85	115				

Sample ID: **N012017-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/21/2014** RunNo: **92503**
Client ID: **ZZZZZZ** Batch ID: **45093** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/24/2014** SeqNo: **1741647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	87.698	0.50	100.0	0.07982	87.6	75	125				

Sample ID: **N012017-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/21/2014** RunNo: **92503**
Client ID: **ZZZZZZ** Batch ID: **45093** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/24/2014** SeqNo: **1741648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	88.180	0.50	100.0	0.07982	88.1	75	125	87.70	0.549	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

CLIENT: CH2M HILL
Work Order: N012017
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N012017-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/21/2014**	RunNo: **92503**
Client ID: **ZZZZZZ**	Batch ID: **45093**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/24/2014**	SeqNo: **1741688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.729	0.50	10.00	3.573	112	75	125				
Molybdenum	28.319	2.5	10.00	16.60	117	75	125				
Selenium	16.210	2.5	10.00	4.619	116	75	125				

Sample ID: **N012017-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/21/2014**	RunNo: **92503**
Client ID: **ZZZZZZ**	Batch ID: **45093**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/24/2014**	SeqNo: **1741691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.263	0.50	10.00	3.573	107	75	125	14.73	3.22	20	
Molybdenum	27.776	2.5	10.00	16.60	112	75	125	28.32	1.94	20	
Selenium	14.901	2.5	10.00	4.619	103	75	125	16.21	8.41	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** *2/20/2014 2:40:55 PM* Page 1 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.03
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/20/2014
COC Number: 7

	Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1x1 Liter			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C			
	Filtered:	Field	Field	Field	Field	NA			
	Holding Time:	180	180	180	180	28			
		Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mn	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-23-060-197	2/13/2014 13:56 Water	X	X				N0120 17 -1	1	
MW-23-080-197	2/13/2014 15:22 Water	X	X				-2	1	
MW-57-185-197	2/13/2014 11:19 Water	X			X	X	-3	2	
MW-35-060-197	2/17/2014 8:24 Water	X			X	X	-4	2	
MW-70-105-197	2/17/2014 14:22 Water	X			X	X	-5	2	
MW-72BR-200-197	2/17/2014 14:08 Water	X			X	X	-6	2	
MW-92-197	2/17/2014 7:00 Water	X			X	X	-7	2	
MW-95-197	2/17/2014 7:00 Water	X			X	X	-8	2	
MW-71-035-197	2/18/2014 11:00 Water	X			X	X	-9	2	
MW-72-080-197	2/18/2014 10:30 Water	X			X	X	-10	2	
MW-73-080-197	2/18/2014 10:30 Water	X			X	X	-11	2	
MW-60BR-245-197	2/19/2014 11:45 Water	X			X	X	-12	2	
MW-61-110-197	2/19/2014 11:28 Water	X			X	X	-13	2	
MW-62-110-197	2/19/2014 14:20 Water	X			X	X	-14	2	

Signatures	Date/Time
Approved by	2-20-14
Sampled by	1445
Relinquished by	
Received by	HERSEY SAYLES 20FEB14 1445
Relinquished by	HERSEY SAYLES 20FEB14 1658
Received by	Amanda Cortes 20FEB14 1658

Shipping Details
Method of Shipment: courier
On Ice: (yes) no 4.8, 3.7 °C
Airbill No: 182
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL **CHAIN OF CUSTODY RECORD** *2/20/2014 2:40:55 PM* Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.03
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/20/2014
COC Number: 7

	Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1x1 Liter			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C			
	Filtered:	Field	Field	Field	Field	NA			
	Holding Time:	180	180	180	180	28			
		Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mn	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-62-190-197	2/19/2014 14:25 Water	X			X	X	NO12017 - 15	2	
MW-65-160-197	2/19/2014 8:04 Water	X			X	X	-16	2	
MW-65-225-197	2/19/2014 8:32 Water	X			X	X	-17	2	
MW-66-165-197	2/19/2014 9:32 Water	X			X	X	-18	2	
MW-69-195-197	2/19/2014 10:12 Water	X			X	X	-19	2	
TW-01-197	2/20/2014 8:18 Water			X		X	-20	2	
							TOTAL NUMBER OF CONTAINERS	38	

	Signatures	Date/Time
Approved by		2-20-14 1445
Sampled by		
Relinquished by		
Received by	Hersey Sykes	20Feb14 1445
Relinquished by	Hersey Sykes	20Feb14 1658
Received by		20Feb14 1658

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 4.8, 3.7°C
Airbill No: 1R2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	2/20/2014	Workorder:	N012017
Rep sample Temp (Deg C):	3.7, 4.8	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 B HG 2/21/2014

Reviewed By: 2014-02-26

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 **N012017-002A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 3.6395143029 * 1 * (25/25)

= 3.6395143029

Reporting results in two significant figures,

Arsenic, ug/L = 3.6

3/6/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N012017
Test Method: EPA 6020
Analysis Date: 02/24/14

Matrix: Water
Batch No.: 45093

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.
Dilution test is not applicable to ~~As, Mo and~~ Se. The calculated values ~~are~~ is <25X RL. PS @5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N012017-001A-DT 5X	Manganese	µg/L	0	NA	0.079815497	100.00%	10
N012017-001A-DT 25X	Arsenic	µg/L	3.368630813	NA	3.572783673	5.71%	10
N012017-001A-DT 25X	Molybdenum	µg/L	17.3681632	NA	16.60013356	4.63%	10
N012017-001A-DT 25X	Selenium	µg/L	4.4482371	NA	4.618607021	3.69%	10

Note: NA - Not applicable

3/6/2014

CLIENT: CH2M HILL
Work Order: N012017
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N012017-001A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **92503**
Client ID: **ZZZZZZ**	Batch ID: **45093**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/24/2014**	SeqNo: **1741646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	90.839	1.0	200.0	0.07982	45.4	75	125				S

Sample ID: **N012017-001A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **92503**
Client ID: **ZZZZZZ**	Batch ID: **45093**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/24/2014**	SeqNo: **1741687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	54.850	0.50	50.00	3.573	103	75	125				
Molybdenum	73.506	2.5	50.00	16.60	114	75	125				
Selenium	56.146	2.5	50.00	4.619	103	75	125				

S- however, MS/MSD is within criteria

3/6/2014

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		

March 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-00922

Workorder No.: N012043

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 27, 2014 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N012043

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on samples N012043-002, N012043-003, N012043-004, N012043-006, N012043-008, N012043-009, N012043-011, N012043-012 and N012043-015 due to failed Internal Standard when samples were analyzed at no dilution.

Dilution was necessary for Manganese on samples N012043-003, N012043-008, N012043-011, N012043-012 and N012043-015 possibly due to matrix interference. Manganese at no dilution has result >PQL. Samples were redigested and analyzed yielding the same result. Post spikes for all samples were recovered within 80-120%. Reported result of reanalysis.

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

Advanced Technology Laboratories, Inc.

Date: *13-Mar-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N012043
Contract No: 2014-GMP-197-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012043-001A	MW-67-185-197	Water	2/24/2014 9:30:00 AM	2/27/2014	3/13/2014
N012043-001B	MW-67-185-197	Water	2/24/2014 9:30:00 AM	2/27/2014	3/13/2014
N012043-002A	MW-67-225-197	Water	2/24/2014 7:38:00 AM	2/27/2014	3/13/2014
N012043-002B	MW-67-225-197	Water	2/24/2014 7:38:00 AM	2/27/2014	3/13/2014
N012043-003A	MW-67-260-197	Water	2/24/2014 8:11:00 AM	2/27/2014	3/13/2014
N012043-003B	MW-67-260-197	Water	2/24/2014 8:11:00 AM	2/27/2014	3/13/2014
N012043-004A	MW-12-197	Water	2/25/2014 8:56:00 AM	2/27/2014	3/13/2014
N012043-004B	MW-12-197	Water	2/25/2014 8:56:00 AM	2/27/2014	3/13/2014
N012043-005A	MW-58BR-197	Water	2/25/2014 3:25:00 PM	2/27/2014	3/13/2014
N012043-006A	MW-59-100-197	Water	2/25/2014 10:21:00 AM	2/27/2014	3/13/2014
N012043-006B	MW-59-100-197	Water	2/25/2014 10:21:00 AM	2/27/2014	3/13/2014
N012043-007A	MW-60-125-197	Water	2/25/2014 1:52:00 PM	2/27/2014	3/13/2014
N012043-007B	MW-60-125-197	Water	2/25/2014 1:52:00 PM	2/27/2014	3/13/2014
N012043-008A	MW-68-240-197	Water	2/25/2014 7:35:00 AM	2/27/2014	3/13/2014
N012043-008B	MW-68-240-197	Water	2/25/2014 7:35:00 AM	2/27/2014	3/13/2014
N012043-009A	MW-70BR-225-197	Water	2/25/2014 1:02:00 PM	2/27/2014	3/13/2014
N012043-009B	MW-70BR-225-197	Water	2/25/2014 1:02:00 PM	2/27/2014	3/13/2014
N012043-010A	MW-64BR-197	Water	2/26/2014 2:34:00 PM	2/27/2014	3/13/2014
N012043-011A	MW-66-230-197	Water	2/26/2014 7:09:00 AM	2/27/2014	3/13/2014
N012043-011B	MW-66-230-197	Water	2/26/2014 7:09:00 AM	2/27/2014	3/13/2014
N012043-012A	MW-66BR-270-197	Water	2/26/2014 7:16:00 AM	2/27/2014	3/13/2014
N012043-012B	MW-66BR-270-197	Water	2/26/2014 7:16:00 AM	2/27/2014	3/13/2014
N012043-013A	MW-74-240-197	Water	2/26/2014 8:08:00 AM	2/27/2014	3/13/2014
N012043-013B	MW-74-240-197	Water	2/26/2014 8:08:00 AM	2/27/2014	3/13/2014
N012043-014A	MW-68-180-197	Water	2/27/2014 10:12:00 AM	2/27/2014	3/13/2014
N012043-014B	MW-68-180-197	Water	2/27/2014 10:12:00 AM	2/27/2014	3/13/2014
N012043-015A	MW-68BR-280-197	Water	2/27/2014 9:22:00 AM	2/27/2014	3/13/2014
N012043-015B	MW-68BR-280-197	Water	2/27/2014 9:22:00 AM	2/27/2014	3/13/2014

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Mar-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-197
Lab Order:	N012043	**Collection Date:**	2/24/2014 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	5600	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-67-225-197
Lab Order:	N012043	**Collection Date:**	2/24/2014 7:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: CH2M HILL
Lab Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012043-003

Client Sample ID: MW-67-260-197
Collection Date: 2/24/2014 8:11:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-12-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	2/28/2014

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
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: *13-Mar-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 10:21:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	9900	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-60-125-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 1:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	9100	0.10	0.10		umhos/cm	1	2/28/2014

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
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: *13-Mar-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 7:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-70BR-225-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 1:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-66-230-197
Lab Order:	N012043	**Collection Date:**	2/26/2014 7:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	2/28/2014

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
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: *13-Mar-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-197
Lab Order:	N012043	**Collection Date:**	2/26/2014 7:16:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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-Mar-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-197
Lab Order:	N012043	**Collection Date:**	2/26/2014 8:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	880	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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-Mar-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-197
Lab Order:	N012043	**Collection Date:**	2/27/2014 10:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	4300	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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	**Client Sample ID:**	MW-68BR-280-197
Lab Order:	N012043	**Collection Date:**	2/27/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_140228A**	QC Batch: **R92546**			PrepDate:			Analyst: **LCC**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	2/28/2014

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
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N012043-011B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **92546**
Client ID: **ZZZZZZ** Batch ID: **R92546** TestNo: **EPA 120.1** Analysis Date: **2/28/2014** SeqNo: **1742341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19530.000	0.10						19500	0.154	10	

Sample ID: **N012043-015B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **92546**
Client ID: **ZZZZZZ** Batch ID: **R92546** TestNo: **EPA 120.1** Analysis Date: **2/28/2014** SeqNo: **1742364**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	21800.000	0.10						21800	0	10	

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

CLIENT: CH2M HILL
Lab Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012043-001

Client Sample ID: MW-67-185-197
Collection Date: 2/24/2014 9:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	1.4	0.027	0.10		µg/L	1	3/3/2014 03:04 PM
Manganese	ND	0.026	0.50		µg/L	1	3/3/2014 03:04 PM
Molybdenum	9.9	0.15	0.50		µg/L	1	3/3/2014 03:04 PM
Selenium	190	0.34	2.5		µg/L	5	3/3/2014 03:10 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012043-002

Client Sample ID: MW-67-225-197
Collection Date: 2/24/2014 7:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	3.2	0.027	0.10		µg/L	1	3/3/2014 03:15 PM
Manganese	ND	0.026	0.50		µg/L	1	3/3/2014 03:15 PM
Molybdenum	35	0.76	2.5		µg/L	5	3/3/2014 03:32 PM
Selenium	72	0.069	0.50		µg/L	1	3/3/2014 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		

CLIENT: CH2M HILL
Lab Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012043-003

Client Sample ID: MW-67-260-197
Collection Date: 2/24/2014 8:11:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	13	0.13	0.50		µg/L	5	3/3/2014 03:43 PM
Manganese	37	0.13	2.5		µg/L	5	3/5/2014 12:09 PM
Molybdenum	82	0.76	2.5		µg/L	5	3/3/2014 03:43 PM
Selenium	ND	0.34	2.5		µg/L	5	3/3/2014 03:43 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		

CLIENT: CH2M HILL
Lab Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012043-004

Client Sample ID: MW-12-197
Collection Date: 2/25/2014 8:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	3/3/2014 02:36 PM
Arsenic	42	0.027	0.10		µg/L	1	3/3/2014 02:36 PM
Barium	57	0.030	1.0		µg/L	1	3/4/2014 11:08 AM
Beryllium	ND	0.010	0.50		µg/L	1	3/3/2014 02:36 PM
Cadmium	ND	0.013	0.50		µg/L	1	3/3/2014 02:36 PM
Cobalt	ND	0.017	0.50		µg/L	1	3/3/2014 02:36 PM
Copper	ND	0.20	5.0		µg/L	5	3/3/2014 02:42 PM
Lead	ND	0.053	5.0		µg/L	5	3/3/2014 02:42 PM
Molybdenum	12	0.15	0.50		µg/L	1	3/3/2014 02:36 PM
Nickel	ND	0.032	1.0		µg/L	1	3/3/2014 02:36 PM
Selenium	15	0.069	0.50		µg/L	1	3/3/2014 02:36 PM
Silver	ND	0.094	0.50		µg/L	1	3/3/2014 02:36 PM
Thallium	ND	0.040	2.5		µg/L	5	3/3/2014 02:42 PM
Vanadium	18	0.16	1.0		µg/L	1	3/4/2014 11:08 AM
Zinc	ND	0.23	10		µg/L	1	3/3/2014 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-58BR-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 3:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	1.2	0.027	0.10		µg/L	1	3/3/2014 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		

CLIENT: CH2M HILL
Lab Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012043-006

Client Sample ID: MW-59-100-197
Collection Date: 2/25/2014 10:21:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	2.3	0.027	0.10		µg/L	1	3/3/2014 03:59 PM
Manganese	ND	0.026	0.50		µg/L	1	3/3/2014 03:59 PM
Molybdenum	5.8	0.76	2.5		µg/L	5	3/3/2014 04:05 PM
Selenium	4.0	0.069	0.50		µg/L	1	3/3/2014 03:59 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 1:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	1.4	0.027	0.10		µg/L	1	3/3/2014 04:11 PM
Manganese	ND	0.026	0.50		µg/L	1	3/3/2014 04:11 PM
Molybdenum	18	0.15	0.50		µg/L	1	3/3/2014 04:11 PM
Selenium	5.8	0.069	0.50		µg/L	1	3/3/2014 04:11 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		

CLIENT: CH2M HILL
Lab Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012043-008

Client Sample ID: MW-68-240-197
Collection Date: 2/25/2014 7:35:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	1.9	0.13	0.50		µg/L	5	3/3/2014 04:38 PM
Manganese	ND	0.13	2.5		µg/L	5	3/5/2014 12:20 PM
Molybdenum	22	0.76	2.5		µg/L	5	3/3/2014 04:38 PM
Selenium	4.9	0.34	2.5		µg/L	5	3/3/2014 04:38 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 1:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	1.9	0.027	0.10		µg/L	1	3/3/2014 04:44 PM
Manganese	ND	0.026	0.50		µg/L	1	3/3/2014 04:44 PM
Molybdenum	18	0.76	2.5		µg/L	5	3/3/2014 04:49 PM
Selenium	ND	0.34	2.5		µg/L	5	3/3/2014 04:49 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-64BR-197
Lab Order:	N012043	**Collection Date:**	2/26/2014 2:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	3.1	0.027	0.10		µg/L	1	3/3/2014 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		

CLIENT: CH2M HILL
Lab Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N012043-011

Client Sample ID: MW-66-230-197
Collection Date: 2/26/2014 7:09:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	9.5	0.13	0.50		µg/L	5	3/3/2014 05:12 PM
Manganese	ND	0.13	2.5		µg/L	5	3/5/2014 01:22 PM
Molybdenum	90	0.76	2.5		µg/L	5	3/3/2014 05:12 PM
Selenium	12	0.34	2.5		µg/L	5	3/3/2014 05:12 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-197
Lab Order:	N012043	**Collection Date:**	2/26/2014 7:16:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	ND	0.13	0.50		µg/L	5	3/3/2014 05:23 PM
Manganese	ND	0.13	2.5		µg/L	5	3/5/2014 12:47 PM
Molybdenum	16	0.76	2.5		µg/L	5	3/3/2014 05:23 PM
Selenium	ND	0.34	2.5		µg/L	5	3/3/2014 05:23 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-197
Lab Order:	N012043	**Collection Date:**	2/26/2014 8:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	13	0.027	0.10		µg/L	1	3/3/2014 05:29 PM
Manganese	ND	0.026	0.50		µg/L	1	3/3/2014 05:29 PM
Molybdenum	73	0.15	0.50		µg/L	1	3/3/2014 05:29 PM
Selenium	1.4	0.069	0.50		µg/L	1	3/3/2014 05:29 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.

ANALYTICAL RESULTS

Print Date: *13-Mar-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-197
Lab Order:	N012043	**Collection Date:**	2/27/2014 10:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	2.6	0.027	0.10		µg/L	1	3/3/2014 05:51 PM
Manganese	ND	0.026	0.50		µg/L	1	3/3/2014 05:51 PM
Molybdenum	52	0.15	0.50		µg/L	1	3/3/2014 05:51 PM
Selenium	17	0.069	0.50		µg/L	1	3/3/2014 05:51 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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68BR-280-197
Lab Order:	N012043	**Collection Date:**	2/27/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_140303A**	QC Batch: **45123**			PrepDate:	**2/28/2014**		Analyst: **CEI**
Arsenic	1.5	0.13	0.50		µg/L	5	3/3/2014 06:08 PM
Manganese	83	0.13	2.5		µg/L	5	3/5/2014 01:10 PM
Molybdenum	83	0.76	2.5		µg/L	5	3/3/2014 06:08 PM
Selenium	ND	0.34	2.5		µg/L	5	3/3/2014 06:08 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		

CLIENT: CH2M HILL
Work Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-45123** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/28/2014** RunNo: **92575**
Client ID: **PBW** Batch ID: **45123** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **3/3/2014** SeqNo: **1743120**

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									
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	ND	1.0									
Selenium	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID: **LCS-45123** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/28/2014** RunNo: **92575**
Client ID: **LCSW** Batch ID: **45123** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **3/3/2014** SeqNo: **1743121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.706	0.50	10.00	0	107	85	115				
Arsenic	10.143	0.10	10.00	0	101	85	115				
Beryllium	9.983	0.50	10.00	0	99.8	85	115				
Cadmium	10.632	0.50	10.00	0	106	85	115				
Cobalt	10.503	0.50	10.00	0	105	85	115				
Copper	10.593	1.0	10.00	0	106	85	115				
Lead	10.713	1.0	10.00	0	107	85	115				
Manganese	102.276	0.50	100.0	0	102	85	115				
Molybdenum	10.105	0.50	10.00	0	101	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: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-45123**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/28/2014**	RunNo: **92575**
Client ID: **LCSW**	Batch ID: **45123**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/3/2014**	SeqNo: **1743121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel	10.225	1.0	10.00	0	102	85	115				
Selenium	10.145	0.50	10.00	0	101	85	115				
Silver	10.480	0.50	10.00	0	105	85	115				
Thallium	9.996	0.50	10.00	0	100	85	115				
Zinc	105.581	10	100.0	0	106	85	115				

Sample ID: **N012043-004A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/28/2014**	RunNo: **92575**
Client ID: **ZZZZZZ**	Batch ID: **45123**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/3/2014**	SeqNo: **1743125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.698	0.50	10.00	0	107	75	125				
Arsenic	51.930	0.10	10.00	41.56	104	75	125				
Beryllium	11.483	0.50	10.00	0	115	75	125				
Cadmium	9.494	0.50	10.00	0	94.9	75	125				
Cobalt	8.475	0.50	10.00	0	84.7	75	125				
Molybdenum	24.058	0.50	10.00	12.23	118	75	125				
Nickel	9.678	1.0	10.00	0.1262	95.5	75	125				
Selenium	25.074	0.50	10.00	15.45	96.2	75	125				
Silver	9.674	0.50	10.00	0	96.7	75	125				
Zinc	85.449	10	100.0	0.5561	84.9	75	125				

Sample ID: **N012043-004A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/28/2014**	RunNo: **92575**
Client ID: **ZZZZZZ**	Batch ID: **45123**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/3/2014**	SeqNo: **1743126**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.895	0.50	10.00	0	109	75	125	10.70	1.83	20	
Arsenic	50.243	0.10	10.00	41.56	86.9	75	125	51.93	3.30	20	
Beryllium	11.546	0.50	10.00	0	115	75	125	11.48	0.550	20	
Cadmium	9.702	0.50	10.00	0	97.0	75	125	9.494	2.17	20	
Cobalt	8.656	0.50	10.00	0	86.6	75	125	8.475	2.12	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: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N012043-004A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/28/2014**	RunNo: **92575**
Client ID: **ZZZZZZ**	Batch ID: **45123**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/3/2014**	SeqNo: **1743126**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	23.979	0.50	10.00	12.23	118	75	125	24.06	0.325	20	
Nickel	9.606	1.0	10.00	0.1262	94.8	75	125	9.678	0.741	20	
Selenium	24.507	0.50	10.00	15.45	90.6	75	125	25.07	2.29	20	
Silver	9.683	0.50	10.00	0	96.8	75	125	9.674	0.0888	20	
Zinc	86.164	10	100.0	0.5561	85.6	75	125	85.45	0.833	20	

Sample ID: **N012043-004A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/28/2014**	RunNo: **92575**
Client ID: **ZZZZZZ**	Batch ID: **45123**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/3/2014**	SeqNo: **1743163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	4.977	5.0	10.00	0	49.8	75	125				S
Lead	11.265	5.0	10.00	0	113	75	125				
Manganese	56.814	2.5	100.0	0	56.8	75	125				S
Thallium	11.070	2.5	10.00	0.1484	109	75	125				

Sample ID: **N012043-004A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **2/28/2014**	RunNo: **92575**
Client ID: **ZZZZZZ**	Batch ID: **45123**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/3/2014**	SeqNo: **1743164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	4.962	5.0	10.00	0	49.6	75	125	4.977	0	20	S
Lead	11.149	5.0	10.00	0	111	75	125	11.27	1.03	20	
Manganese	56.147	2.5	100.0	0	56.1	75	125	56.81	1.18	20	S
Thallium	10.869	2.5	10.00	0.1484	107	75	125	11.07	1.83	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: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-45128**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **3/3/2014**	RunNo: **92583**
Client ID: **PBW**	Batch ID: **45128**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/4/2014**	SeqNo: **1743270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Vanadium	ND	1.0									

Sample ID: **LCS-45128**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **3/3/2014**	RunNo: **92583**
Client ID: **LCSW**	Batch ID: **45128**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/4/2014**	SeqNo: **1743271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	102.861	1.0	100.0	0	103	85	115				
Vanadium	10.772	1.0	10.00	0	108	85	115				

Sample ID: **N012043-004A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **3/3/2014**	RunNo: **92583**
Client ID: **ZZZZZZ**	Batch ID: **45128**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/4/2014**	SeqNo: **1743275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	157.501	1.0	100.0	57.00	101	75	125				
Vanadium	30.604	1.0	10.00	18.43	122	75	125				

Sample ID: **N012043-004A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **3/3/2014**	RunNo: **92583**
Client ID: **ZZZZZZ**	Batch ID: **45128**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/4/2014**	SeqNo: **1743276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	156.185	1.0	100.0	57.00	99.2	75	125	157.5	0.839	20	
Vanadium	30.253	1.0	10.00	18.43	118	75	125	30.60	1.15	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

CLIENT: CH2M HILL
Work Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-45156**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **3/5/2014**	RunNo: **92605**
Client ID: **PBW**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**	SeqNo: **1743969**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-45156**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **3/5/2014**	RunNo: **92605**
Client ID: **LCSW**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**	SeqNo: **1743970**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.328	0.50	100.0	0	100	85	115				

Sample ID: **N012043-011A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **3/5/2014**	RunNo: **92605**
Client ID: **ZZZZZZ**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**	SeqNo: **1743987**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	2.5	100.0	0	0	80	120				S

Sample ID: **N012043-011A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **3/5/2014**	RunNo: **92605**
Client ID: **ZZZZZZ**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**	SeqNo: **1743988**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	2.5	100.0	0	0	75	125	0	0	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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Mar-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-197
Lab Order:	N012043	**Collection Date:**	2/25/2014 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N012043-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **AA1_140303B**	QC Batch: **45138**			PrepDate:	**3/3/2014**		Analyst: **LCC**
Mercury	ND	0.038	0.20		µg/L	1	3/3/2014 01:09 PM

Qualifiers:

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

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: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **MB-45138**	SampType: **MBLK**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date: **3/3/2014**	RunNo: **92564**
Client ID: **PBW**	Batch ID: **45138**	TestNo: **EPA 7470A**		Analysis Date: **3/3/2014**	SeqNo: **1742748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **LCS-45138**	SampType: **LCS**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date: **3/3/2014**	RunNo: **92564**
Client ID: **LCSW**	Batch ID: **45138**	TestNo: **EPA 7470A**		Analysis Date: **3/3/2014**	SeqNo: **1742749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.173	0.20	5.000	0	103	85	115				

Sample ID: **N012043-004A-MS**	SampType: **MS**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date: **3/3/2014**	RunNo: **92564**
Client ID: **ZZZZZZ**	Batch ID: **45138**	TestNo: **EPA 7470A**		Analysis Date: **3/3/2014**	SeqNo: **1742750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.039	0.20	5.000	0	101	75	125				

Sample ID: **N012043-004A-MSD**	SampType: **MSD**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date: **3/3/2014**	RunNo: **92564**
Client ID: **ZZZZZZ**	Batch ID: **45138**	TestNo: **EPA 7470A**		Analysis Date: **3/3/2014**	SeqNo: **1742751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.025	0.20	5.000	0	100	75	125	5.039	0.282	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** 2/27/2014 11:00:13 AM Page 1 OF 2

43

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/27/2014
COC Number: 11

Please note the metals analyte list for MW-12 should be:
Sb,Ba,Be,Cd,Co,Cu,Pb,Hg, Mo,Ni,Se,Ag,As,Tl,V,and Zn

Shawn P. Duffy 02/28/2014

				Container:	500 ml Poly	500 ml Poly	500 ml Poly	1x1 Liter			
				Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C			
				Filtered:	Field	Field	Field	NA			
				Holding Time:	180	180	180	28			
	DATE	TIME	Matrix		Arsenic (6020A) Field Filtered	Metals (6010B/6020A/7470Adis) Field Filtered	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-67-185-197	2/24/2014	9:30	Water		X		X	X	NO12043-1	2	
MW-67-225-197	2/24/2014	7:38	Water		X		X	X	-2	2	
MW-67-260-197	2/24/2014	8:11	Water		X		X	X	-3	2	
MW-12-197	2/25/2014	8:56	Water			X		X	-4	2	
MW-58BR-197	2/25/2014	15:25	Water		X				-5	1	
MW-59-100-197	2/25/2014	10:21	Water		X		X	X	-6	2	
MW-60-125-197	2/25/2014	13:52	Water		X		X	X	-7	2	
MW-68-240-197	2/25/2014	7:35	Water		X		X	X	-8	2	
MW-70BR-225-197	2/25/2014	13:02	Water		X		X	X	-9	2	
MW-64BR-197	2/26/2014	14:34	Water		X				-10	1	
MW-66-230-197	2/26/2014	7:09	Water		X		X	X	-11	2	
MW-66BR-270-197	2/26/2014	7:16	Water		X		X	X	-12	2	
MW-74-240-197	2/26/2014	8:08	Water		X		X	X	-13	2	
MW-68-180-197	2/27/2014	10:12	Water		X		X	X	-14	2	

Signatures	Date/Time
Approved by	2-27-14
Sampled by	1310
Relinquished by	
Received by	2/27/14 1310
Relinquished by	2/27/14 1527
Received by	Amanda Cate 2/27/14 1527

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 3.5°C
Airbill No: [illegible]
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL **CHAIN OF CUSTODY RECORD** *2/27/2014 11:00:13 AM* Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/27/2014
COC Number: 11

	Container:	500 ml Poly	500 ml Poly	500 ml Poly	1x1 Liter			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C			
	Filtered:	Field	Field	Field	NA			
	Holding Time:	180	180	180	28			
DATE / TIME / Matrix		Arsenic (6020A) Field Filtered	Metals (6010B/6020A/7470Adis) Field Filtered	Metals (6020A) Field Filtered Mo.Se.Mn	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-68BR-280-197	2/27/2014 9:22 Water	x		x	x	ND12043-15	2	
						TOTAL NUMBER OF CONTAINERS	28	

Signatures	Date/Time
Approved by	2-27-14
Sampled by	1310
Relinquished by	
Received by	2/27/14 1310
Relinquished by	2/27/14 1510
Received by	2/27/14 1537

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 3.5°C
Airbill No: 1242
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Sample Control

From: Glen Gesmundo [glen@atl-labs.com]
Sent: Friday, February 28, 2014 5:01 PM
To: Sample Control; hanah.glodoviza@atl-labs.com
Subject: FW: Work Order Summaries for Samples Received 2/27/2014
Attachments: N012043 Revised.pdf

From: Shawn.Duffy@CH2M.com [mailto:Shawn.Duffy@CH2M.com]
Sent: Friday, February 28, 2014 4:39 PM
To: glen@atl-labs.com; marlon@atl-labs.com
Cc: Erlene.Contreras@CH2M.com; Priya.Kumar@CH2M.com
Subject: RE: Work Order Summaries for Samples Received 2/27/2014

Hi Glen and Marlon,

Please note the metals analyte list for MW-12 should be:

Sb, Ba, Be, Cd, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, As, Tl, V, and Zn see attached.

Shawn

From: Sample Control [mailto:samplecontrol@atl-labs.com]
Sent: Friday, February 28, 2014 4:07 PM
To: SWR/RDD Electronic Data
Cc: Duffy, Shawn/RDD
Subject: Work Order Summaries for Samples Received 2/27/2014

Enclosed are the COCs and WO Summaries for samples received 2/27/2014. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659
Cel. No.: (702)-439-0421
Email: marlon@atl-labs.com

Thank you for using Advanced Technology Laboratories, Inc.



3151 W. Post Road Las Vegas, NV 89118
www.atl-labs.com
Tel: (702) 307-2659
Fax: (702) 307-2691

Advanced Technology Laboratories, Inc. is a full-service woman owned environmental laboratory providing organic and inorganic analyses of soil, water, wastewater, storm water and hazardous waste samples. *ATL Inc is* certified by the State of California, NELAP, and the State of Nevada. It is also a certified UDBE, SBE and DBE. *ATL Inc* takes pride in providing our customers with quick turnaround time, excellent customer service and defensible data while offering very competitive rates.

CH2MHILL **CHAIN OF CUSTODY RECORD** *2/27/2014 11:00:13 AM* Page 1 OF 2

47

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/27/2014
COC Number: 11

	Container:	500 ml Poly	500 ml Poly	500 ml Poly	1x1 Liter			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C			
	Filtered:	Field	Field	Field	NA			
	Holding Time:	180	180	180	28			
		Arsenic (6020A) Field Filtered	Metals (6010B/6020A/7470Adis) Field Filtered	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-67-185-197	2/24/2014	9:30	Water	X		X	X	NO12043-1	2	
MW-67-225-197	2/24/2014	7:38	Water	X		X	X	-2	2	
MW-67-260-197	2/24/2014	8:11	Water	X		X	X	-3	2	
MW-12-197	2/25/2014	8:56	Water		X		X	-4	2	
MW-58BR-197	2/25/2014	15:25	Water	X				-5	1	
MW-59-100-197	2/25/2014	10:21	Water	X		X	X	-6	2	
MW-60-125-197	2/25/2014	13:52	Water	X		X	X	-7	2	
MW-68-240-197	2/25/2014	7:35	Water	X		X	X	-8	2	
MW-70BR-225-197	2/25/2014	13:02	Water	X		X	X	-9	2	
MW-64BR-197	2/26/2014	14:34	Water	X				-10	1	
MW-66-230-197	2/26/2014	7:09	Water	X		X	X	-11	2	
MW-66BR-270-197	2/26/2014	7:16	Water	X		X	X	-12	2	
MW-74-240-197	2/26/2014	8:08	Water	X		X	X	-13	2	
MW-68-180-197	2/27/2014	10:12	Water	X		X	X	-14	2	

Signatures	Date/Time
Approved by	2-27-14
Sampled by	1310
Relinquished by	
Received by	2/27/14 1310
Relinquished by	2/27/14 1527
Received by Amanda Coats	2/27/14 1527

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 3.5°C
Airbill No: 1Z#2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL **CHAIN OF CUSTODY RECORD** *2/27/2014 11:00:13 AM* Page 2 OF 2

48

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/27/2014
COC Number: 11

			Container:	500 ml Poly	500 ml Poly	500 ml Poly	1x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C			
			Filtered:	Field	Field	Field	NA			
			Holding Time:	180	180	180	28			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (6010B/6020A/7470Adis) Field Filtered	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-68BR-280-197	2/27/2014	9:22	Water	x		x	x	N012043-15	2	
								TOTAL NUMBER OF CONTAINERS	28	

	Signatures	Date/Time
Approved by		2-27-14
Sampled by		1310
Relinquished by		
Received by		2/27/14 1310
Relinquished by		2/27/14 1527
Received by		2/27/14 1527

Shipping Details
Method of Shipment: courier
On Ice: yes / no 3.5°C
Airbill No: 1 RHZ
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Feb 3-27 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 2/27/2014 Workorder: N012043

Rep sample Temp (Deg C): 3.5 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 2/28/2014

Reviewed By: 2014-03-03

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 **N012043-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.38939128011926 * 1 * (25/25)

= 1.38939128011926

Reporting results in two significant figures,

Arsenic, ug/L = 1.4

3/13/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N012043
Test Method: EPA 6020
Analysis Date: 03/03/14

Matrix: Water
Batch No.: 45123

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Sb, Be, Cd, Co, Mo, Ni, Ag and Zn. The calculated values are <25X RL. PS @2X passed criteria.
Dilution test is not applicable to Cu, Mn, Pb and Tl. The calculated values are <25X RL. PS @5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N012043-004A-DT 5X	Antimony	µg/L	0	NA	0		10
N012043-004A-DT 5X	Arsenic	µg/L	43.629976	PASS	41.55790991	4.99%	10
N012043-004A-DT 5X	Beryllium	µg/L	0	NA	0		10
N012043-004A-DT 5X	Cadmium	µg/L	0	NA	0		10
N012043-004A-DT 5X	Cobalt	µg/L	0	NA	0		10
N012043-004A-DT 5X	Molybdenum	µg/L	12.16557092	NA	12.22764728	0.51%	10
N012043-004A-DT 5X	Nickel	µg/L	0.20676876	NA	0.126194007	63.85%	10
N012043-004A-DT 5X	Selenium	µg/L	16.36396422	PASS	15.4515169	5.91%	10
N012043-004A-DT 5X	Silver	µg/L	0	NA	0		10
N012043-004A-DT 5X	Zinc	µg/L	0	NA	0.556085732	100.00%	10
N012043-004A-DT 25X	Copper	µg/L	0	NA	0		10
N012043-004A-DT 25X	Manganese	µg/L	0	NA	0		10
N012043-004A-DT 25X	Lead	µg/L	0	NA	0		10
N012043-004A-DT 25X	Thallium	µg/L	0	NA	0.14838973	100.00%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N012043
Test Method: EPA 6020
Analysis Date: 03/04/14

Matrix: Water
Batch No.: 45128

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to V. The calculated value is <25X RL.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N012043-004A-DT 5X	Barium	µg/L	58.7517447	PASS	56.99636409	3.08%	10
N012043-004A-DT 5X	Vanadium	µg/L	19.26041228	NA	18.43353751	4.49%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N012043
Test Method: EPA 6020
Analysis Date: 03/05/14

Matrix: Water
Batch No.: 45156

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 @5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N012043-011A-DT 25X	Manganese	µg/L	0	NA	0		10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N012043-004A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **92575**
Client ID: **ZZZZZZ** Batch ID: **45123** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **3/3/2014** SeqNo: **1743124**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.948	1.0	20.00	0	110	80	120				
Arsenic	64.302	0.20	20.00	41.56	114	80	120				
Beryllium	21.250	1.0	20.00	0	106	80	120				
Cadmium	19.971	1.0	20.00	0	99.9	80	120				
Cobalt	18.097	1.0	20.00	0	90.5	80	120				
Molybdenum	35.837	1.0	20.00	12.23	118	80	120				
Nickel	19.782	2.0	20.00	0.1262	98.3	80	120				
Selenium	35.225	1.0	20.00	15.45	98.9	80	120				
Silver	19.885	1.0	20.00	0	99.4	80	120				
Zinc	181.003	20	200.0	0.5561	90.2	80	120				

Sample ID: **N012043-004A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **92575**
Client ID: **ZZZZZZ** Batch ID: **45123** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **3/3/2014** SeqNo: **1743162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	44.197	5.0	50.00	0	88.4	80	120				
Lead	57.142	5.0	50.00	0	114	80	120				
Manganese	434.064	2.5	500.0	0	86.8	80	120				
Thallium	54.615	2.5	50.00	0.1484	109	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N012043-004A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **92583**
Client ID: **ZZZZZZ** Batch ID: **45128** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **3/4/2014** SeqNo: **1743274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	264.114	2.0	200.0	57.00	104	80	120				
Vanadium	45.274	2.0	20.00	18.43	134	80	120				S

DT @ 5x is within criteria

Nancy 3/13/2014

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		

CLIENT: CH2M HILL
Work Order: N012043
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N012043-003A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **92605**			
Client ID: **ZZZZZZ**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**			SeqNo: **1743976**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	474.603	2.5	500.0	37.13	87.5	80	120				

Sample ID: **N012043-008A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **92605**			
Client ID: **ZZZZZZ**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**			SeqNo: **1743995**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	419.180	2.5	500.0	0	83.8	80	120				

Sample ID: **N012043-012A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **92605**			
Client ID: **ZZZZZZ**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**			SeqNo: **1743997**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	401.630	2.5	500.0	0	80.3	80	120				

Sample ID: **N012043-015A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **92605**			
Client ID: **ZZZZZZ**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**			SeqNo: **1743999**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	536.902	2.5	500.0	82.65	90.9	80	120				

Sample ID: **N012043-011A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **92605**			
Client ID: **ZZZZZZ**	Batch ID: **45156**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **3/5/2014**			SeqNo: **1744005**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	413.412	2.5	500.0	0	82.7	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.

Sample Calculation

Work Order No.:	**N012043**
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: **N012043-004A**

The concentration in ug/L is calculated as follows:

Hg = [A] [DF]

Hg = [-0.10760] [1]

Hg = -0.10760 ug/L

Reporting results in two significant figures,

Hg = ND ug/L

3/3/2014

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: N1082

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
January 29, 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)

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
N108201	C-BNS-D-194	01/14/14 12:18	01/20/14
N108202	C-I-3-D-194	01/14/14 10:37	01/20/14
N108203	C-I-3-S-194	01/14/14 10:52	01/20/14
N108204	C-R22A-D-194	01/14/14 11:40	01/20/14
N108205	C-R22A-S-194	01/14/14 11:52	01/20/14
N108206	C-R27-D-194	01/14/14 12:52	01/20/14
N108207	C-R27-S-194	01/14/14 13:06	01/20/14
N108208	C-TAZ-D-194	01/14/14 09:56	01/20/14
N108209	C-TAZ-S-194	01/14/14 10:10	01/20/14
N108210	R-19-194	01/14/14 13:40	01/20/14
N108211	R-28-194	01/14/14 13:24	01/20/14
N108212	R63-194	01/14/14 11:15	01/20/14
N108213	C-CON-D-194	01/15/14 09:32	01/20/14
N108214	C-CON-S-194	01/15/14 09:44	01/20/14
N108215	C-MAR-S-194	01/15/14 08:58	01/20/14
N108216	C-NR1-D-194	01/15/14 10:04	01/20/14
N108217	C-NR1-S-194	01/15/14 10:20	01/20/14
N108218	C-NR3-D-194	01/15/14 10:50	01/20/14
N108219	C-NR3-S-194	01/15/14 11:06	01/20/14
N108220	C-NR4-D-194	01/15/14 11:34	01/20/14
N108221	C-NR4-S-194	01/15/14 11:46	01/20/14
N108222	RRB-194	01/15/14 13:26	01/20/14

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#:** N1082

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

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-BNS-D-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108201

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.322		MG/L	1	3 ML	E353.2	01/27/14

FORM I GEN CHEM

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-I-3-D-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108202

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.307		MG/L	1	3 ML	E353.2	01/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-I-3-S-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108203

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.312		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R22A-D-194

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N108204

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.319		MG/L	1	3 ML	E353.2	01/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R22A-S-194

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N108205

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.325		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R27-D-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108206

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.310		MG/L	1	3 ML	E353.2	01/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R27-S-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108207

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.311		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-TAZ-D-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108208

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.305		MG/L	1	3 ML	E353.2	01/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-TAZ-S-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108209

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.312		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R-19-194

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N108210

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.309		MG/L	1	3 ML	E353.2	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R-28-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108211

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.315		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R63-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108212

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.519		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-CON-D-194

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N108213

Date Received: 01/20/14

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	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-CON-S-194

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N108214

Date Received: 01/20/14

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	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-MAR-S-194

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N108215

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.317		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR1-D-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108216

Date Received: 01/20/14

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	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR1-S-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108217

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.312		MG/L	1	3 ML	E353.2	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR3-D-194

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N108218

Date Received: 01/20/14

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	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR3-S-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108219

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.315		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR4-D-194

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N108220

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.321		MG/L	1	3 ML	E353.2	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR4-S-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108221

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.319		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RRB-194

SDG No.: N1082

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N108222

Date Received: 01/20/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.134		MG/L	1	3 ML	E353.2	01/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-012714

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-012714

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	01/27/14

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-012714

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-012714

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	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-012714

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB3-012714

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	01/27/14

FORM I GEN CHEM

JM140129-09:36-N1082-W

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-012714

SDG No.: N1082

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB4-012714

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	01/27/14

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1082 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS1W0127

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 01/27/14

Matrix: (Soil/Water) WATER Time Analyzed: 1219

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.450	94	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1082 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS2W0127

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 01/27/14

Matrix: (Soil/Water) WATER Time Analyzed: 1249

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.457	95	90-110	

* Values outside of QC limits

Comments:

N1082

CH2MHILL **CHAIN OF CUSTODY RECORD** *1/15/2014 2:35:40 PM* Page 1 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2014-RMP-194
Turnaround Time 10 Days
Shipping Date: 1/8/2014
COC Number: CHMC-RMP194

	Container:	Preservatives:	Filtered:	Holding Time:					
	125 ml Poly	H2SO4 pH<2 4°C	NA	28				Number of Containers	COMMENTS
	DATE	TIME	Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate					
C-BNS-D-194	1/14/2014	12:18	Water	X				1	1
C-I-3-D-194	1/14/2014	10:37	Water	X				1	2
C-I-3-S-194	1/14/2014	10:52	Water	X				1	3
C-R22A-D-194	1/14/2014	11:40	Water	X				1	4
C-R22A-S-194	1/14/2014	11:52	Water	X				1	5
C-R27-D-194	1/14/2014	12:52	Water	X				1	6
C-R27-S-194	1/14/2014	13:06	Water	X				1	7
C-TAZ-D-194	1/14/2014	9:56	Water	X				1	8
C-TAZ-S-194	1/14/2014	10:10	Water	X				1	9
R-19-194	1/14/2014	13:40	Water	X				1	10
R-28-194	1/14/2014	13:24	Water	X				1	11
R63-194	1/14/2014	11:15	Water	X				1	12
C-CON-D-194	1/15/2014	9:32	Water	X				1	13
C-CON-S-194	1/15/2014	9:44	Water	X				1	14

	Signatures	Date/Time
Approved by		1-16-14
Sampled by		0800
Relinquished by		
Received by	Dana Thomann	1/20/14 0930
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: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
Jan 13-14, 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL **CHAIN OF CUSTODY RECORD** *1/15/2014 2:35:41 PM* Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423515.MP.02.RM
Task Order
Project 2014-RMP-1 94
Turnaround Time 10 Days
Shipping Date: 1/8/2014
COC Number: CHMC-RMP194

	Container:	125 ml Poly
	Preservatives:	H2SO4 pH<2 4°C
	Filtered:	NA
	Holding Time:	28
	Nitrate/Nitrite (SM4500NO3) Nitrate	

	DATE	TIME	Matrix		Number of Containers	COMMENTS
C-MAR-S-194	1/15/2014	8:58	Water	X	1	15
C-NR1-D-194	1/15/2014	10:04	Water	X	1	16
C-NR1-S-194	1/15/2014	10:20	Water	X	1	17
C-NR3-D-194	1/15/2014	10:50	Water	X	1	18
C-NR3-S-194	1/15/2014	11:06	Water	X	1	19
C-NR4-D-194	1/15/2014	11:34	Water	X	1	20
C-NR4-S-194	1/15/2014	11:46	Water	X	1	21
RRB-194	1/15/2014	13:26	Water	X	1	22
				TOTAL NUMBER OF CONTAINERS	22	

	Signatures	Date/Time
Approved by		1-16-14
Sampled by		0800
Relinquished by		
Received by	Clara Thomann	1/20/14 0930
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: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
Jan 13-14, 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: N1082 Date Received: 1/20/14

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. 3/14 3.2 °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)?		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: N1082 **Client/Project** PG&E 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	For Nitrate/Nitrite, ASL only performs method E353.2. Will report by this method rather than the SM4500 requested on COC.
	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: Clara Thomann Date: 1/20/2014

Client was notified on: (Date/Time) Client Contact:

Client Services:

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: N1279

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

Attn: Jay Piper

cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
February 26, 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 #: N1279

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
N127901	MW-27-060-197	02/10/14 14:20	02/18/14
N127902	MW-27-085-197	02/10/14 15:32	02/18/14
N127903	MW-44-115-197	02/11/14 12:10	02/18/14
N127904	MW-44-125-197	02/11/14 14:55	02/18/14
N127905	MW-46-175-197	02/11/14 14:02	02/18/14
N127906	MW-93-197	02/11/14 12:10	02/18/14
N127907	MW-94-197	02/11/14 07:00	02/18/14
N127908	MW-28-090-197	02/12/14 07:36	02/18/14
N127909	MW-33-040-197	02/12/14 09:44	02/18/14
N127910	MW-33-090-197	02/12/14 10:51	02/18/14
N127911	MW-33-150-197	02/12/14 11:41	02/18/14
N127912	MW-33-210-197	02/12/14 12:33	02/18/14
N127913	MW-63-065-197	02/12/14 14:28	02/18/14
N127914	MW-91-197	02/12/14 07:00	02/18/14

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#:** N1279

Project: PGE Topock **Project #:** 423575.MP.02.GM.03

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-27-060-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127901

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-085-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127902

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-115-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127903

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.244		MG/L	1	3 ML	E353.2	02/20/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-125-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127904

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.297		MG/L	1	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-175-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127905

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.17		MG/L	4	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-93-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127906

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.296		MG/L	1	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-94-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127907

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.19		MG/L	4	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-28-090-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127908

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/20/14

KO140225-09:57-N1279-W

FORM I GEN CHEM

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-040-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127909

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.130		MG/L	1	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-090-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127910

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.70		MG/L	4	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-150-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127911

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.64		MG/L	4	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-210-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127912

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.77		MG/L	4	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-63-065-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127913

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.09		MG/L	4	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-91-197

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N127914

Date Received: 02/18/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.65		MG/L	4	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-022014

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-022014

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/20/14

KO140225-09:57-N1279-W

FORM I GEN CHEM

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID: **WB3-022014**

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB3-022014

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/20/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-022014

SDG No.: N1279

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB5-022014

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/20/14

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1279 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS1W0220

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 02/20/14

Matrix: (Soil/Water) WATER Time Analyzed: 1616

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.472	98	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1279 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS2W0220

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 02/20/14

Matrix: (Soil/Water) WATER Time Analyzed: 1646

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:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1279 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS5W0220

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 02/20/14

Matrix: (Soil/Water) WATER Time Analyzed: 1735

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.491	102	90-110	

* Values outside of QC limits

Comments:

N1279

CH2MHILL **CHAIN OF CUSTODY RECORD** *2/11/2014 3:57:55 PM* Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/11/2014
COC Number: 3

				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-27-060-197	2/10/2014	14:20	Water	X				1	1	
MW-27-085-197	2/10/2014	15:32	Water	X				1	2	
MW-44-115-197	2/11/2014	12:10	Water	X				1	3	
MW-44-125-197	2/11/2014	14:55	Water	X				1	4	
MW-46-175-197	2/11/2014	14:02	Water	X				1	5	
MW-93-197	2/11/2014	12:10	Water	X				1	6	
MW-94-197	2/11/2014	7:00	Water	X				1	7	
							TOTAL NUMBER OF CONTAINERS	7		

	Signatures	Date/Time
Approved by		
Sampled by		2-11-14 1600
Relinquished by		
Received by		
Relinquished by		11FEB14 1600
Received by		11FEB14 1517

Shipping Details
Method of Shipment:
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences
Lab Phone

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
Feb 2 27 2014

Report Copy to
Shawn Duffy

V1279

CH2MHILL **CHAIN OF CUSTODY RECORD** *2/12/2014 3:14:42 PM* Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/14/2014
COC Number: 6

	Container:	125 ml Poly
	Preservatives:	H2SO4, pH<2, 4°C
	Filtered:	NA
	Holding Time:	28

4.6

	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Number of Containers	COMMENTS
MW-28-090-197	2/12/2014	7:36	Water	X	1	8
MW-33-040-197	2/12/2014	9:44	Water	X	1	9
MW-33-090-197	2/12/2014	10:51	Water	X	1	10
MW-33-150-197	2/12/2014	11:41	Water	X	1	11
MW-33-210-197	2/12/2014	12:33	Water	X	1	12
MW-63-065-197	2/12/2014	14:28	Water	X	1	13
MW-91-197	2/12/2014	7:00	Water	X	1	14
				TOTAL NUMBER OF CONTAINERS	7	

	Signatures	Date/Time
Approved by		2-12-14 1515
Sampled by		
Relinquished by		2/12/14 1515
Received by		2/12/14 1715
Relinquished by		2/12/14 1715
ved by		

Shipping Details
Method of Shipment: Courier
On Ice: yes / no 2-5°C
Airbill No: 1R#2
Lab Name: CH2M HILL Applied [illegible]
Lab Phone

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
Feb 2 27 2014

Report Copy to
Shawn Duffy

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: N1279 Date Received: 2/18/2014

Client/Project: Topock Received By: Carmen C.

Were custody seals intact and on the outside of the cooler?		☑ Yes	☐ No	☐ N/A
Shipping Record:	☐ Hand Delivered	☑ On File	☐ COC	
Radiological Screening for DoD		☐ Yes	☐ No	☑ N/A
Packing Material:	☐ Hand Delivered	☑ Ice	☐ Blue Ice	☐ Box
Temp OK? (<6C) Therm ID: TH173 Exp. 3/14	2.9 °C	☑ Yes	☐ No	☐ N/A
Was a Chain of Custody (CoC) Provided?		☑ Yes	☐ No	☐ N/A
Was the CoC correctly filled out (If No, document below)		☑ Yes	☐ No	☐ N/A
Did sample labels agree with COC? (If No, document below)		☑ Yes	☐ No	☐ N/A
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		☑ Yes	☐ No	☐ N/A
Were the sample containers in good condition (broken or leaking)?		☑ Yes	☐ No	☐ N/A
Was enough sample volume provided for analysis? (If No, document below)		☑ Yes	☐ No	☐ N/A
Containers supplied by ASL?		☑ Yes	☐ No	☐ N/A
Any sample with < 1/2 holding time remaining? If so contact LPM		☐ Yes	☐ No	☑ N/A
Samples have multi-phase? If yes, document on SRER		☐ Yes	☐ No	☑ N/A
All water VOCs free of air bubbles? No, document on SRER		☐ Yes	☐ No	☑ N/A
pH of all samples met criteria on receipt? If "No", preserve and document below.		☑ Yes	☐ No	☐ N/A
Dissolved/Soluble metals filtered in the field?		☐ Yes	☐ No	☑ N/A
Dissolved/Soluble metals have sediment in bottom of container? If so document below.		☐ Yes	☐ No	☑ N/A

Preservation Adjustment

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

Sample Exception Report (The following exceptions were noted)

Client was notified on: Client contact:

Resolution to Exception:

ANALYTICAL REPORT

For:

PGE Topock - 2014-GMP-197-Q1

ASL Report #: N1334

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

Attn: Jay Piper

cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
March 10, 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)

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
N133401	MW-57-185-197	02/13/14 11:19	02/25/14
N133402	MW-35-060-197	02/17/14 08:24	02/25/14
N133403	MW-70-105-197	02/17/14 14:22	02/25/14
N133404	MW-72BR-200-197	02/17/14 14:08	02/25/14
N133405	MW-92-197	02/17/14 07:00	02/25/14
N133406	MW-95-197	02/17/14 07:00	02/25/14
N133407	MW-71-035-197	02/18/14 11:00	02/25/14
N133408	MW-72-080-197	02/18/14 10:30	02/25/14
N133409	MW-73-080-197	02/18/14 10:30	02/25/14
N133410	MW-60BR-245-197	02/19/14 11:45	02/25/14
N133411	MW-61-110-197	02/19/14 11:28	02/25/14
N133412	MW-62-110-197	02/19/14 14:20	02/25/14
N133413	MW-62-190-197	02/19/14 14:25	02/25/14
N133414	MW-65-160-197	02/19/14 08:04	02/25/14
N133415	MW-65-225-197	02/19/14 08:32	02/25/14
N133416	MW-66-165-197	02/19/14 09:32	02/25/14
N133417	MW-69-195-197	02/19/14 10:12	02/25/14
N133418	TW-01-197	02/20/14 08:18	02/25/14

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#:** N1334

Project: PGE Topock **Project #:** 423575.MP.02.GM.03

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

Matrix Spike/Matrix Spike Duplicate(s):
E353.2: MS/MSD recovery (115%/116%) for total Nitrate/Nitrite did not meet acceptance criteria of 90-110%. MS recovery of Nitrate/Nitrite-N(115%) in MW-65-160-197MS did not meet acceptance criteria of 90-110%. MSD recovery of Nitrate/Nitrite-N(116%) in MW-65-160-197MSD did not meet acceptance criteria of 90-110%.

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-57-185-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133401

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-35-060-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133402

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	2.34		MG/L	4	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-70-105-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133403

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.67		MG/L	10	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72BR-200-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133404

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.132		MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72BR-200-197MS

SDG No.: N1334

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N133404MS

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.617		MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72BR-200-197MSD

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133404MSD

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.638		MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-92-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133405

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	2.33		MG/L	4	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-95-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133406

Date Received: 02/25/14

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	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-71-035-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133407

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	2.89		MG/L	4	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72-080-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133408

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.17		MG/L	4	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-73-080-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133409

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.71		MG/L	10	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60BR-245-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133410

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.109		MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-61-110-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133411

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.950		MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-110-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133412

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.85		MG/L	10	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-190-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133413

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0153		MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-160-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133414

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	11.7		MG/L	20	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-160-197MS

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133414MS

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.224	0.800	23.2		MG/L	80	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-160-197MSD

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133414MSD

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.224	0.800	23.4		MG/L	80	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-225-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133415

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	8.13		MG/L	10	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66-165-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133416

Date Received: 02/25/14

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	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-69-195-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133417

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	18.0		MG/L	50	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-01-197

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N133418

Date Received: 02/25/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	21.6		MG/L	50	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-022614

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-022614

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-022714

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-022714

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-022614

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-022614

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-022714

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB2-022714

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/27/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-022614

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB3-022614

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-022714

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB3-022714

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/27/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB7-022614

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB7-022614

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB9-022614

SDG No.: N1334

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB9-022614

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	02/26/14

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: N1334 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 Concentration Units: MG/L

Native Sample ID:	Matrix Spike ID:	Matrix Spike Duplicate ID:
MW-65-160-197	MW-65-160-197MS	MW-65-160-197MSD

Analyte	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q
Nitrate/Nitrite-N	11.7	10.0	23.2	115	10.0	23.4	116	0.6	90-110	15	*

* Values outside of QC limits

Comments:
Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: N1334 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 Concentration Units: MG/L

Native Sample ID:	Matrix Spike ID:	Matrix Spike Duplicate ID:
MW-72BR-200-197	MW-72BR-200-197MS	MW-72BR-200-197MSD

Analyte	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q
Nitrate/Nitrite-N	0.132	0.500	0.617	97	0.500	0.638	101	3	90-110	15	

* Values outside of QC limits

Comments:
Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1334 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS1W0226

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 02/26/14

Matrix: (Soil/Water) WATER Time Analyzed: 1726

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.482	101	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1334 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS2W0226

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 02/26/14

Matrix: (Soil/Water) WATER Time Analyzed: 1756

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.: N1334 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS5W0226

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 02/26/14

Matrix: (Soil/Water) WATER Time Analyzed: 1849

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.504	105	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1334 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS6W0226

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 02/26/14

Matrix: (Soil/Water) WATER Time Analyzed: 1937

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.512	107	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1334 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS1W0227

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 02/27/14

Matrix: (Soil/Water) WATER Time Analyzed: 0908

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.484	101	90-110	

* Values outside of QC limits

Comments:

N1334

CH2MHILL **CHAIN OF CUSTODY RECORD** *2/20/2014 2:38:36 PM* Page 1 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.03
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/20/2014
COC Number: 8

	Container:	Preservatives:	Filtered:	Holding Time:				
	125 ml Poly	H2SO4, pH<2, 4°C	NA	28			Number of Containers	COMMENTS
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)				
MW-57-185-197	2/13/2014	11:19	Water	X			1	1
MW-35-060-197	2/17/2014	8:24	Water	X			1	2
MW-70-105-197	2/17/2014	14:22	Water	X			1	3
MW-72BR-200-197	2/17/2014	14:08	Water	X			1	4
MW-92-197	2/17/2014	7:00	Water	X			1	5
MW-95-197	2/17/2014	7:00	Water	X			1	6
MW-71-035-197	2/18/2014	11:00	Water	X			1	7
MW-72-080-197	2/18/2014	10:30	Water	X			1	8
MW-73-080-197	2/18/2014	10:30	Water	X			1	9
MW-60BR-245-197	2/19/2014	11:45	Water	X			1	10
MW-61-110-197	2/19/2014	11:28	Water	X			1	11
MW-62-110-197	2/19/2014	14:20	Water	X			1	12
MW-62-190-197	2/19/2014	14:25	Water	X			1	13
MW-65-160-197	2/19/2014	8:04	Water	X			1	14

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		2-20-14 1445
Received by		
Relinquished by		
Received by		

Shipping Details
Method of Shipment:
On Ice: yes / no
Airbill No:
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone:

ATTN:
Sample Custody
SRC
Kathy McKinney

Special Instructions:
Feb 17 2014

Report Copy to
Shawn Duffy

N1334

CH2MHILL **CHAIN OF CUSTODY RECORD** *2/20/2014 2:38:37 PM* Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date: 2/20/2014
COC Number: 8

	DATE	TIME	Matrix	Container: 125 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28 Nitrate/Nitrite (E353.3)	Number of Containers	COMMENTS
MW-65-225-197	2/19/2014	8:32	Water	X	1	15
MW-66-165-197	2/19/2014	9:32	Water	X	1	16
MW-69-195-197	2/19/2014	10:12	Water	X	1	17
TW-01-197	2/20/2014	8:18	Water	X	1	18
				TOTAL NUMBER OF CONTAINERS	18	

	Signatures	Date/Time
Approved by		
Sampled by		2/20/14 1445
Relinquished by		
Received by		
Relinquished by		
Received by		

Shipping Details
Method of Shipment: COURIER
On Ice: yes / no ~8°C
Airbill No: 1K2
Lab Name: CH2M HILL Applied Sciences
Lab Phone:

ATTN.
Sample Custody
and
Kathy McKinley

Special Instructions:
Feb 2 27 2014

Report Copy to
Shawn Duffy

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: N1334 Date Received: 2/25/2014

Client/Project: P&G Topock Received By: Carmen C.

Were custody seals intact and on the outside of the cooler?		☑ Yes	☐ No	☐ N/A
Shipping Record:	☐ Hand Delivered	☑ On File	☐ COC	
Radiological Screening for DoD		☐ Yes	☐ No	☑ N/A
Packing Material:	☐ Hand Delivered	☑ Ice	☐ Blue Ice	☐ Box
Temp OK? (<6C) Therm ID: TH173 Exp. 3/14	1.7 °C	☑ Yes	☐ No	☐ N/A
Was a Chain of Custody (CoC) Provided?		☑ Yes	☐ No	☐ N/A
Was the CoC correctly filled out (If No, document below)		☑ Yes	☐ No	☐ N/A
Did sample labels agree with COC? (If No, document below)		☑ Yes	☐ No	☐ N/A
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		☑ Yes	☐ No	☐ N/A
Were the sample containers in good condition (broken or leaking)?		☑ Yes	☐ No	☐ N/A
Was enough sample volume provided for analysis? (If No, document below)		☑ Yes	☐ No	☐ N/A
Containers supplied by ASL?		☑ Yes	☐ No	☐ N/A
Any sample with < 1/2 holding time remaining? If so contact LPM		☐ Yes	☑ No	☐ N/A
Samples have multi-phase? If yes, document on SRER		☐ Yes	☑ No	☐ N/A
All water VOCs free of air bubbles? No, document on SRER		☐ Yes	☐ No	☑ N/A
pH of all samples met criteria on receipt? If "No", preserve and document below.		☑ Yes	☐ No	☐ N/A
Dissolved/Soluble metals filtered in the field?		☐ Yes	☐ No	☑ N/A
Dissolved/Soluble metals have sediment in bottom of container? If so document below.		☐ Yes	☐ No	☑ N/A

Preservation Adjustment

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

Sample Exception Report (The following exceptions were noted)

Client was notified on: Client contact:

Resolution to Exception:

ANALYTICAL REPORT

For:
PGE Topock - 2014-GMP-197-Q1

ASL Report #: N1361

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

Attn: Jay Piper

cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
March 11, 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)

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
N136101	MW-67-185-197	02/24/14 09:30	02/28/14
N136102	MW-67-225-197	02/24/14 07:38	02/28/14
N136103	MW-67-260-197	02/24/14 08:11	02/28/14
N136104	MW-12-197	02/25/14 08:56	02/28/14
N136105	MW-59-100-197	02/25/14 10:21	02/28/14
N136106	MW-60-125-197	02/25/14 13:52	02/28/14
N136107	MW-68-240-197	02/25/14 07:35	02/28/14
N136108	MW-70BR-225-197	02/25/14 13:02	02/28/14
N136109	MW-66-230-197	02/26/14 07:09	02/28/14
N136110	MW-66BR-270-197	02/26/14 07:16	02/28/14
N136111	MW-74-240-197	02/26/14 08:08	02/28/14
N136112	MW-68-180-197	02/27/14 10:12	02/28/14
N136113	MW-68BR-280-197	02/27/14 09:22	02/28/14

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#:** N1361

Project: PGE Topock **Project #:** 423575.MP.02.GM.03

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-67-185-197

SDG No.: N1361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N136101

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	39.4		MG/L	50	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-225-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136102

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	23.9		MG/L	50	3 ML	E353.2	03/05/14

KO140311-09:13-N1361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-260-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136103

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.38		MG/L	4	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-12-197

SDG No.: N1361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N136104

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	13.2		MG/L	50	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-59-100-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136105

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.16		MG/L	10	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60-125-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136106

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.74		MG/L	10	3 ML	E353.2	03/05/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-240-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136107

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.97		MG/L	10	3 ML	E353.2	03/05/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-70BR-225-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136108

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.13		MG/L	10	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66-230-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136109

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	16.1		MG/L	50	3 ML	E353.2	03/05/14

KO140311-09:13-N1361-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66BR-270-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136110

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0594		MG/L	1	3 ML	E353.2	03/05/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-74-240-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136111

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0280		MG/L	1	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-180-197

SDG No.: N1361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N136112

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	30.1		MG/L	50	3 ML	E353.2	03/05/14

FORM I GEN CHEM

KO140311-09:13-N1361-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68BR-280-197

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136113

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68BR-280-197MS

SDG No.: N1361

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N136113MS

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.510		MG/L	1	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68BR-280-197MSD

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N136113MSD

Date Received: 02/28/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.508		MG/L	1	3 ML	E353.2	03/05/14

FORM I GEN CHEM

KO140311-09:13-N1361-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-030514

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-030514

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-03052014

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-03052014

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/05/14

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-030514

SDG No.: N1361

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB3-030514

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/05/14

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: N1361 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 Concentration Units: MG/L

Native Sample ID:	Matrix Spike ID:	Matrix Spike Duplicate ID:
MW-68BR-280-197	MW-68BR-280-197MS	MW-68BR-280-197MSD

Analyte	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q
Nitrate/Nitrite-N	0.0100U	0.500	0.510	102	0.500	0.508	102	0.5	90-110	15	

* Values outside of QC limits

Comments:
Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1361 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS1W0305

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 03/05/14

Matrix: (Soil/Water) WATER Time Analyzed: 1245

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.463	97	90-110	

* Values outside of QC limits

Comments:

7-WC

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1361 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS2W0305

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 03/05/14

Matrix: (Soil/Water) WATER Time Analyzed: 1339

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.461	96	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1361 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS1W03052014

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 03/05/14

Matrix: (Soil/Water) WATER Time Analyzed: 1523

Instrument: SMARTCHEM Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.480	0.492	103	90-110	

* Values outside of QC limits

Comments:

N1361

CH2MHILL **CHAIN OF CUSTODY RECORD** 2/27/2014 11:00:34 AM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2014-GMP-197-Q1
Turnaround Time 10 Days
Shipping Date:
COC Number: CHMC-GMP197

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-67-185-197	2/24/2014	9:30	Water	X	1	1
MW-67-225-197	2/24/2014	7:38	Water	X	1	2
MW-67-260-197	2/24/2014	8:11	Water	X	1	3
MW-12-197	2/25/2014	8:56	Water	X	1	4
MW-59-100-197	2/25/2014	10:21	Water	X	1	5
MW-60-125-197	2/25/2014	13:52	Water	X	1	6
MW-68-240-197	2/25/2014	7:35	Water	X	1	7
MW-70BR-225-197	2/25/2014	13:02	Water	X	1	8
MW-66-230-197	2/26/2014	7:09	Water	X	1	9
MW-66BR-270-197	2/26/2014	7:16	Water	X	1	10
MW-74-240-197	2/26/2014	8:08	Water	X	1	11
MW-68-180-197	2/27/2014	10:12	Water	X	1	12
MW-68BR-280-197	2/27/2014	9:22	Water	X	1	13
				TOTAL NUMBER OF CONTAINERS	13	

	Signatures	Date/Time
Approved by		2-27-14
Sampled by		1310
Relinquished by	[signature]	
Received by	[signature]	2/27/14 1311
Relinquished by	[signature]	2/27/14 1512
Received by	[signature]	[illegible]

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No: RH2
Lab Name: CH2M HILL Applied Sciences Lab
Lab Phone [illegible]

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
Feb 3-27-2014

Report Copy to
Shawn Duffy
[illegible]

[illegible] #35

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: N1361 Date Received: 2/28/2014

Client/Project: Topock Received By: Carmen C.

Were custody seals intact and on the outside of the cooler?		☑ Yes	☐ No	☐ N/A
Shipping Record:	☐ Hand Delivered	☑ On File	☐ COC	
Radiological Screening for DoD		☑ Yes	☐ No	☐ N/A
Packing Material:	☐ Hand Delivered	☑ Ice	☐ Blue Ice	☐ Box
Temp OK? (<6C) Therm ID: TH173 Exp. 3/14	1.3 °C	☑ Yes	☐ No	☐ N/A
Was a Chain of Custody (CoC) Provided?		☑ Yes	☐ No	☐ N/A
Was the CoC correctly filled out (If No, document below)		☑ Yes	☐ No	☐ N/A
Did sample labels agree with COC? (If No, document below)		☑ Yes	☐ No	☐ N/A
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		☑ Yes	☐ No	☐ N/A
Were the sample containers in good condition (broken or leaking)?		☑ Yes	☐ No	☐ N/A
Was enough sample volume provided for analysis? (If No, document below)		☑ Yes	☐ No	☐ N/A
Containers supplied by ASL?		☑ Yes	☐ No	☐ N/A
Any sample with < 1/2 holding time remaining? If so contact LPM		☐ Yes	☑ No	☐ N/A
Samples have multi-phase? If yes, document on SRER		☐ Yes	☑ No	☐ N/A
All water VOCs free of air bubbles? No, document on SRER		☐ Yes	☐ No	☑ N/A
pH of all samples met criteria on receipt? If "No", preserve and document below.		☑ Yes	☐ No	☐ N/A
Dissolved/Soluble metals filtered in the field?		☐ Yes	☐ No	☑ N/A
Dissolved/Soluble metals have sediment in bottom of container? If so document below.		☐ Yes	☐ No	☑ N/A

Preservation Adjustment

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

Sample Exception Report (The following exceptions were noted)

Client was notified on: Client contact:

Resolution to Exception:

ANALYTICAL REPORT

For:

PGE Topock - 2014-RMP-195

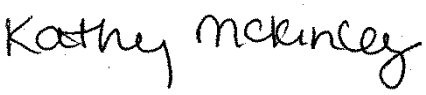
ASL Report #: N1487

Project ID: 423575.MP.02.RM

Attn: Jay Piper/LAS

cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:



Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
April 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)

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
N148701	C-BNS-D-195	03/12/14 11:40	03/19/14
N148702	C-I-3-D-195	03/12/14 10:12	03/19/14
N148703	C-I-3-S-195	03/12/14 10:22	03/19/14
N148704	C-MAR-D-195	03/12/14 12:44	03/19/14
N148705	C-R22A-D-195	03/12/14 11:10	03/19/14
N148706	C-R22A-S-195	03/12/14 11:18	03/19/14
N148707	C-R27-D-195	03/12/14 12:00	03/19/14
N148708	C-R27-S-195	03/12/14 12:14	03/19/14
N148709	C-TAZ-D-195	03/12/14 09:26	03/19/14
N148710	C-TAZ-S-195	03/12/14 09:38	03/19/14
N148711	R63-195	03/12/14 10:42	03/19/14
N148712	C-CON-D-195	03/13/14 10:15	03/19/14
N148713	C-CON-S-195	03/13/14 10:32	03/19/14
N148714	C-NR1-D-195	03/13/14 10:58	03/19/14
N148715	C-NR1-S-195	03/13/14 11:10	03/19/14
N148716	C-NR3-D-195	03/13/14 11:42	03/19/14
N148717	C-NR3-S-195	03/13/14 11:58	03/19/14
N148718	C-NR4-D-195	03/13/14 12:30	03/19/14
N148719	C-NR4-S-195	03/13/14 12:42	03/19/14
N148720	R-19-195	03/13/14 09:15	03/19/14
N148721	R-28-195	03/13/14 08:54	03/19/14
N148722	RRB-195	03/13/14 09:36	03/19/14

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#:** N1487

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

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-BNS-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148701

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.412		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-BNS-D-195MS

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148701MS

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.876		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-BNS-D-195MSD

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148701MSD

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.900		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-I-3-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148702

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.407		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-I-3-S-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148703

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.406		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-MAR-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148704

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.505		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R22A-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148705

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.398		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R22A-S-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148706

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.401		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R27-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148707

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.407		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R27-S-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148708

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.401		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-TAZ-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148709

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.487		MG/L	1	3 ML	E353.2	03/26/14

FORM I GEN CHEM

KO140326-15:34-N1487-W

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-TAZ-S-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148710

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.408		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R63-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148711

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.418		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R63-195MS

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148711MS

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.902		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R63-195MSD

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148711MSD

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.891		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-CON-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148712

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.410		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-CON-S-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148713

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.409		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR1-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148714

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.427		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR1-S-195

SDG No.: N1487

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N148715

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.414		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR3-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148716

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.402		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR3-S-195

SDG No.: N1487

Matrix: WATER

Lab Name: CH2M HILL ASL

Lab Sample ID: N148717

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.411		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR4-D-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148718

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.407		MG/L	1	3 ML	E353.2	03/26/14

FORM I GEN CHEM

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR4-S-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148719

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.413		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R-19-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148720

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.421		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R-28-195

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148721

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.410		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID: **RRB-195**

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148722

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.387		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RRB-195MS

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148722MS

Date Received: 03/19/14

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.869		MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RRB-195MSD

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: N148722MSD

Date Received: 03/19/14

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	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-032614

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB1-032614

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/26/14

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-032614

SDG No.: N1487

Lab Name: CH2M HILL ASL

Matrix: WATER

Lab Sample ID: WB5-032614

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	03/26/14

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: N1487 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 Concentration Units: MG/L

Native Sample ID:	Matrix Spike ID:	Matrix Spike Duplicate ID:
C-BNS-D-195	C-BNS-D-195MS	C-BNS-D-195MSD

Analyte	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q
Nitrate/Nitrite-N	0.412	0.500	0.876	93	0.500	0.900	98	3	90-110	15	

* Values outside of QC limits

Comments:
Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: N1487 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 Concentration Units: MG/L

Native Sample ID:	Matrix Spike ID:	Matrix Spike Duplicate ID:
R63-195	R63-195MS	R63-195MSD

Analyte	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q
Nitrate/Nitrite-N	0.418	0.500	0.902	97	0.500	0.891	95	1	90-110	15	

* Values outside of QC limits

Comments:
Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: N1487 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 Concentration Units: MG/L

Native Sample ID:	Matrix Spike ID:	Matrix Spike Duplicate ID:
RRB195	RRB195MS	RRB195MSD

Analyte	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q
Nitrate/Nitrite-N	0.387	0.500	0.869	96	0.500	0.874	97	0.6	90-110	15	

* Values outside of QC limits

Comments:
Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: N1487 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS1W0326

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 03/26/14

Matrix: (Soil/Water) WATER Time Analyzed: 1326

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.: N1487 Lab Name: CH2M HILL ASL

Analysis Method: E353.2 LCS ID: BS4W0326

Initial Calibration ID: 092313NO32SM1 Date Analyzed: 03/26/14

Matrix: (Soil/Water) WATER Time Analyzed: 1428

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:

N1487

CH2MHILL

CHAIN OF CUSTODY RECORD

3/13/2014 3:15:44 PM

Page 1 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2014-RMP-195
Turnaround Time 10 Days
Shipping Date: 3/10/2014
COC Number: RMP-195_CHMC

Container: 125 ml Poly
Preservatives: H2SO4, pH<2, 4°C
Filtered: NA
Holding Time: 28

3.2

	DATE	TIME	Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate	Number of Containers	COMMENTS
C-BNS-D-195	3/12/2014	11:40	Water	x	1	1
C-I-3-D-195	3/12/2014	10:12	Water	x	1	2
C-I-3-S-195	3/12/2014	10:22	Water	x	1	3
C-MAR-D-195	3/12/2014	12:44	Water	x	1	4
C-R22A-D-195	3/12/2014	11:10	Water	x	1	5
C-R22A-S-195	3/12/2014	11:18	Water	x	1	6
C-R27-D-195	3/12/2014	12:00	Water	x	1	7
C-R27-S-195	3/12/2014	12:14	Water	x	1	8
C-TAZ-D-195	3/12/2014	9:26	Water	x	1	9
C-TAZ-S-195	3/12/2014	9:38	Water	x	1	10
R63-195	3/12/2014	10:42	Water	x	1	11
C-CON-D-195	3/13/2014	10:15	Water	x	1	12
C-CON-S-195	3/13/2014	10:32	Water	x	1	13
C-NR1-D-195	3/13/2014	10:58	Water	x	1	14

	Signatures	Date/Time
Approved by		3-18-14
Sampled by		0900
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: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
March 2014

Report Copy to
Shawn Duffy
(530) 229-3303

1487

CH2MHILL **CHAIN OF CUSTODY RECORD** *3/13/2014 3:15:44 PM* Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2014-RMP-195
Turnaround Time 10 Days
Shipping Date: 3/10/2014
COC Number: RMP-195_CHMC

	DATE	TIME	Matrix	Container: 125 ml Poly; Preservatives: H2SO4, pH<2, 4°C; Filtered: NA; Holding Time: 28; Nitrate/Nitrite (SM4500NO3) Nitrate	Number of Containers	COMMENTS
C-NR1-S-195	3/13/2014	11:10	Water	X	1	15
C-NR3-D-195	3/13/2014	11:42	Water	X	1	16
C-NR3-S-195	3/13/2014	11:58	Water	X	1	17
C-NR4-D-195	3/13/2014	12:30	Water	X	1	18
C-NR4-S-195	3/13/2014	12:42	Water	X	1	19
R-19-195	3/13/2014	9:15	Water	X	1	20
R-28-195	3/13/2014	8:54	Water	X	1	21
RRB-195	3/13/2014	9:36	Water	X	1	22
				TOTAL NUMBER OF CONTAINERS	22	

	Signatures	Date/Time
Approved by		
Sampled by		3-18-14
Relinquished by		0940
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: (541) 752-4271

ATTN:
Sample Custody
and
Kathy McKinley

Special Instructions:
March 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: N1487 Date Received: 3/19/2014

Client/Project: Topock Received By: Carmen C

Were custody seals intact and on the outside of the cooler?		☑ Yes	☐ No	☐ N/A
Shipping Record:	☐ Hand Delivered	☑ On File	☐ COC	
Radiological Screening for DoD		☐ Yes	☐ No	☑ N/A
Packing Material:	☐ Hand Delivered	☑ Ice	☐ Blue Ice	☐ Box
Temp OK? (<6C) Therm ID: TH173 Exp. 6/14	3.2°C	☑ Yes	☐ No	☐ N/A
Was a Chain of Custody (CoC) Provided?		☑ Yes	☐ No	☐ N/A
Was the CoC correctly filled out (If No, document below)		☑ Yes	☐ No	☐ N/A
Did sample labels agree with COC? (If No, document below)		☑ Yes	☐ No	☐ N/A
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		☑ Yes	☐ No	☐ N/A
Were the sample containers in good condition (broken or leaking)?		☑ Yes	☐ No	☐ N/A
Was enough sample volume provided for analysis? (If No, document below)		☑ Yes	☐ No	☐ N/A
Containers supplied by ASL?		☑ Yes	☐ No	☐ N/A
Any sample with < 1/2 holding time remaining? If so contact LPM		☐ Yes	☑ No	☐ N/A
Samples have multi-phase? If yes, document on SRER		☐ Yes	☑ No	☐ N/A
All water VOCs free of air bubbles? No, document on SRER		☐ Yes	☐ No	☑ N/A
pH of all samples met criteria on receipt? If "No", preserve and document below.		☑ Yes	☐ No	☐ N/A
Dissolved/Soluble metals filtered in the field?		☐ Yes	☐ No	☑ N/A
Dissolved/Soluble metals have sediment in bottom of container? If so document below.		☐ Yes	☐ No	☑ N/A

Preservation Adjustment

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

Sample Exception Report (The following exceptions were noted)

Client was notified on: Client contact:

Resolution to Exception:

Appendix C
Other Groundwater Monitoring Results

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Dissolved Arsenic (µg/L)
MW-10	SA	12-Dec-13	4.5
MW-12	SA	09-May-13	33.0
		25-Sep-13	40.0
		10-Dec-13	38.0
		25-Feb-14	42.0
MW-13	SA	13-Nov-13	1.9
MW-16	SA	24-Apr-13	9.7
		06-Nov-13	9.1
MW-17	SA	24-Apr-13	1.6
		11-Nov-13	1.3
MW-19	SA	12-Mar-13	1.0
MW-20-70	SA	12-Mar-13	2.4
MW-20-100	MA	13-Mar-13	2.0
MW-20-130	DA	14-Mar-13	5.2
		14-May-13	4.6
		17-Dec-13	4.9
		17-Dec-13 FD	4.9
MW-22	SA	15-May-13	13.0
		14-Nov-13	14.0
MW-23-060	BR	23-Apr-13	4.3
		17-Sep-13	4.0
		11-Nov-13	3.0
		13-Feb-14	3.6
MW-23-080	BR	23-Apr-13	3.6
		17-Sep-13	2.4
		11-Nov-13	3.0
		13-Feb-14	3.6
MW-25	SA	09-Dec-13	1.2
MW-26	SA	12-Mar-13	1.7
		07-May-13	2.2
		04-Dec-13	1.8
MW-27-20	SA	15-Apr-13	1.6
		04-Nov-13	1.3
MW-27-60	MA	15-Apr-13	6.8
		02-Oct-13	6.4
		04-Nov-13	6.3

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-27-60	MA	10-Feb-14		6.5
MW-27-85	DA	15-Apr-13		1.3
		15-Apr-13	FD	1.4
		02-Oct-13		1.4
		04-Nov-13		1.3
		10-Feb-14		1.4
MW-28-25	SA	18-Apr-13		1.7
		05-Nov-13		1.0
MW-28-90	DA	18-Apr-13		1.7
		11-Sep-13		1.7
		05-Nov-13		1.5
		12-Feb-14		1.7
MW-29	SA	18-Apr-13		4.1
		05-Nov-13		6.4
		05-Nov-13	FD	6.1
MW-30-30	SA	04-Nov-13		0.84
MW-30-50	MA	04-Nov-13		2.7
MW-31-60	SA	03-Dec-13		1.2
MW-31-135	DA	07-Nov-13		3.4
MW-32-20	SA	16-Dec-13		3.6
MW-32-35	SA	17-Apr-13		27.0
		17-Apr-13	FD	26.0
		06-Nov-13		23.0
MW-33-40	SA	22-Apr-13		15.0
		16-Sep-13		11.0
		03-Dec-13		12.0
		12-Feb-14		13.0
MW-33-90	MA	22-Apr-13		1.7
		16-Sep-13		1.4
		03-Dec-13		1.3
		12-Feb-14		1.3
MW-33-150	DA	22-Apr-13		2.2
		16-Sep-13		1.8
		03-Dec-13		1.7
		12-Feb-14		1.6
		12-Feb-14	FD	1.7

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-33-210	DA	23-Apr-13		1.6
		12-Sep-13		1.2
		03-Dec-13		1.1
		03-Dec-13	FD	1.2
		12-Feb-14		1.1
MW-34-55	MA	20-Nov-13		2.6
MW-34-80	DA	16-Apr-13		1.3
		02-Oct-13		1.3
		20-Nov-13		1.3
		20-Nov-13	FD	1.3
		10-Feb-14		1.3
MW-34-100	DA	16-Apr-13		1.3
		16-Apr-13	FD	1.3
		02-Oct-13		1.2
		02-Oct-13	FD	1.3
		20-Nov-13		1.5
		20-Nov-13	FD	1.4
		16-Dec-13		2.2
		22-Jan-14		1.8
		10-Feb-14		1.6
MW-35-60	SA	23-Apr-13		1.4
		10-Sep-13		0.93
		12-Nov-13		0.91
		17-Feb-14		1.1
		17-Feb-14	FD	1.0
MW-35-135	DA	12-Nov-13		0.85
MW-36-20	SA	11-Nov-13		1.5 J
		11-Nov-13	FD	1.2 J
MW-36-40	SA	11-Nov-13		4.7
MW-36-50	MA	11-Nov-13		3.6
MW-36-70	MA	11-Nov-13		3.5
MW-36-90	DA	15-May-13		17.0
		11-Nov-13		20.0
MW-36-100	DA	11-Mar-13		7.3
		24-Apr-13		7.8
		16-Dec-13		7.1

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Dissolved Arsenic (µg/L)
MW-37S	MA	06-Nov-13	1.6
MW-38D	DA	17-Sep-13	6.5
		13-Nov-13	6.6
MW-38S	SA	24-Sep-13	13.0
		03-Dec-13	13.0
MW-39-40	SA	12-Nov-13	17.0
MW-39-50	MA	12-Nov-13	3.5
MW-39-60	MA	12-Nov-13	5.2
MW-39-100	DA	04-Dec-13	2.2
		04-Dec-13 FD	2.0
MW-40D	DA	01-May-13	4.4
		02-Dec-13	4.3
MW-40S	SA	11-Nov-13	1.5
MW-41D	DA	04-Nov-13	2.1
MW-41M	DA	04-Nov-13	1.8
MW-41S	SA	04-Nov-13	1.7
MW-42-30	SA	05-Nov-13	3.1
MW-42-55	MA	16-Apr-13	11.0
		11-Sep-13	11.0
		05-Nov-13	11.0
		11-Feb-14	13.0
MW-42-65	MA	17-Apr-13	2.5
		11-Sep-13	2.6
		05-Nov-13	2.2
		11-Feb-14	2.2
MW-43-25	SA	17-Apr-13	19.0
		06-Nov-13	19.0
MW-43-75	DA	06-Nov-13	12.0
MW-43-90	DA	17-Apr-13	3.2
		06-Nov-13	3.1
MW-44-70	MA	22-Apr-13	4.0
		02-Dec-13	4.1
MW-44-115	DA	24-Apr-13	6.3
		12-Sep-13	6.0
		02-Dec-13	5.4

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-44-115	DA	11-Feb-14		5.5
MW-44-125	DA	18-Apr-13		3.2
		18-Apr-13	FD	3.3
		12-Sep-13		3.6
		12-Sep-13	FD	3.1
		02-Dec-13		3.1
		02-Dec-13	FD	3.3
		11-Feb-14		3.4
		11-Feb-14	FD	3.5
MW-45-095a	DA	02-Dec-13		3.2
MW-47-55	SA	11-Mar-13		1.2
		12-Nov-13		1.2
MW-49-135	DA	06-Nov-13		1.9
MW-51	MA	14-Mar-13		4.1
		13-May-13		3.6
		11-Dec-13		3.8
MW-52D	DA	16-May-13		3.2
		13-Nov-13		3.8
MW-52M	DA	16-May-13		1.3
		13-Nov-13		1.9
		13-Nov-13	FD	1.9
MW-52S	MA	16-May-13		0.21
		13-Nov-13		0.23
MW-53D	DA	16-May-13		2.8
		13-Nov-13		3.1
MW-53M	DA	16-May-13		0.8
		13-Nov-13		0.95
MW-54-85	DA	25-Apr-13		2.6
		21-Nov-13		3.4
MW-54-140	DA	25-Apr-13		1.4 J
		21-Nov-13		2.1
MW-54-195	DA	25-Apr-13		ND (0.2)
		25-Apr-13	FD	ND (0.2)
		21-Nov-13		ND (0.2)
MW-57-070	BR	12-Dec-13		1.5
MW-57-185	BR	23-Apr-13		13.0

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-57-185	BR	10-Sep-13		15.0
		07-Nov-13		14.0
		07-Nov-13	FD	14.0
		13-Feb-14		13.0
MW-58BR	BR	30-Apr-13		1.4
		19-Sep-13		1.0
		17-Dec-13		0.97
		25-Feb-14		1.2
MW-59-100	SA	13-May-13		1.9
		25-Sep-13		2.5
		10-Dec-13		2.1
		25-Feb-14		2.3
MW-60-125	BR	06-May-13		2.0
		24-Sep-13		1.4
		24-Sep-13	FD	1.4
		04-Dec-13		1.4
		25-Feb-14		1.4
MW-60BR-245	BR	14-Mar-13		7.5
		14-Mar-13	FD	7.1
		07-May-13		7.7
		17-Sep-13		6.4
		04-Dec-13		5.9
		19-Feb-14		6.4
MW-61-110	BR	02-May-13		3.3
		23-Sep-13		3.3
		05-Dec-13		3.4
		05-Dec-13	FD	3.6
		19-Feb-14		3.5
MW-62-065	BR	11-Dec-13		1.2
MW-62-110	BR	08-May-13		8.5
		18-Sep-13		8.2
		13-Nov-13		6.6
		19-Feb-14		5.6
MW-62-190	BR	08-May-13		4.1
		18-Sep-13		5.0
		13-Nov-13		4.6
		19-Feb-14		4.9

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-63-065	BR	25-Apr-13		1.9
		09-Sep-13		1.5
		04-Dec-13		1.5
		12-Feb-14		1.5
MW-64BR	BR	01-Mar-13		2.9
		01-May-13		3.4
		17-Sep-13		3.5
		16-Dec-13		2.9
		26-Feb-14		3.1
MW-65-160	SA	01-May-13		1.1
		19-Sep-13		0.85
		02-Dec-13		0.73
		19-Feb-14		0.89
MW-65-225	DA	02-May-13		2.5
		02-May-13	FD	2.6
		23-Sep-13		2.4
		23-Sep-13	FD	2.4
		02-Dec-13		2.3
		19-Feb-14		2.4
MW-66-165	SA	02-May-13		1.6
		23-Sep-13		1.2
		03-Dec-13		1.1
		19-Feb-14		1.2
MW-66-230	DA	13-May-13		5.6
		25-Sep-13		8.1
		12-Dec-13		7.7
		26-Feb-14		9.5
MW-66BR-270	BR	12-Mar-13		0.32
		18-Jun-13		0.24
		23-Sep-13		ND (0.5)
		17-Dec-13		ND (0.5)
		26-Feb-14		ND (0.5)
MW-67-185	SA	09-May-13		1.9
		25-Sep-13		1.7
		04-Dec-13		1.5
		24-Feb-14		1.4
MW-67-225	MA	09-May-13		2.8

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-67-225	MA	25-Sep-13		3.3
		09-Dec-13		2.9
		24-Feb-14		3.2
MW-67-260	DA	09-May-13		11.0
		09-May-13	FD	11.0
		25-Sep-13		12.0
		25-Sep-13	FD	12.0
		09-Dec-13		11.0
		24-Feb-14		13.0
MW-68-180	SA	13-May-13		2.5
		26-Sep-13		2.7
		12-Dec-13		2.5
		12-Dec-13	FD	2.4
		27-Feb-14		2.6
MW-68-240	DA	08-May-13		1.9
		24-Sep-13		2.0
		04-Dec-13		2.0
		25-Feb-14		1.9
MW-68BR-280	BR	08-May-13		1.6
		18-Sep-13		2.0
		18-Dec-13		1.4
		27-Feb-14		1.5
MW-69-195	BR	06-May-13		2.6
		24-Sep-13		2.4
		03-Dec-13		2.2
		19-Feb-14		2.4
MW-70-105	BR	25-Apr-13		5.9
		23-Sep-13		5.2
		04-Dec-13		5.1
		17-Feb-14		5.0
MW-70BR-225	BR	07-May-13		3.1
		24-Sep-13		1.9
		10-Dec-13		1.8
		25-Feb-14		1.9
MW-71-035	SA	30-Apr-13		1.8
		10-Sep-13		1.3
		11-Dec-13		1.3

TABLE C-1
Arsenic Results in Monitoring Wells, March 2013 through March 2014
First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-71-035	SA	18-Feb-14		1.5
MW-72-080	BR	25-Apr-13		12.0
		19-Sep-13		11.0
		19-Sep-13	FD	12.0
		04-Dec-13		10.0
		18-Feb-14		12.0
MW-72BR-200	BR	29-Apr-13		14.0
		19-Sep-13		16.0
		05-Nov-13		14.0
		05-Nov-13	FD	13.0
		17-Feb-14		15.0
		17-Feb-14	FD	15.0
MW-73-080	BR	01-May-13		1.6
		11-Sep-13		1.4
		05-Dec-13		1.3
		18-Feb-14		1.5
MW-74-240	BR	01-Mar-13		8.8
		02-May-13		11.0
		18-Sep-13		13.0
		05-Dec-13		14.0
		26-Feb-14		13.0
OW-3D	DA	05-Nov-13		2.3

Notes:

FD = field duplicate.
J = concentration or reporting limit estimated by laboratory or data validation.
µg/L = micrograms per liter.

The California primary drinking water standard maximum contaminant level (MCL) for arsenic is 10 µg/L.
The Background Study Upper Tolerance Limit for arsenic at the site is 24.3 µg/L.

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

For additional information on the East Ravine-Topock Compressor Station wells installed in 2009 through 2012, please see:

CH2M HILL. 2012d. Technical Memorandum. Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation, Pacific Gas and Electronic Company, Topock Compressor Station, Needles, California. November 15.

Appendix D
Groundwater Monitoring Data for GMP and Interim Measures Monitoring Wells

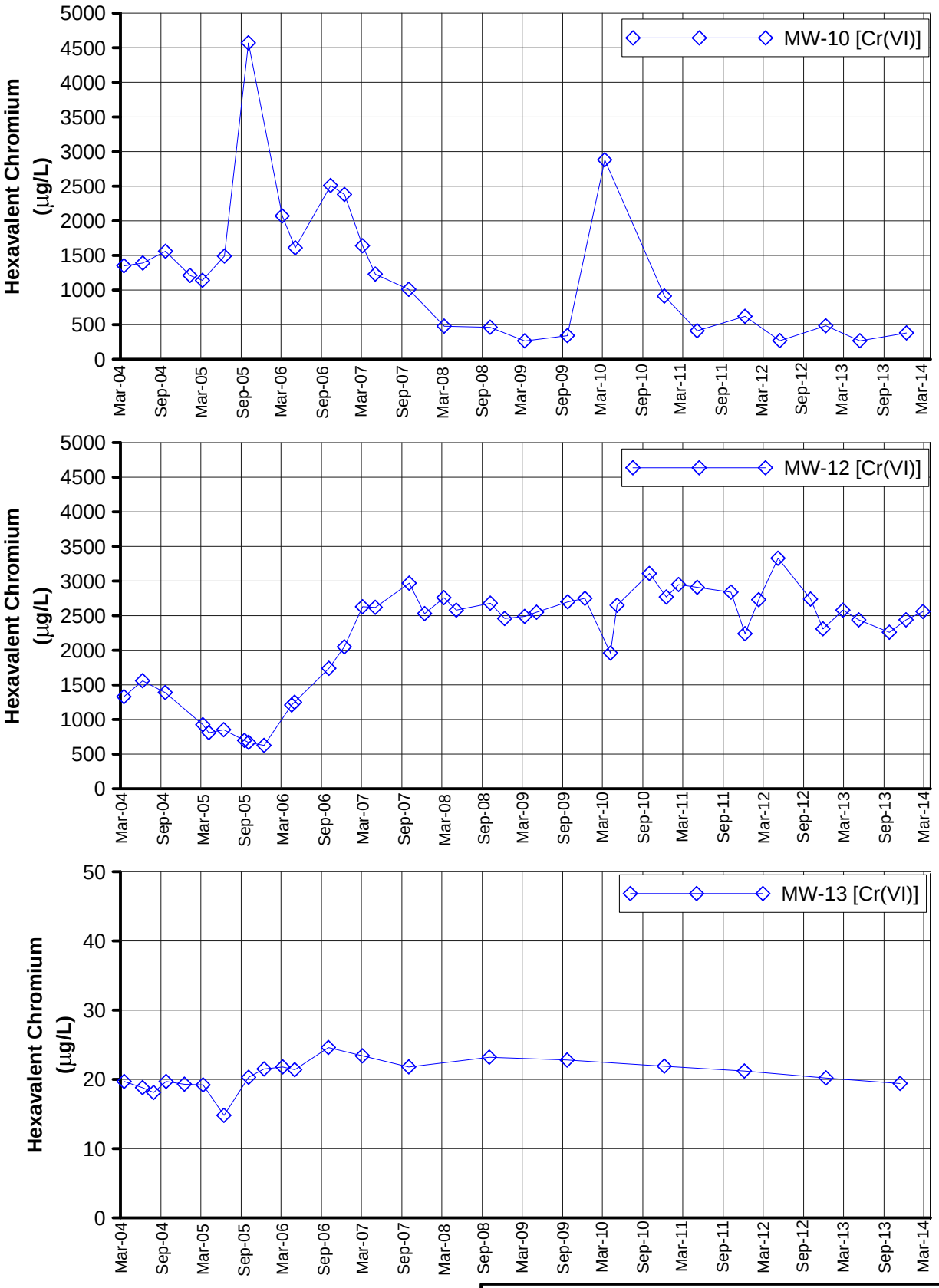


FIGURE D-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12, AND MW-13
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

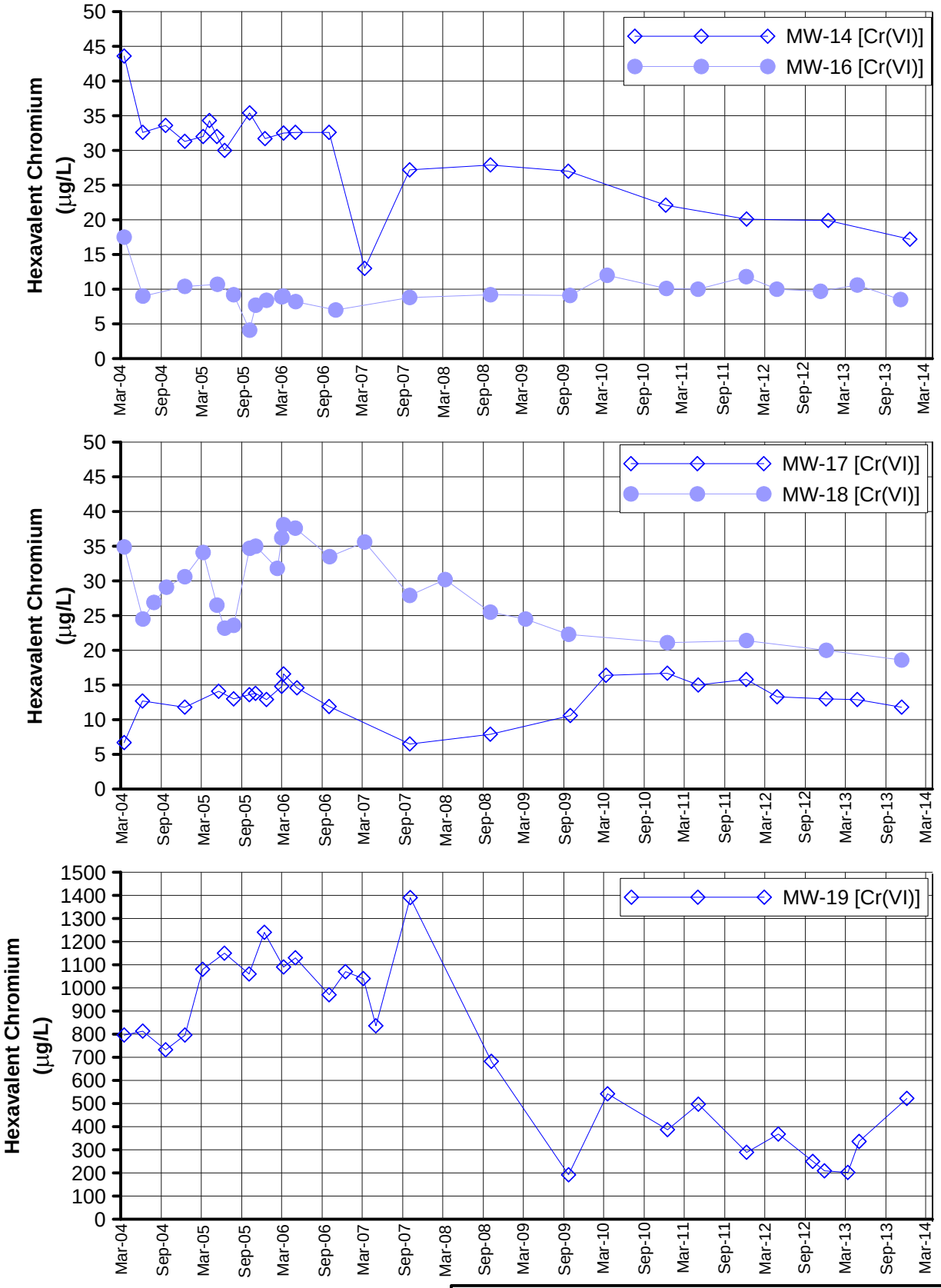


FIGURE D-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

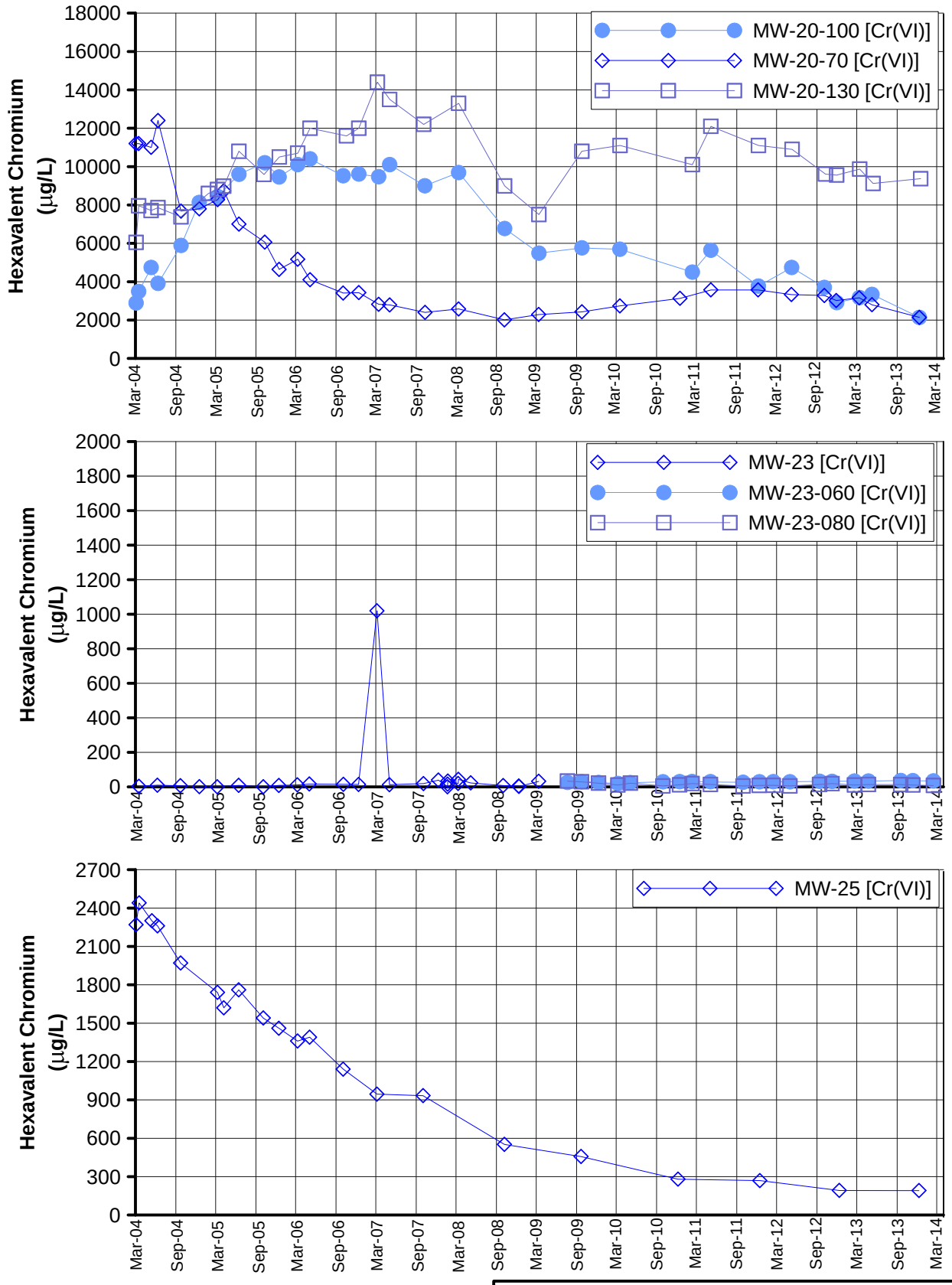
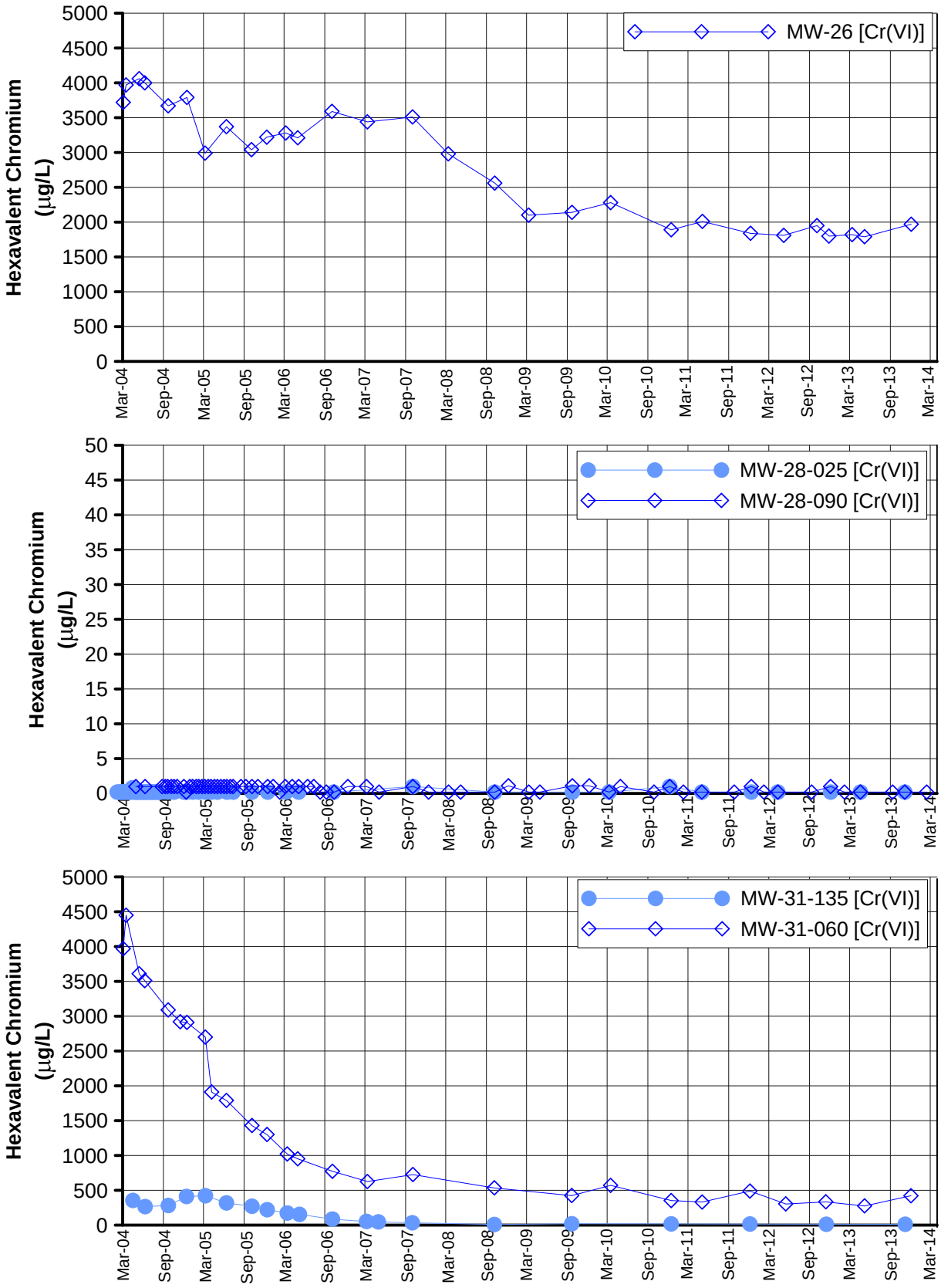


FIGURE D-3
HEXAVALENT CHROMIUM
IN MW-20, MW-23, AND MW-25 CLUSTERS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

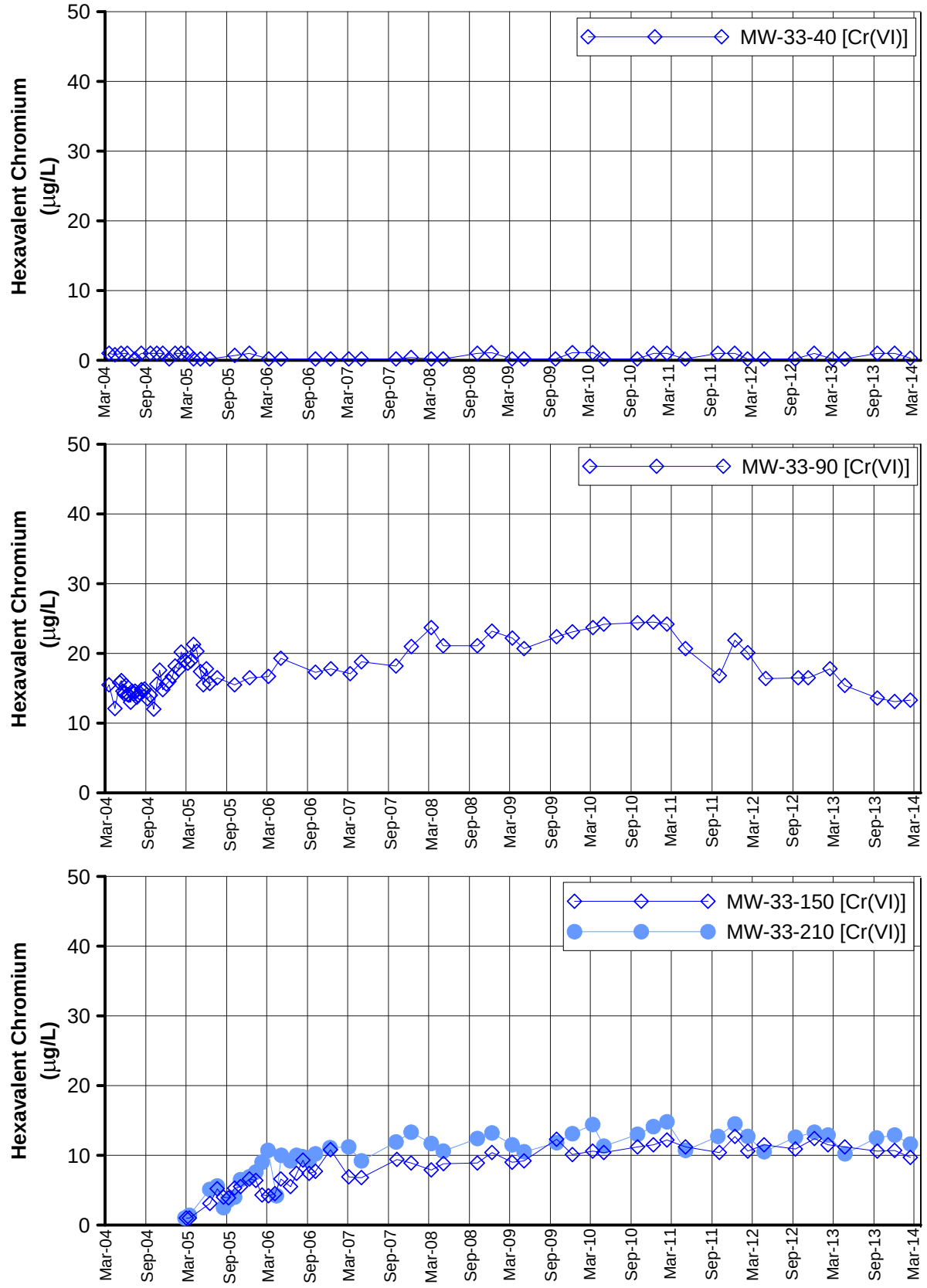
CH2MHILL



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 D-4
HEXAVALENT CHROMIUM
IN MW-26, MW-28, AND MW-31 CLUSTERS
FIRST QUARTER 2014 INTERIM MEASURESPERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

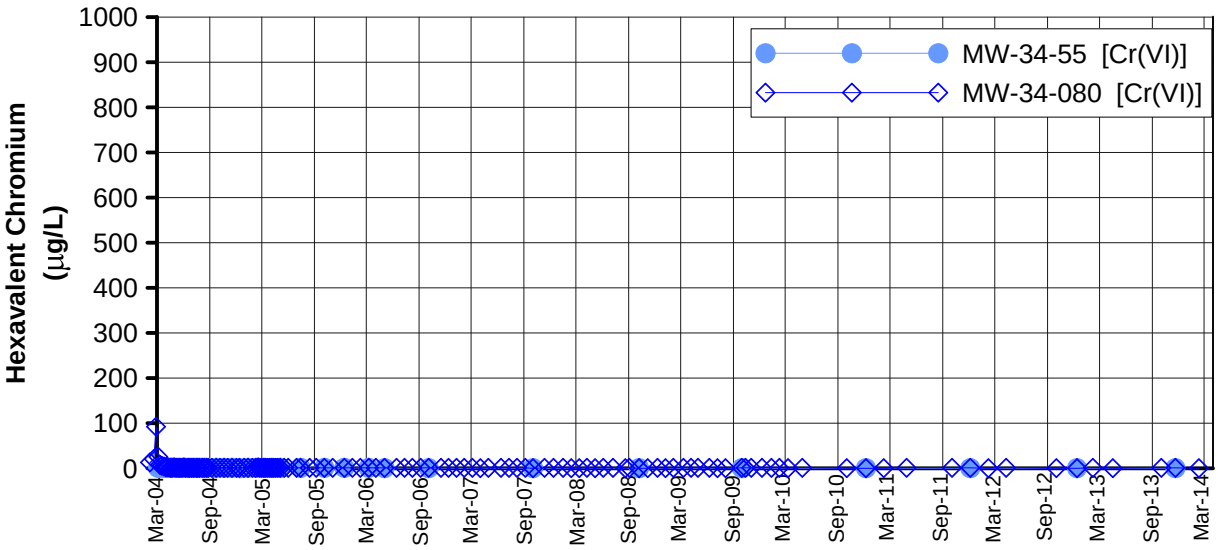
CH2MHILL

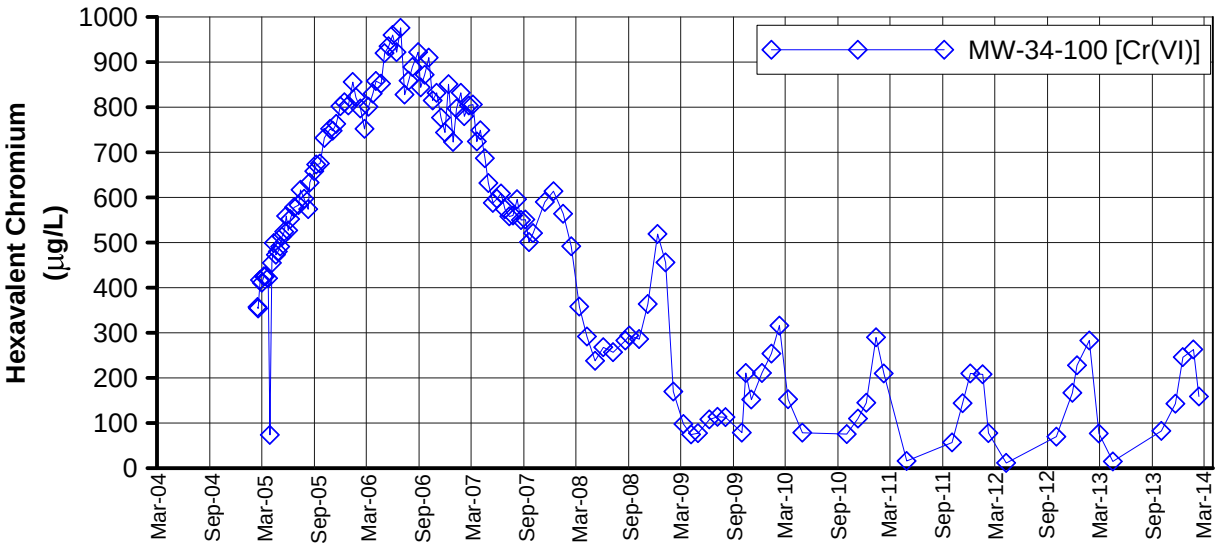


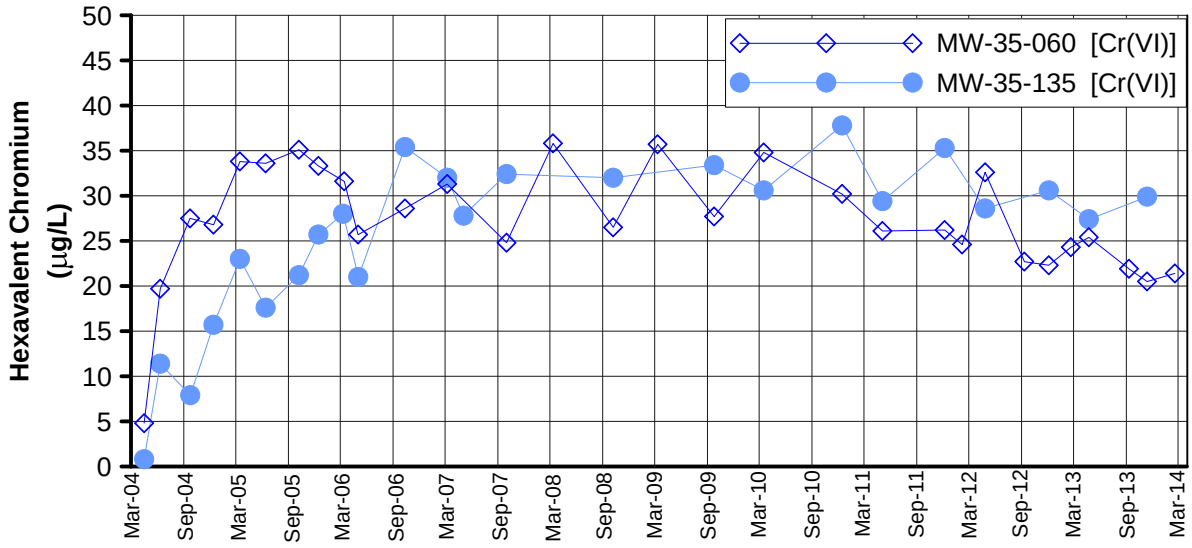
Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-33-40 is 20 µg/L.
3) The trigger level for MW-33-90 is 25 µg/L.
4) The trigger level for MW-33-150 is 20 µg/L.
5) The trigger level for MW-33-210 is 20 µg/L.

FIGURE D-5
HEXAVALENT CHROMIUM
IN MW-33 CLUSTER
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



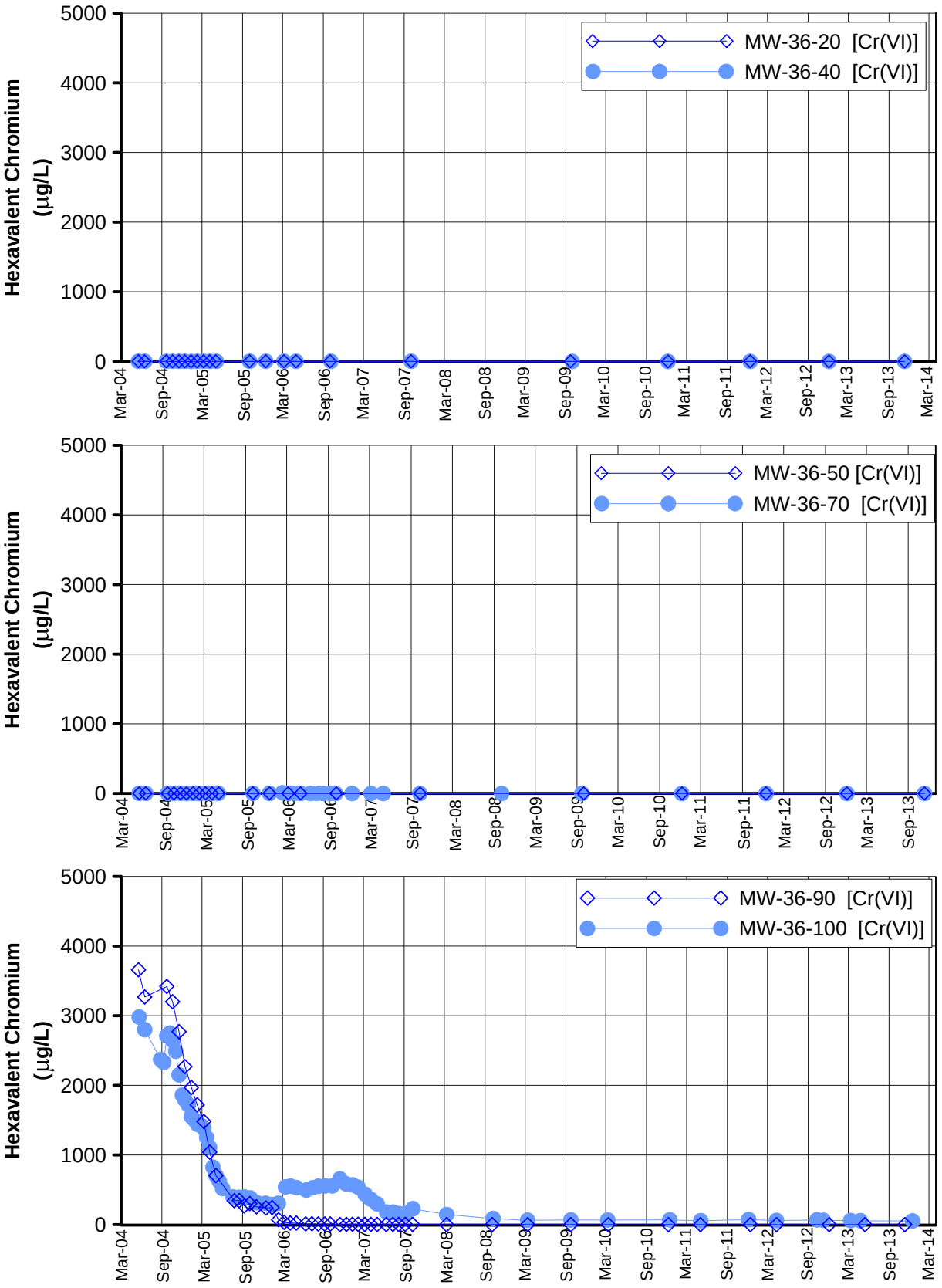




Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-34-80 is 20 µg/L.
3) The trigger level for MW-34-100 is 750 µg/L.

FIGURE D-6
HEXAVALENT CHROMIUM
IN MW-34 AND MW-35 CLUSTERS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

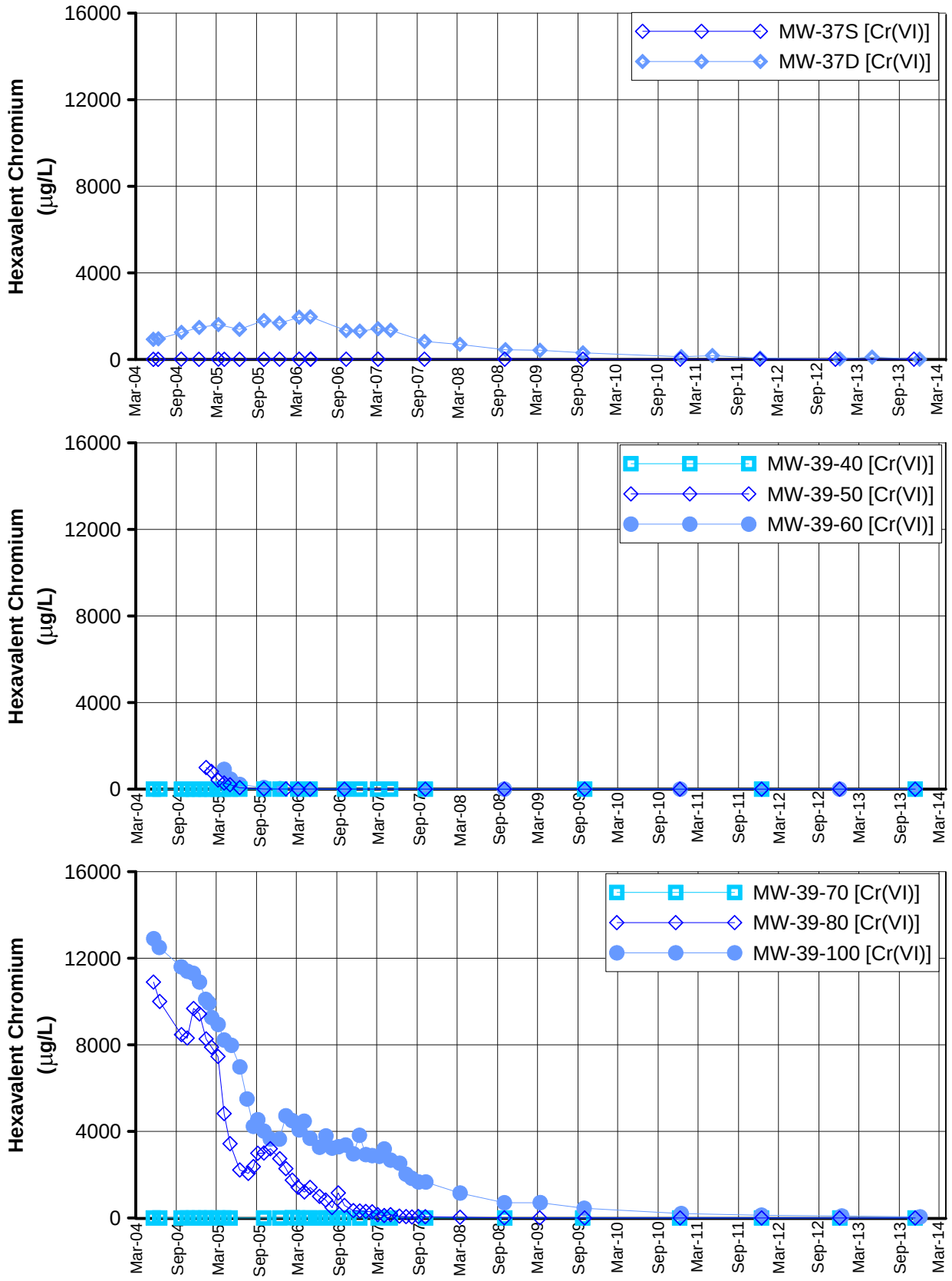
CH2MHILL



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 D-7
HEXAVALENT CHROMIUM
IN MW-36 CLUSTER
FIRST QUARTER 2014 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 D-8
HEXAVALENT CHROMIUM
IN MW-37 AND MW-39 CLUSTERS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

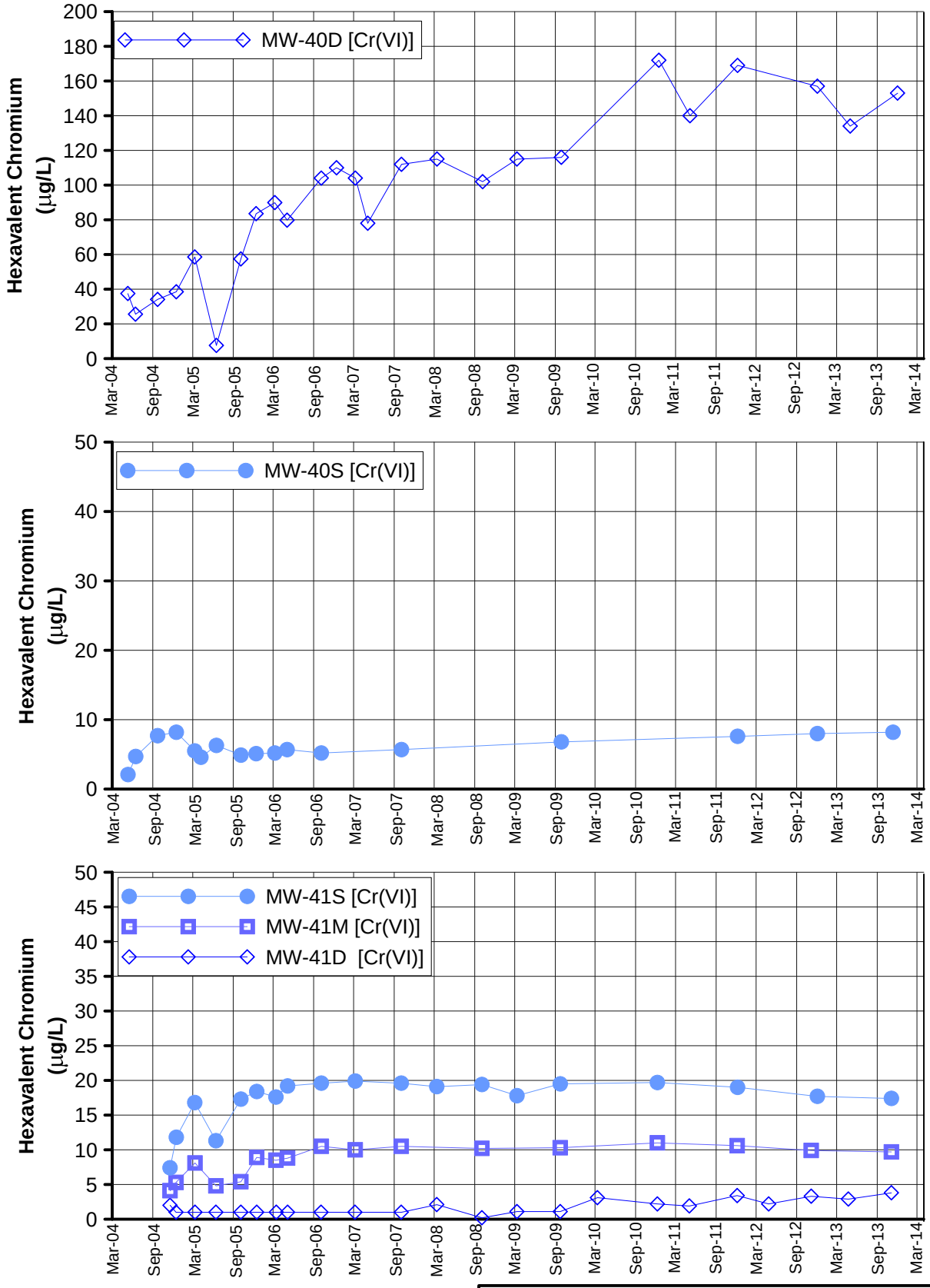
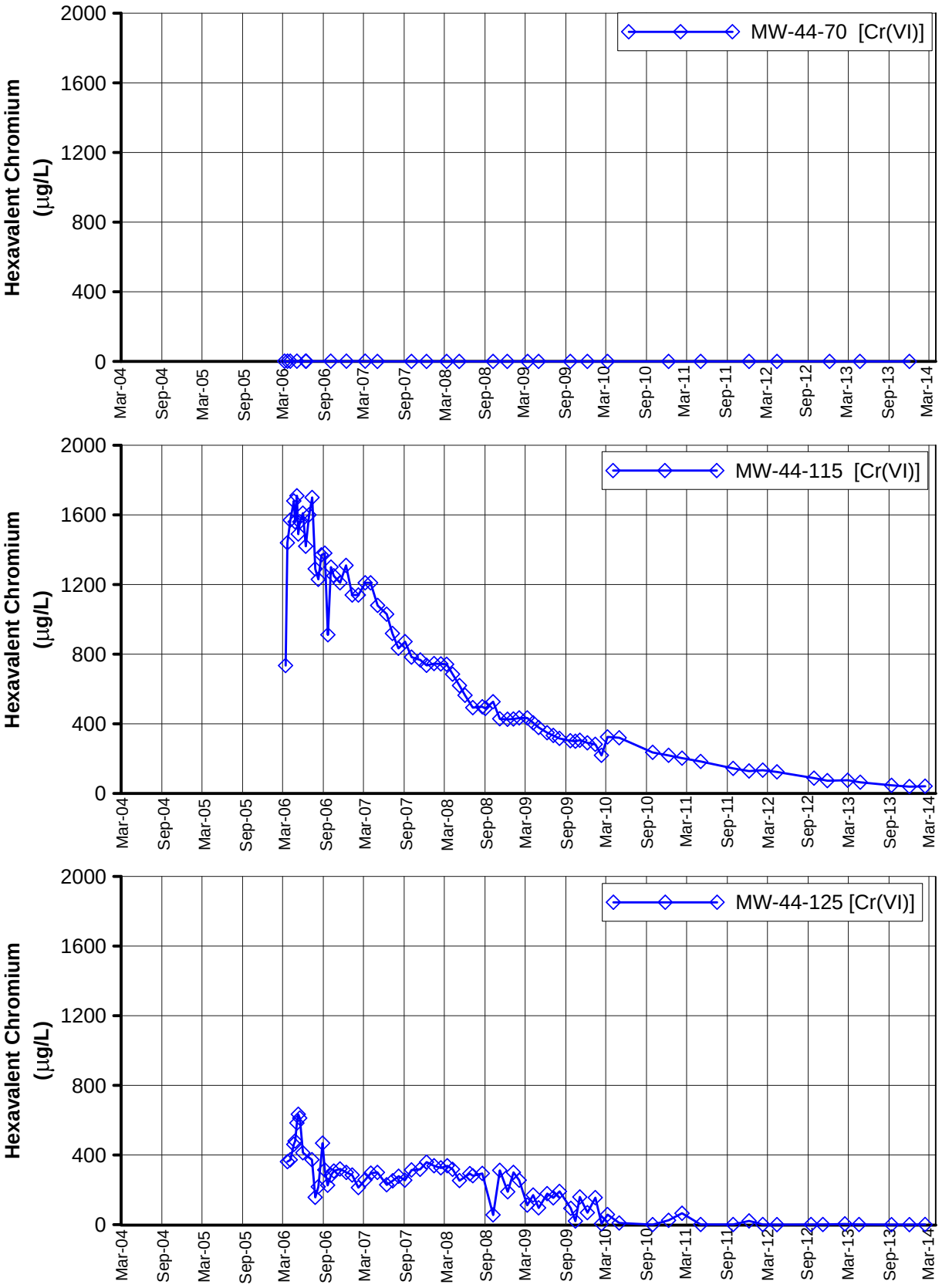


FIGURE D-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

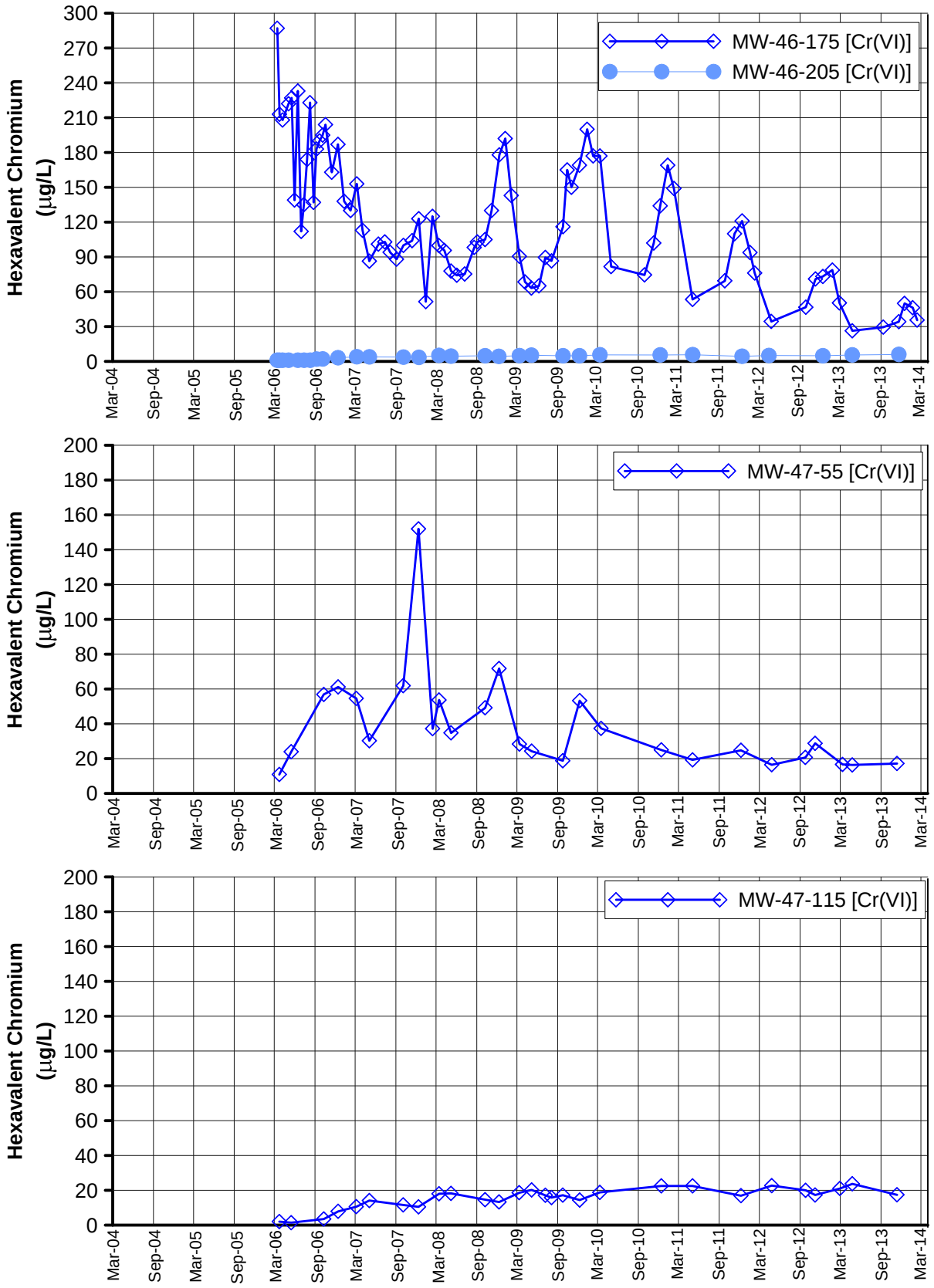
CH2MHILL



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 D-10
HEXAVALENT CHROMIUM IN MW-44 CLUSTER
FIRST QUARTER 2014 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 D-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

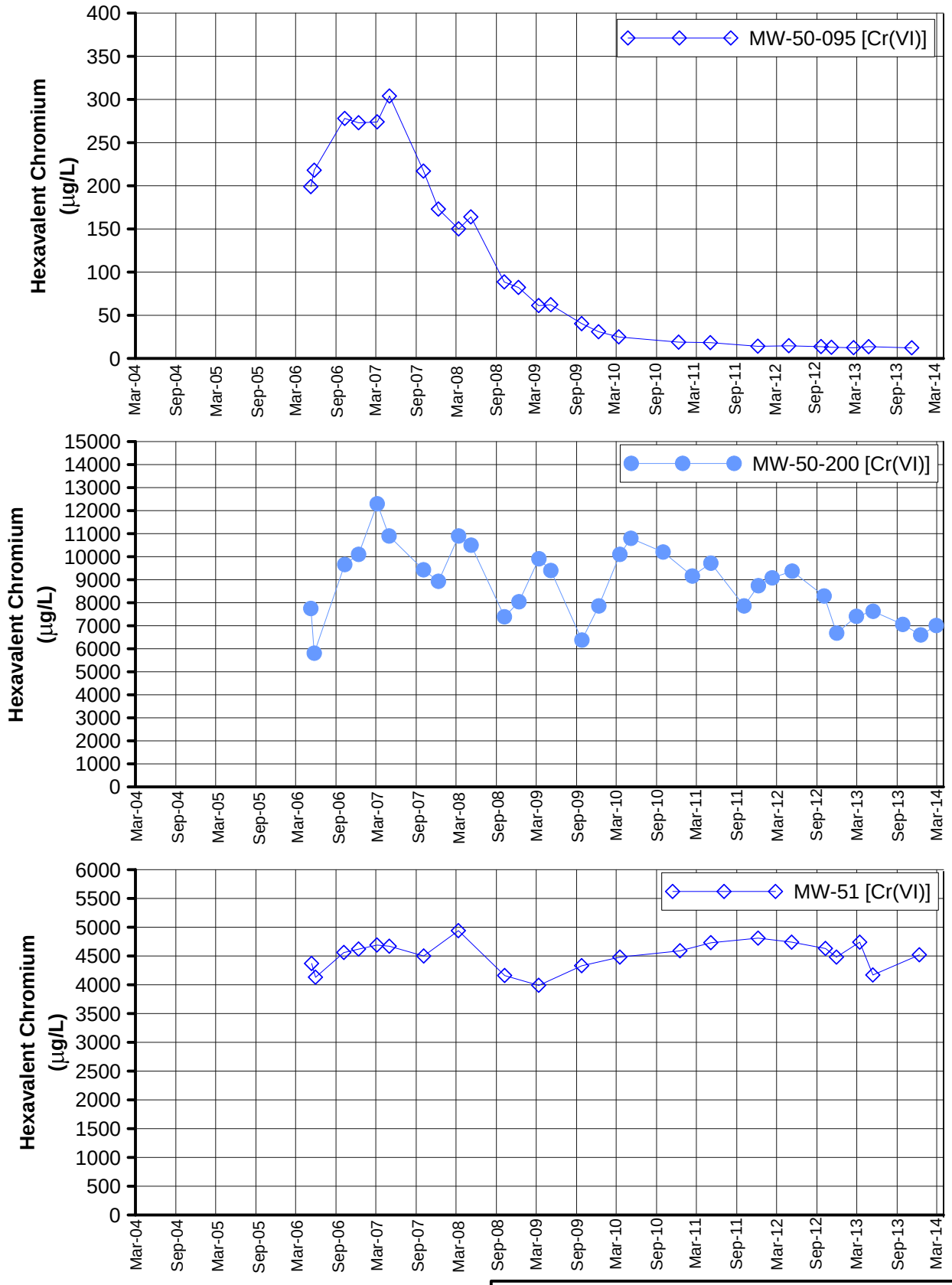


FIGURE D-12
HEXAVALENT CHROMIUM
IN MW-50 AND MW-51 CLUSTERS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

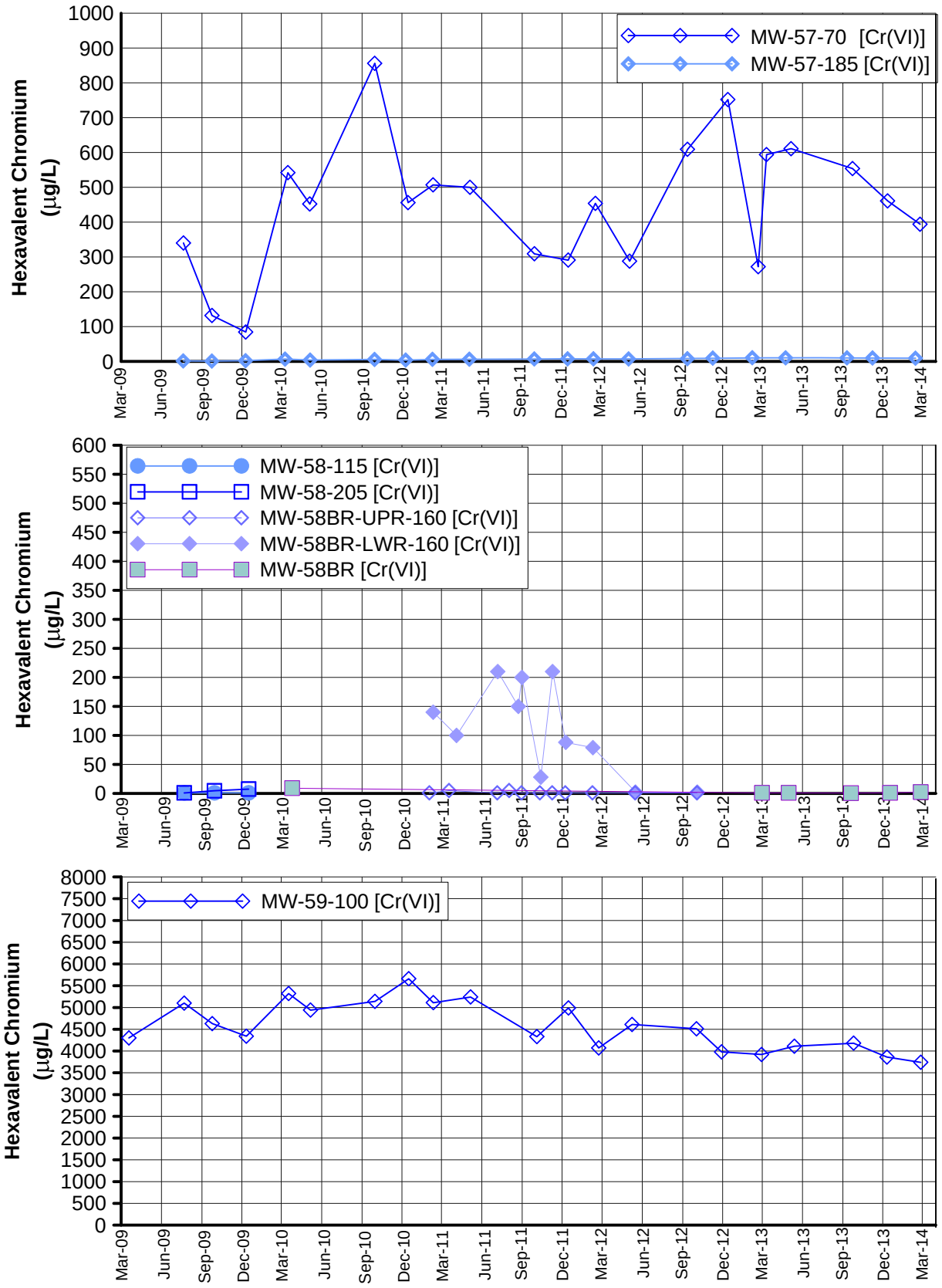


FIGURE D-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

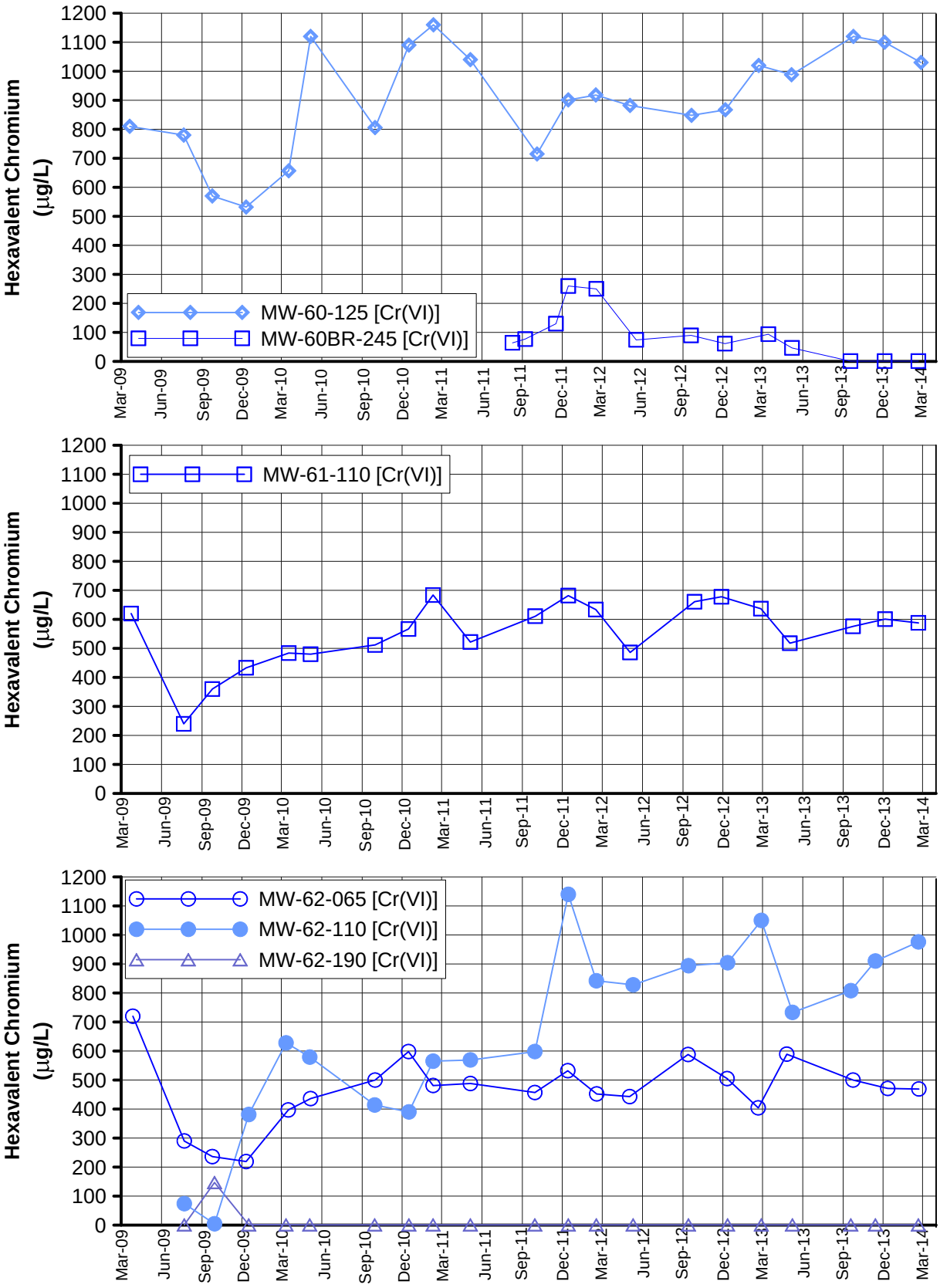
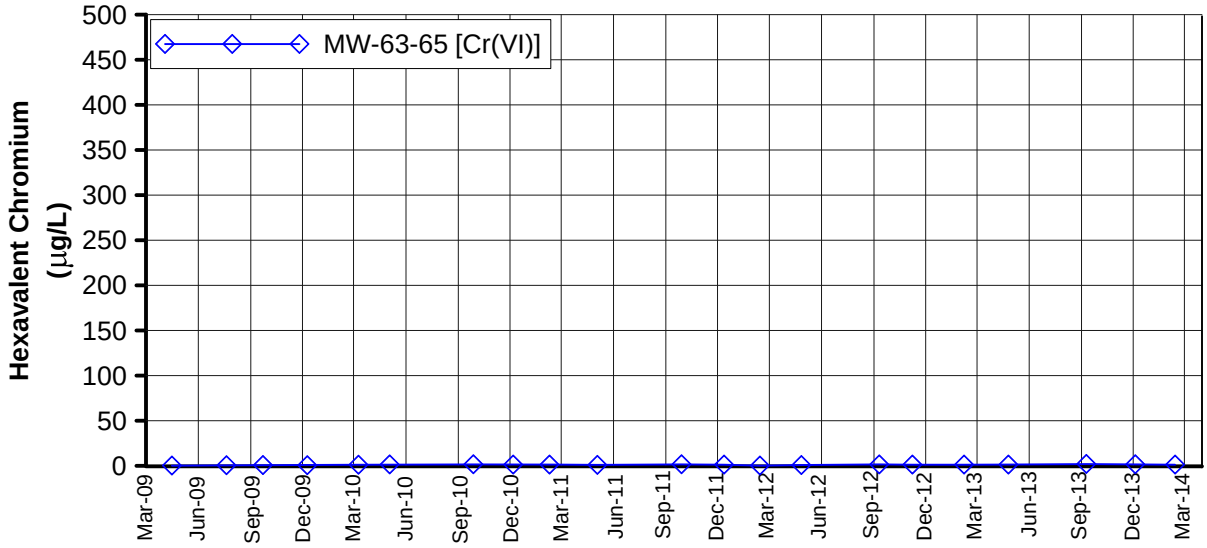
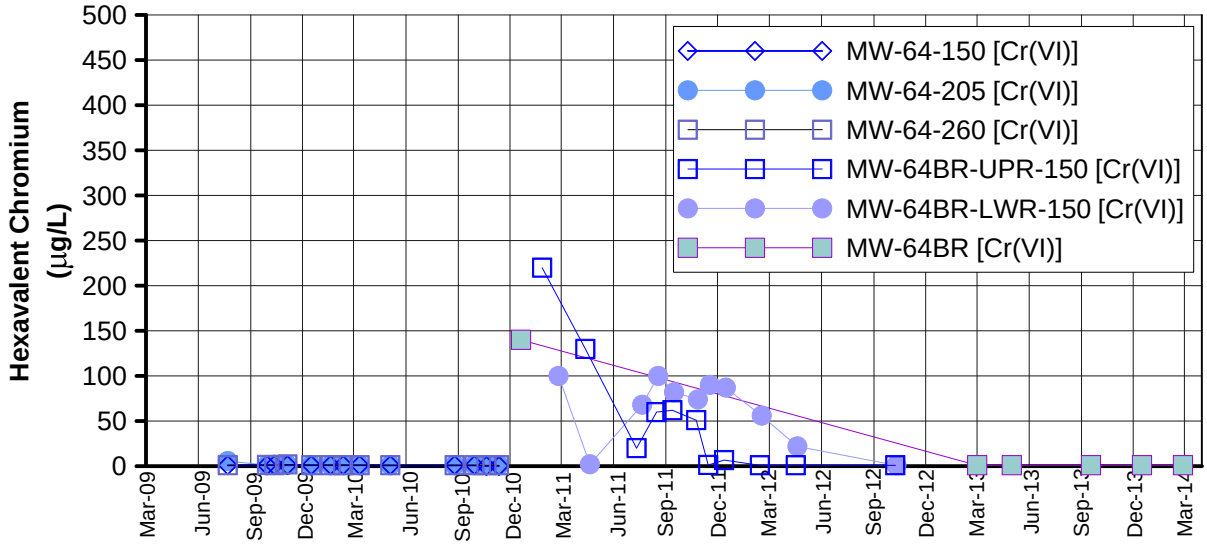


FIGURE D-14
HEXAVALENT CHROMIUM IN THE MW-60 CLUSTER, MW-61-110 AND THE MW-62 CLUSTER
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





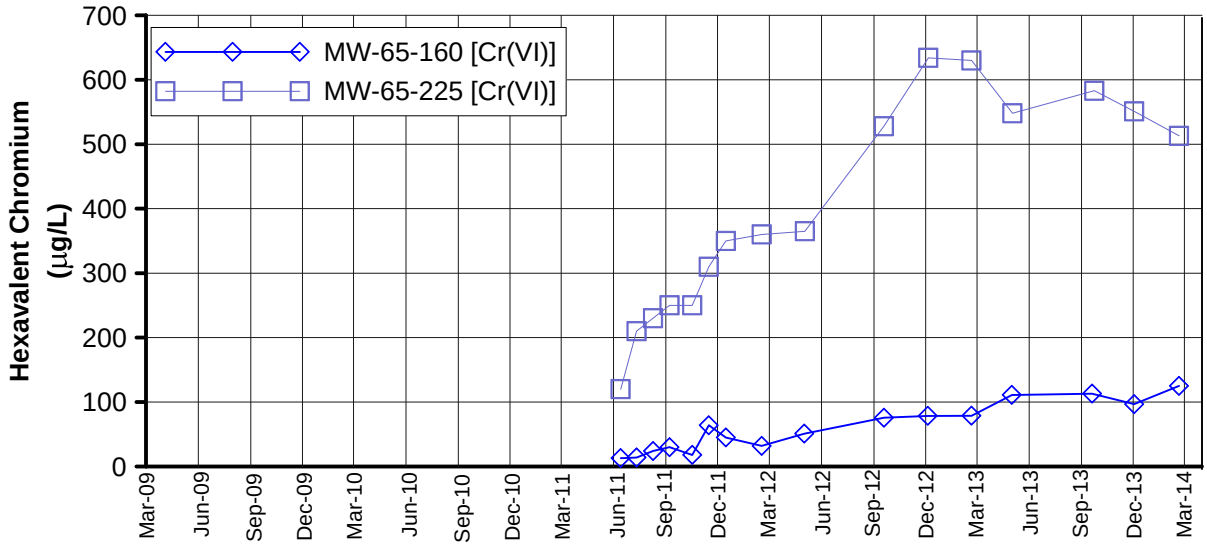


FIGURE D-15
HEXAVALENT CHROMIUM
IN MW-63-65, MW-64 CLUSTER AND MW-65 CLUSTER
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

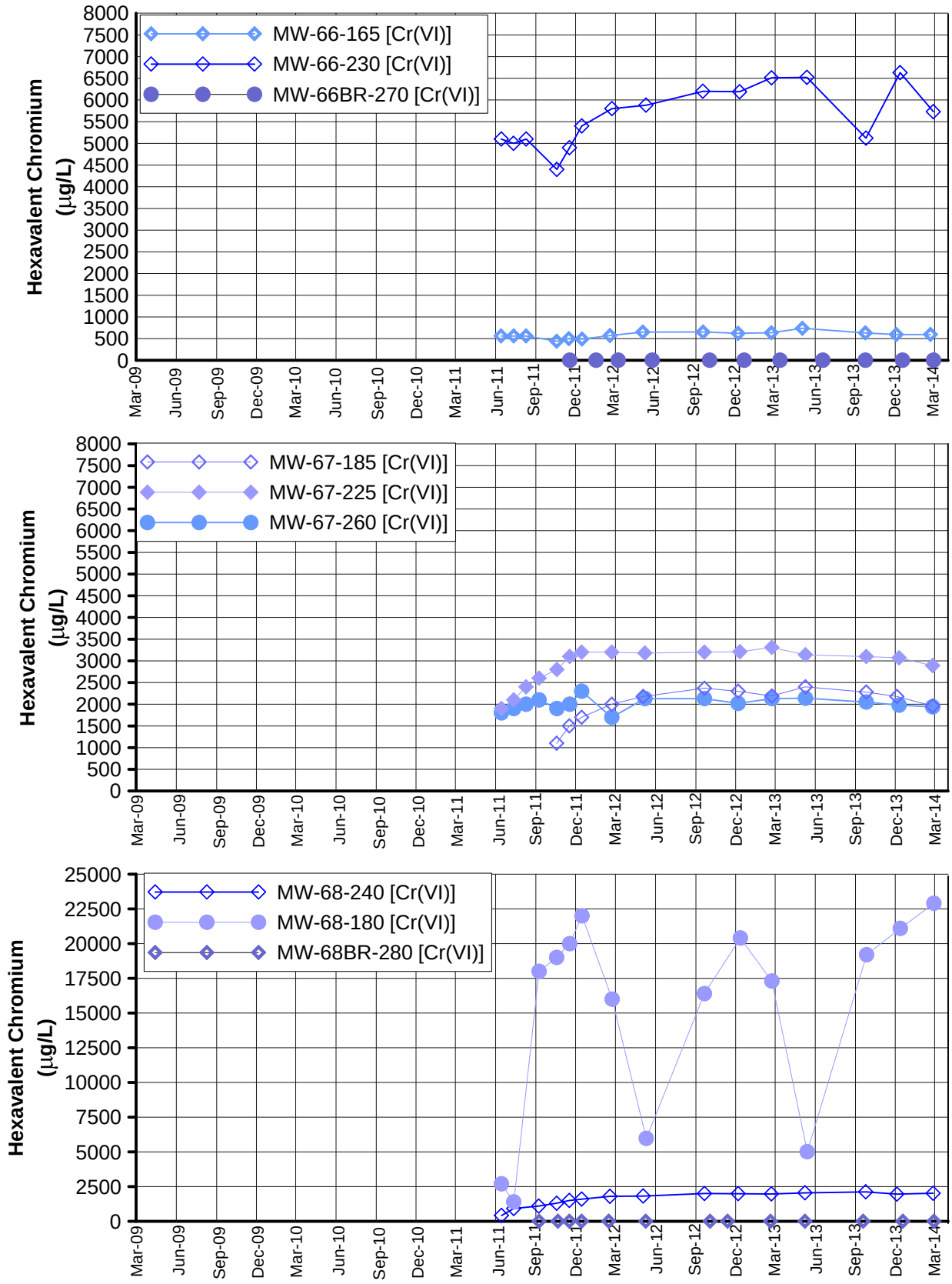


FIGURE D-16
HEXAVALENT CHROMIUM
IN MW-66, MW-67, AND MW-68 CLUSTERS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

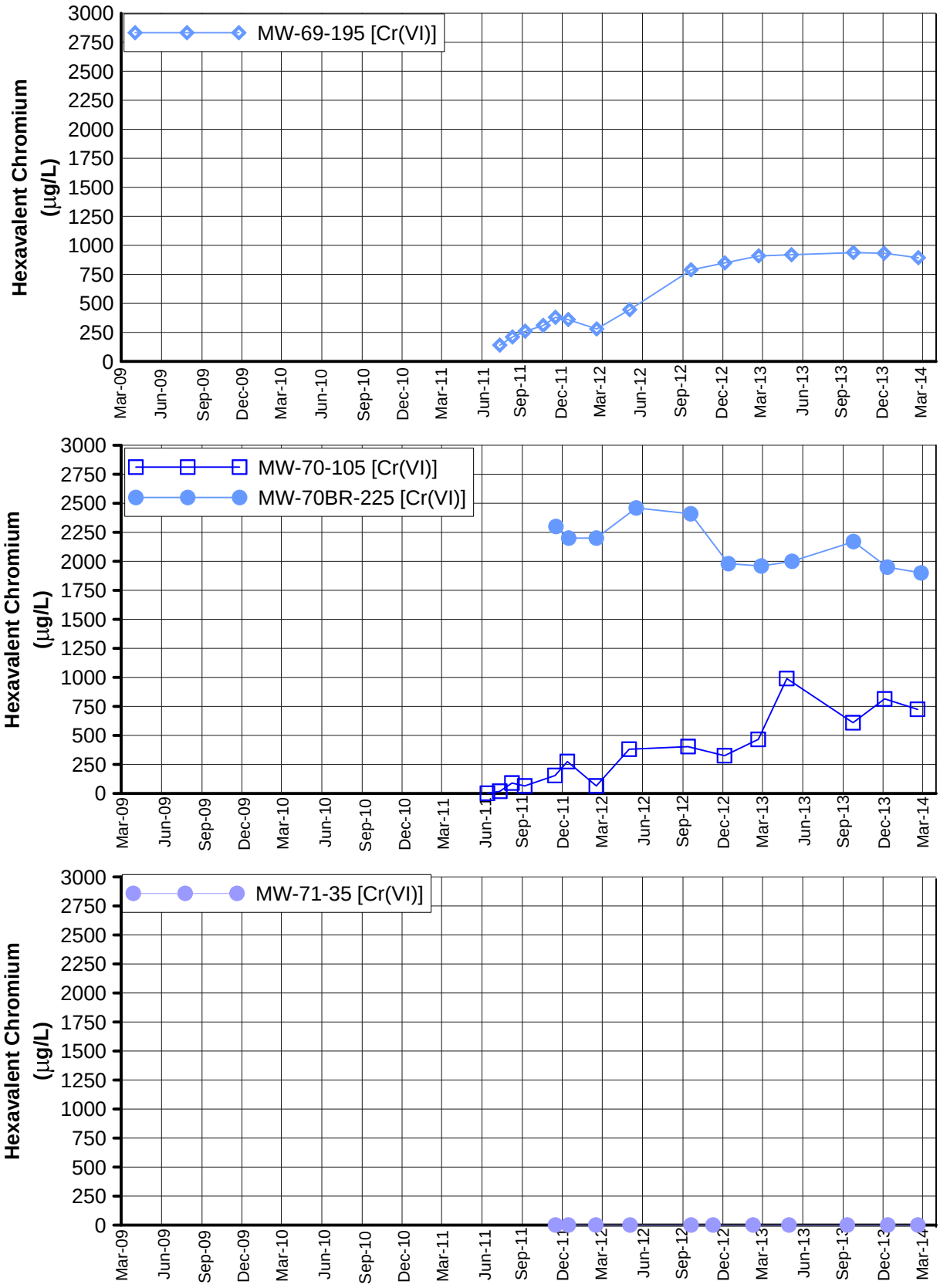


FIGURE D-17
HEXAVALENT CHROMIUM
IN MW-69-195, THE MW-70 CLUSTER, AND MW-71-35
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

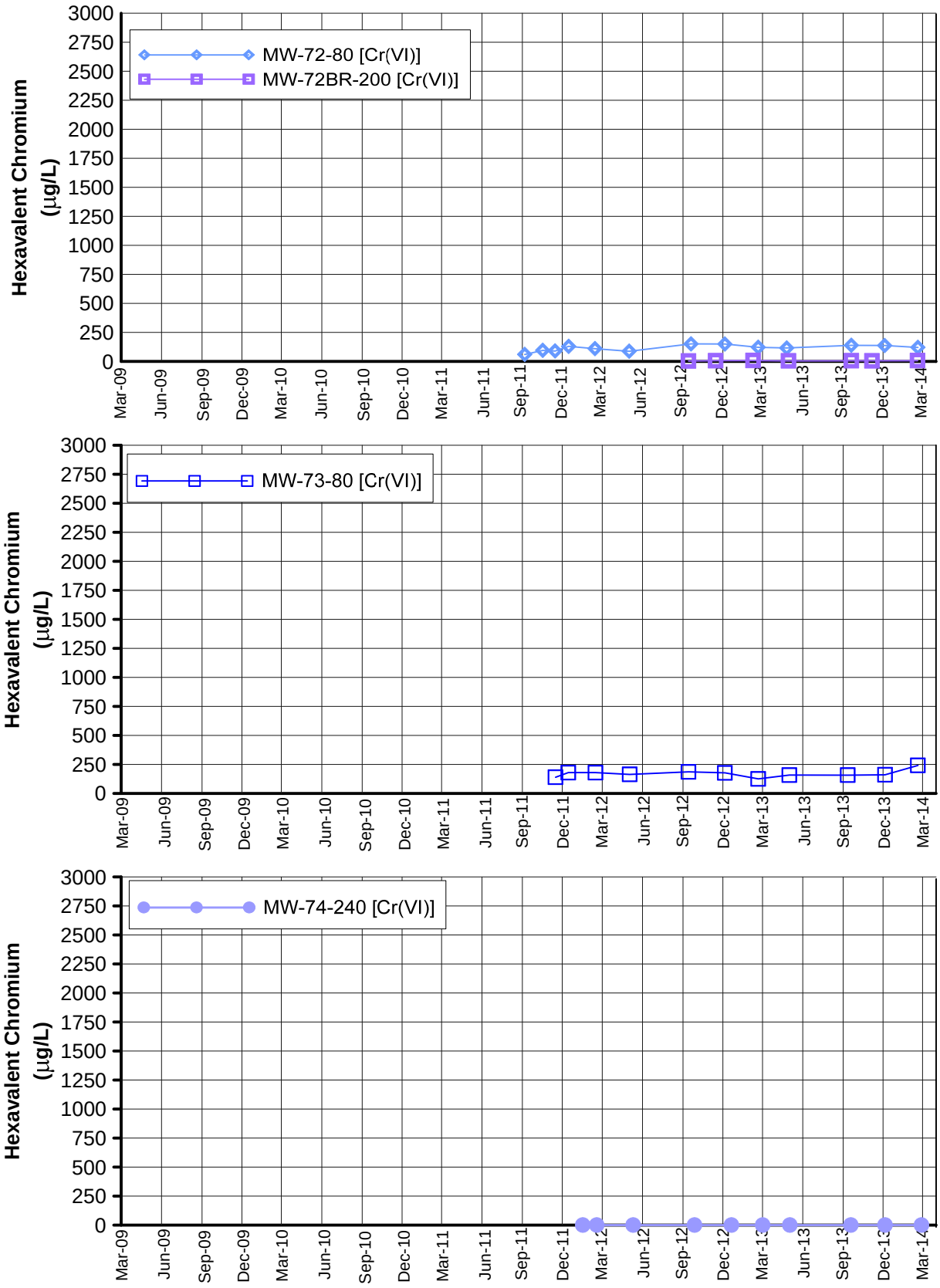


FIGURE D-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-80, AND MW-74-240
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

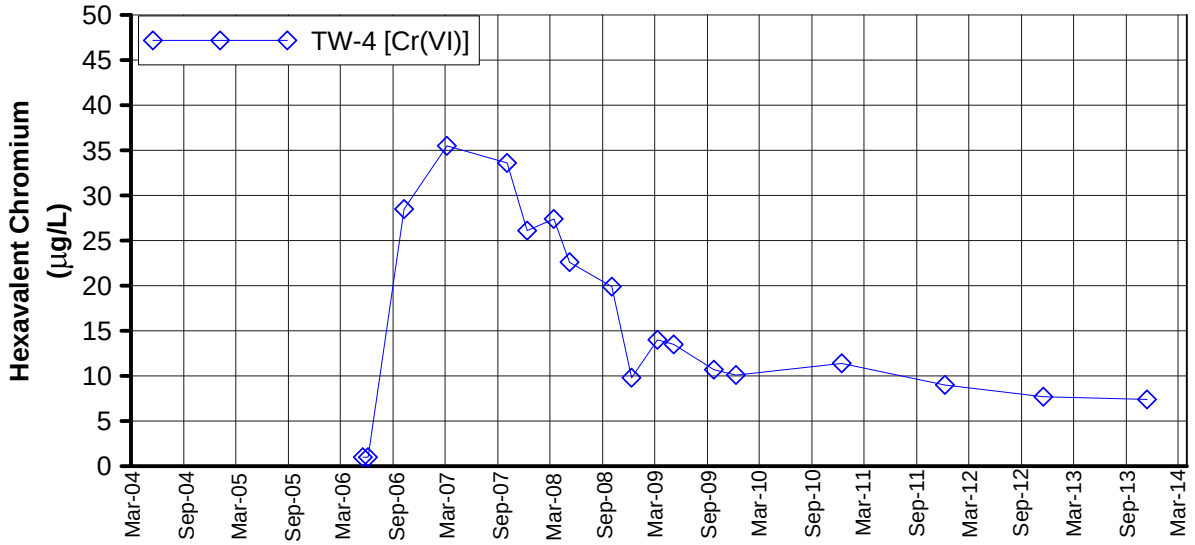


FIGURE D-19
HEXAVALENT CHROMIUM
IN TW-4
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

Appendix E
Interim Measures Extraction System Operations Log, First Quarter 2014

APPENDIX E

Interim Measures Extraction System Operations Log, First Quarter 2014, PG&E Topock Performance Monitoring Program

During First Quarter 2014 (January through March), 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 did not operate during First Quarter 2014. The operational run time for the Interim Measure groundwater extraction system (combined or individual pumping) was approximately 98.3 percent during First Quarter 2014.

The Interim Measure Number 3 (IM-3) facility treated approximately 17,089,728 gallons of extracted groundwater during First Quarter 2014. The IM-3 facility also treated approximately 1,860 gallons of water generated from the groundwater monitoring program and 20,900 gallons of water from IM-3 well backwashing. Eight containers of solids from the IM-3 facility were transported offsite during the reporting period.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.7 percent of downtime during First Quarter 2014) 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.

E.1 January 2014

- **January 6, 2014 (planned):** The extraction well system was offline from 8:34 a.m. to 8:36 a.m., from 9:00 a.m. to 9:12 a.m., and from 9:16 a.m. to 9:28 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 26 minutes.
- **January 8, 2014 (planned):** The extraction well system was offline from 8:14 a.m. to 4:08 p.m. for replacement of the primary RO membranes and cleaning of the T-100, T-700 and Microfilter strainers. Extraction system downtime was 7 hours, 54 minutes.
- **January 16, 2014 (planned):** The extraction well system was offline from 6:36 a.m. to 7:52 a.m. to lower the level in the raw water storage tank (T-100) for injection of AquaGaurd in injection wells IW-2 and IW-3. Extraction system downtime was 1 hour, 16 minutes.
- **January 27, 2014 (unplanned):** The extraction well system was offline from 1:50 p.m. to 1:52 p.m. due to loss of power from City of Needles power. Extraction system downtime was 2 minutes.
- **January 28, 2014 (unplanned):** The extraction well system was offline from 9:58 a.m. to 10:20 a.m. due to a low oil level in the air compressor. Extraction system downtime was 22 minutes.

E.2 February 2014

- **February 6, 2014 (planned):** The extraction well system was offline from 10:24 a.m. to 11:24 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 1 hour.
- **February 6, 2014 (unplanned):** The extraction well system was offline from 12:28 p.m. to 1:00 p.m. to repair a minor leak in the RO system. Extraction system downtime was 22 minutes.
- **February 10, 2014 (planned):** The extraction well system was offline from 10:44 a.m. to 11:20 a.m. to clean the Microfilter strainers. Extraction system downtime was 36 minutes.

- **February 12, 2014 (planned):** The extraction well system was offline from 10:58 a.m. to 1:26 p.m. to replace Chemical Mixing Pump (P-201) and clean the pipes in the chemical loop. Extraction system downtime was 2 hours, 28 minutes.
- **February 14, 2014 (unplanned):** The extraction well system was offline from 6:18 a.m. to 6:46 a.m. to repair a valve on the ferrous chloride feed skid. Extraction system downtime was 28 minutes.
- **February 19, 2014 (planned):** The extraction well system was offline from 10:32 a.m. to 12:04 p.m. to replace a fitting on the primary RO unit. Extraction system downtime was 1 hour, 32 minutes.

E.3 March 2014

- **March 5, 2014 (planned):** The extraction well system was offline from 12:26 pm to 12:28 pm during installation of riser extension on the leak detection system sensors. Extraction system downtime was 2 minutes.
- **March 6, 2014 (planned):** The extraction well system was offline from 7:06 a.m. to 7:08 a.m., from 7:48 a.m. to 7:50 a.m., from 11:28 a.m. to 11:30 a.m., from 11:34 a.m. to 11:44 a.m., 11:48 a.m. to 11:50 a.m., and from 11:58 a.m. to 12:00 pm due to testing of critical alarms and leak detection system. Extraction system downtime was 20 minutes.
- **March 12, 2014 (unplanned):** The extraction well system was offline from 12:40 p.m. to 1:38 p.m. due to a high level alarm in the Pre-Treated Water Tank (T-500) caused by a Microfilter shutdown. Extraction system downtime was 58 minutes.
- **March 31, 2014 (planned):** The extraction well system was offline from 5:32 a.m. to 12:00 a.m. for the semiannual maintenance shutdown event. Extraction system downtime was 18 hours, 28 minutes.

Appendix F
Hydraulic Data for Interim Measures Reporting Period

TABLE F-1

Average Monthly and Quarterly Groundwater Elevations, First Quarter 2014

First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	January 2014	February 2014	March 2014	Quarter Average	Days in Quarter Average
I-3	River Station	453.27	454.67	456.74	454.81	85
MW-20-070	Shallow Zone	452.35	453.08	454.20	453.17	85
MW-20-100	Middle Zone	451.86	452.61	453.79	452.71	85
MW-20-130	Deep Zone	451.35	452.25	453.43	452.30	78
MW-22	Shallow Zone	453.48	454.05	455.17	454.19	85
MW-25	Shallow Zone	454.11	454.47	455.18	454.56	85
MW-26	Shallow Zone	453.76	454.11	454.83	454.21	85
MW-27-020	Shallow Zone	453.17	454.43	456.33	454.55	84
MW-27-060	Middle Zone	453.14	454.42	456.33	454.54	84
MW-27-085	Deep Zone	453.17	454.46	456.49	454.72	90
MW-28-025	Shallow Zone	453.14	454.41	456.30	454.53	85
MW-28-090	Deep Zone	453.29	454.51	456.29	454.61	85
MW-30-050	Middle Zone	452.90	454.05	455.68	454.13	84
MW-31-060	Shallow Zone	453.22	454.03	455.27	454.13	85
MW-31-135	Deep Zone	452.55	453.45	454.83	453.62	90
MW-32-035	Shallow Zone	453.10	454.20	455.81	454.29	85
MW-33-040	Shallow Zone	453.56	454.32	455.94	454.62	90
MW-33-090	Middle Zone	453.71	454.70	456.33	454.92	90
MW-33-150	Deep Zone	453.52	454.50	456.11	454.72	90
MW-34-055	Middle Zone	453.20	454.41	456.48	454.60	84
MW-34-080	Deep Zone	453.33	454.60	456.40	454.69	84
MW-34-100	Deep Zone	453.09	454.26	456.25	454.54	90
MW-35-060	Shallow Zone	453.79	454.85	456.42	454.94	85
MW-35-135	Deep Zone	454.26	455.07	456.33	455.16	85
MW-36-020	Shallow Zone	453.12	454.23	455.65	454.26	84
MW-36-040	Shallow Zone	452.98	454.16	455.88	454.26	85
MW-36-050	Middle Zone	452.94	454.14	455.87	454.23	85
MW-36-070	Middle Zone	452.94	454.14	455.87	454.23	85
MW-36-090	Deep Zone	452.18	453.25	454.79	453.33	85
MW-36-100	Deep Zone	452.36	453.44	455.05	453.54	85
MW-39-040	Shallow Zone	452.91	454.01	455.47	454.05	84
MW-39-050	Middle Zone	452.70	453.85	455.26	INC	56
MW-39-060	Middle Zone	452.56	453.62	455.18	453.71	84
MW-39-070	Middle Zone	452.18	453.14	454.39	453.17	84
MW-39-080	Deep Zone	452.33	453.29	454.71	453.38	84
MW-39-100	Deep Zone	452.59	453.58	455.08	453.68	84
MW-42-030	Shallow Zone	452.79	453.89	455.48	453.98	84
MW-42-065	Middle Zone	452.91	454.00	455.60	454.09	84
MW-43-025	Shallow Zone	453.13	454.45	456.40	454.57	85
MW-43-090	Deep Zone	453.48	454.81	456.78	454.93	85
MW-44-070	Middle Zone	453.08	454.30	456.10	454.41	84
MW-44-115	Deep Zone	452.73	453.69	455.31	453.83	84
MW-44-125	Deep Zone	453.23	454.30	455.97	454.42	84
MW-45-095a	Deep Zone	451.90	453.06	454.78	453.25	90
MW-46-175	Deep Zone	453.38	454.39	455.85	454.55	79
MW-47-055	Shallow Zone	453.72	454.64	455.98	454.72	85
MW-47-115	Deep Zone	453.76	454.59	455.85	454.68	85
MW-49-135	Deep Zone	453.86	454.86	456.37	454.96	85

TABLE F-1

Average Monthly and Quarterly Groundwater Elevations, First Quarter 2014

First Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

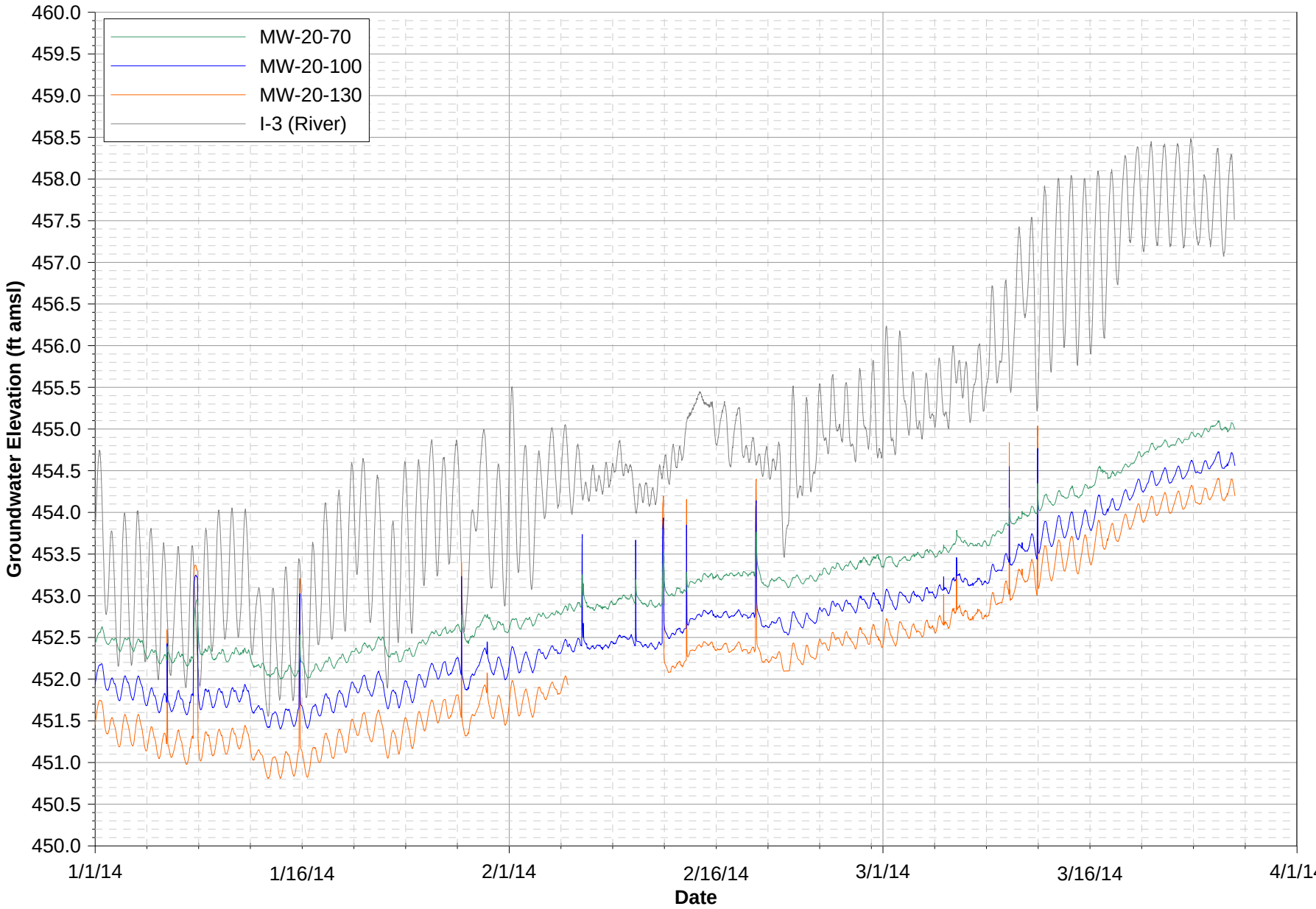
Well ID	Aquifer Zone	January 2014	February 2014	March 2014	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	453.47	454.19	455.33	454.29	85
MW-51	Middle Zone	453.72	454.10	454.84	454.20	85
MW-54-085	Deep Zone	453.67	454.93	456.86	455.08	86
MW-54-140	Deep Zone	454.12	455.12	456.78	455.28	86
MW-54-195	Deep Zone	454.45	455.46	456.91	455.56	77
MW-55-045	Middle Zone	454.98	455.48	456.67	455.67	85
MW-55-120	Deep Zone	455.04	455.49	456.57	455.66	85
PT2D	Deep Zone	451.88	452.82	454.23	452.91	85
PT5D	Deep Zone	452.47	453.47	454.93	453.55	85
PT6D	Deep Zone	452.48	453.47	454.93	453.56	85
RRB	River Station	453.79	454.99	457.17	455.46	82

NOTES:

Averages reported in ft amsl (feet above mean sea level).

Quarterly Average = average of daily averages over reporting period.

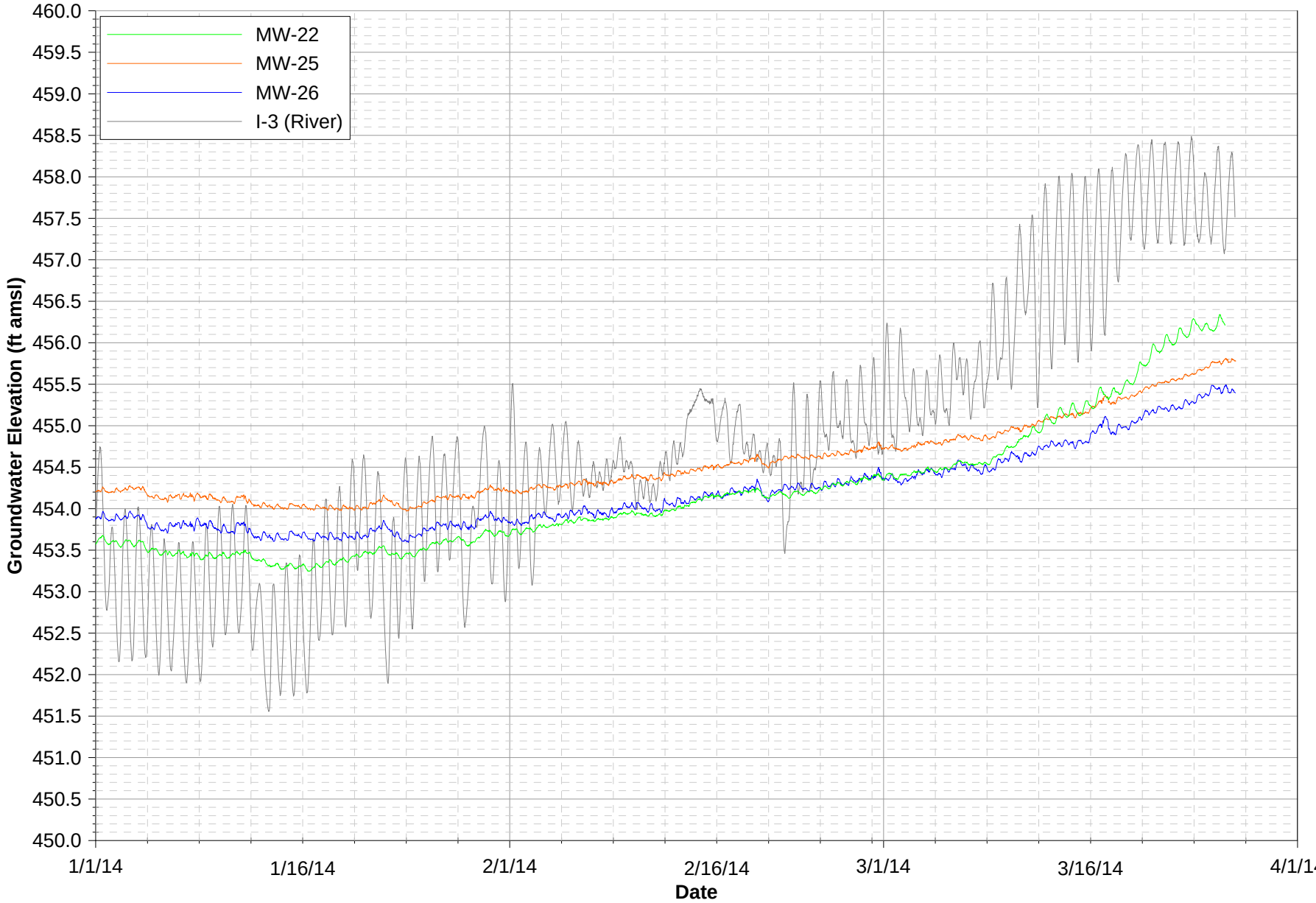
INC = Data incomplete, less than 75% of data available over reporting period due to rejection or field equipment malfunction.



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-20-130 data unavailable from February 5, 2014 through February 12, 2014 due to transducer malfunction.

FIGURE F-1A
MW-20 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

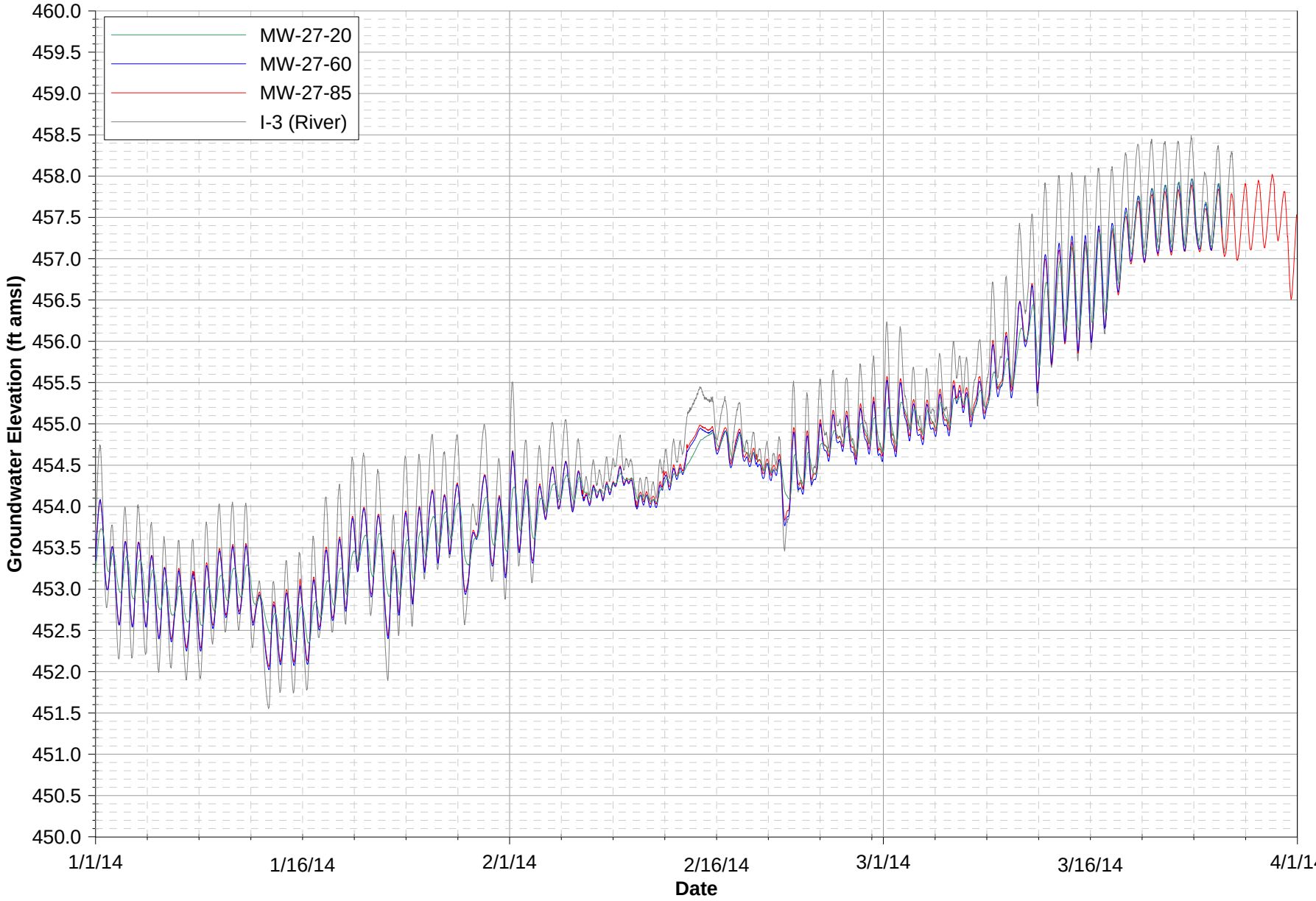


Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1B
MW-22, MW-25, AND MW-26 HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

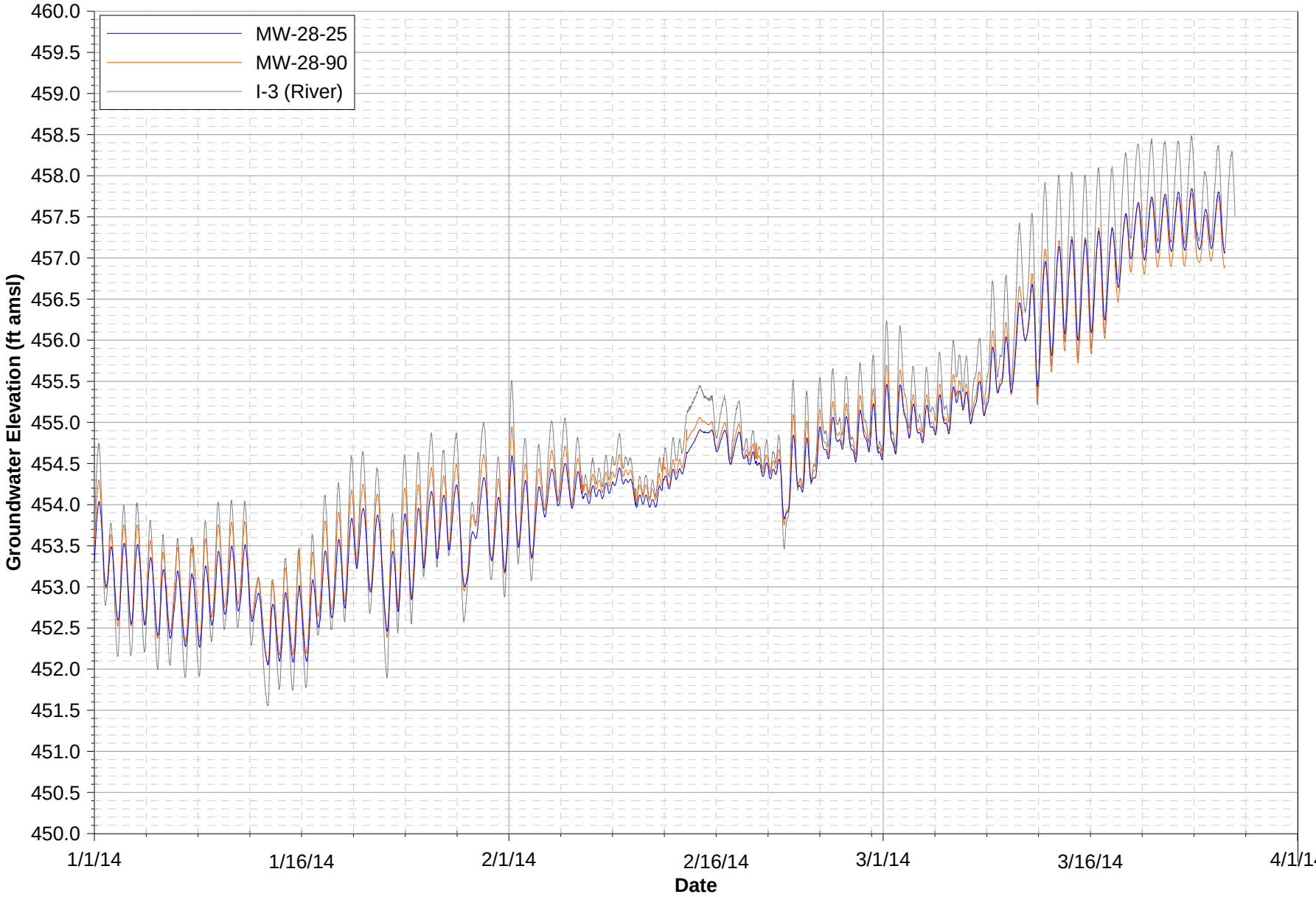
\\zinfandel\Proj\PacificGasElectricCo\TopockProgram\Project_2011-2013_Combined_Monitoring\Reporting\GMP_PMP\2014_Q1\Draft_2014_Q1_GMP_PMP\Appendices\F_Hydrographs



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1C
MW-27 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

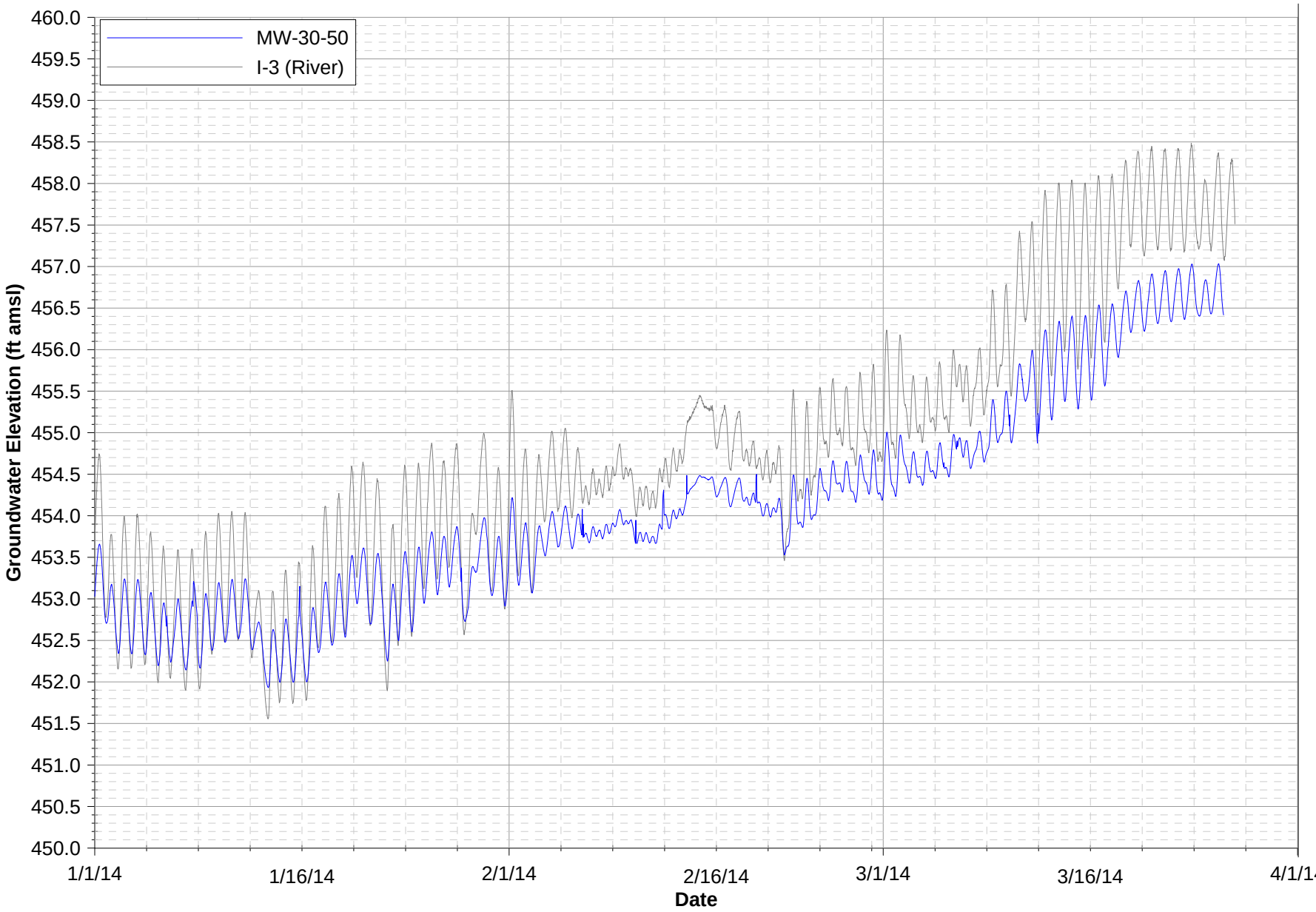
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1D
MW-28 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

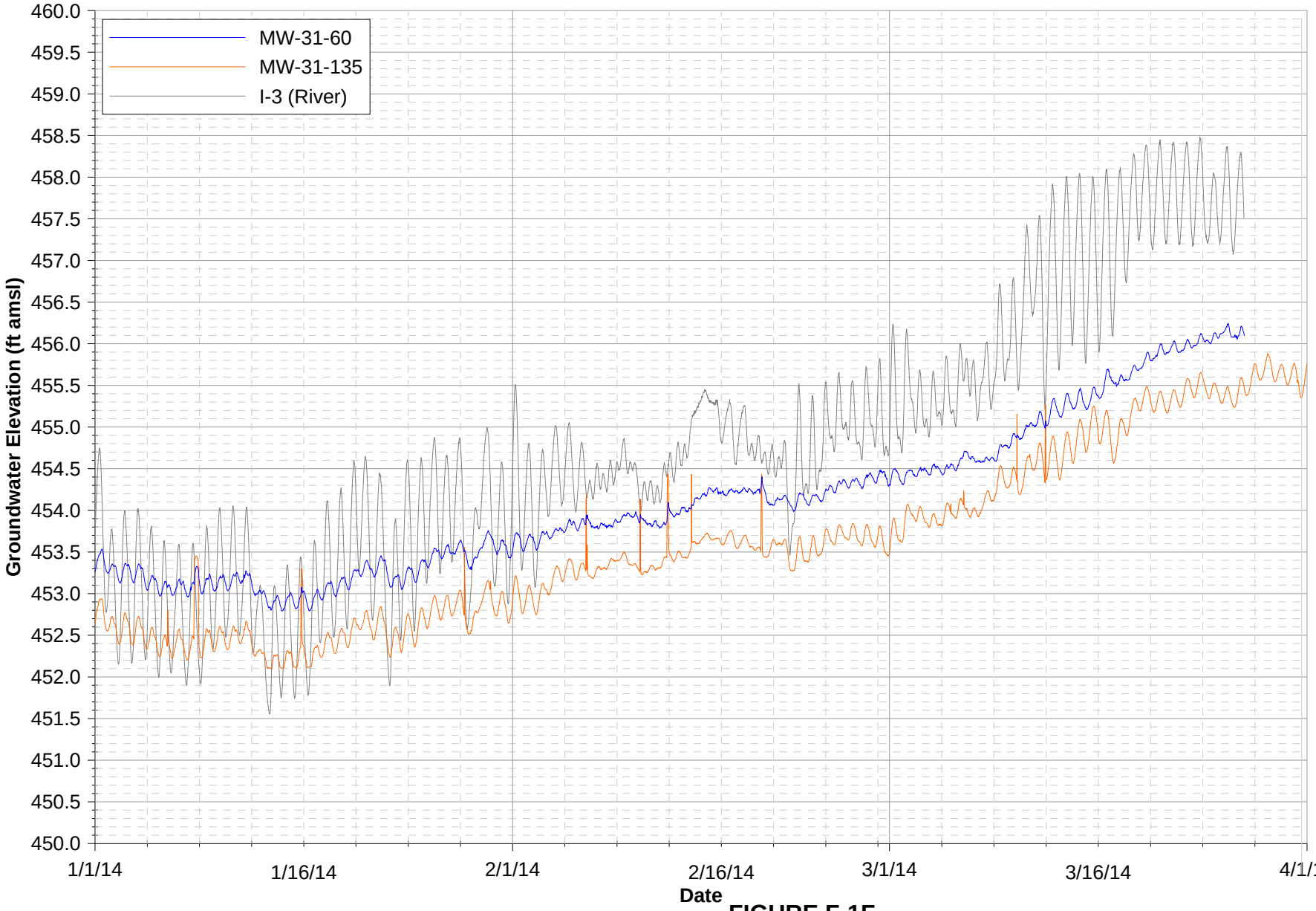
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1E
MW-30-50 HYDROGRAPH
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

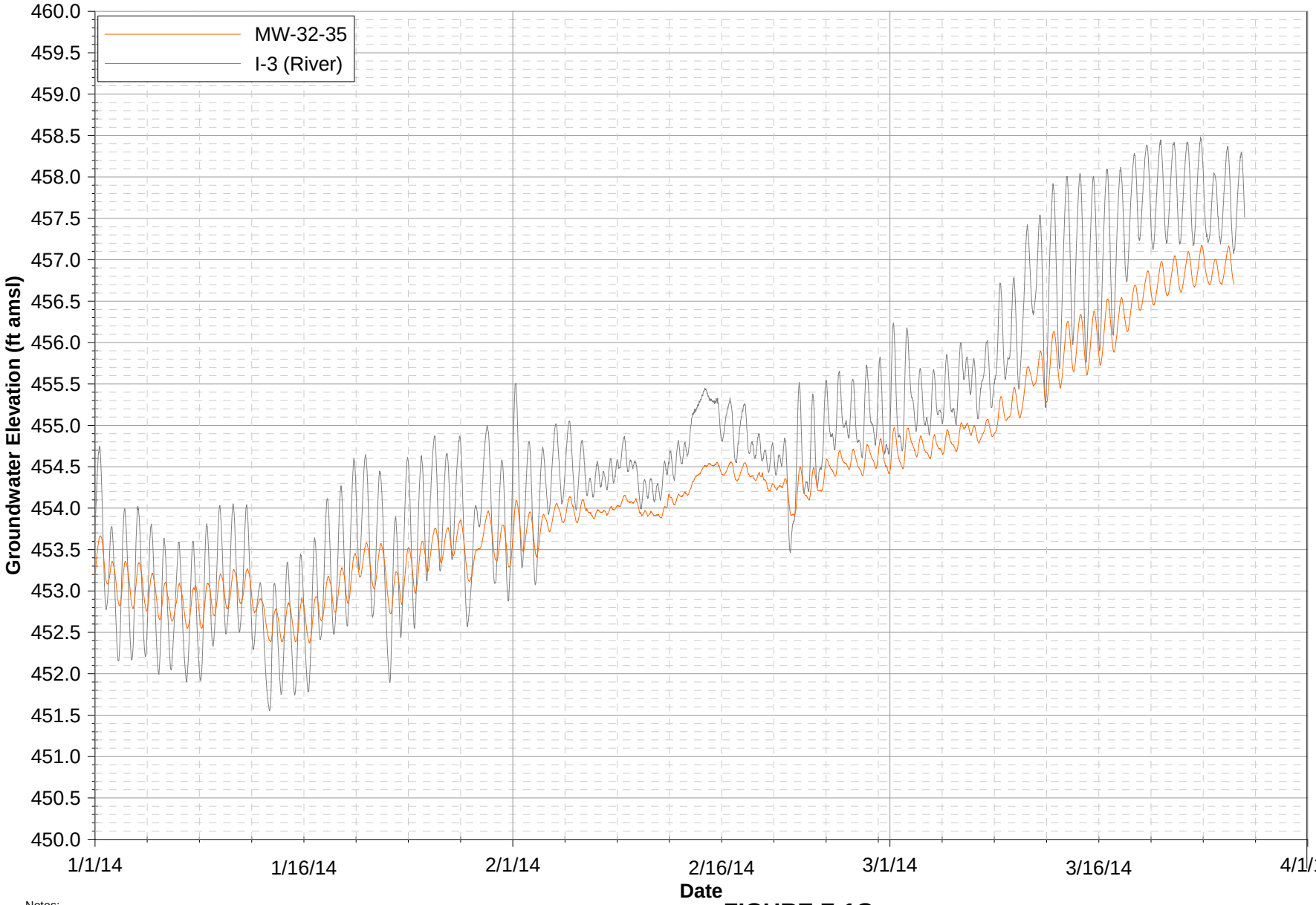
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1F
MW-31 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

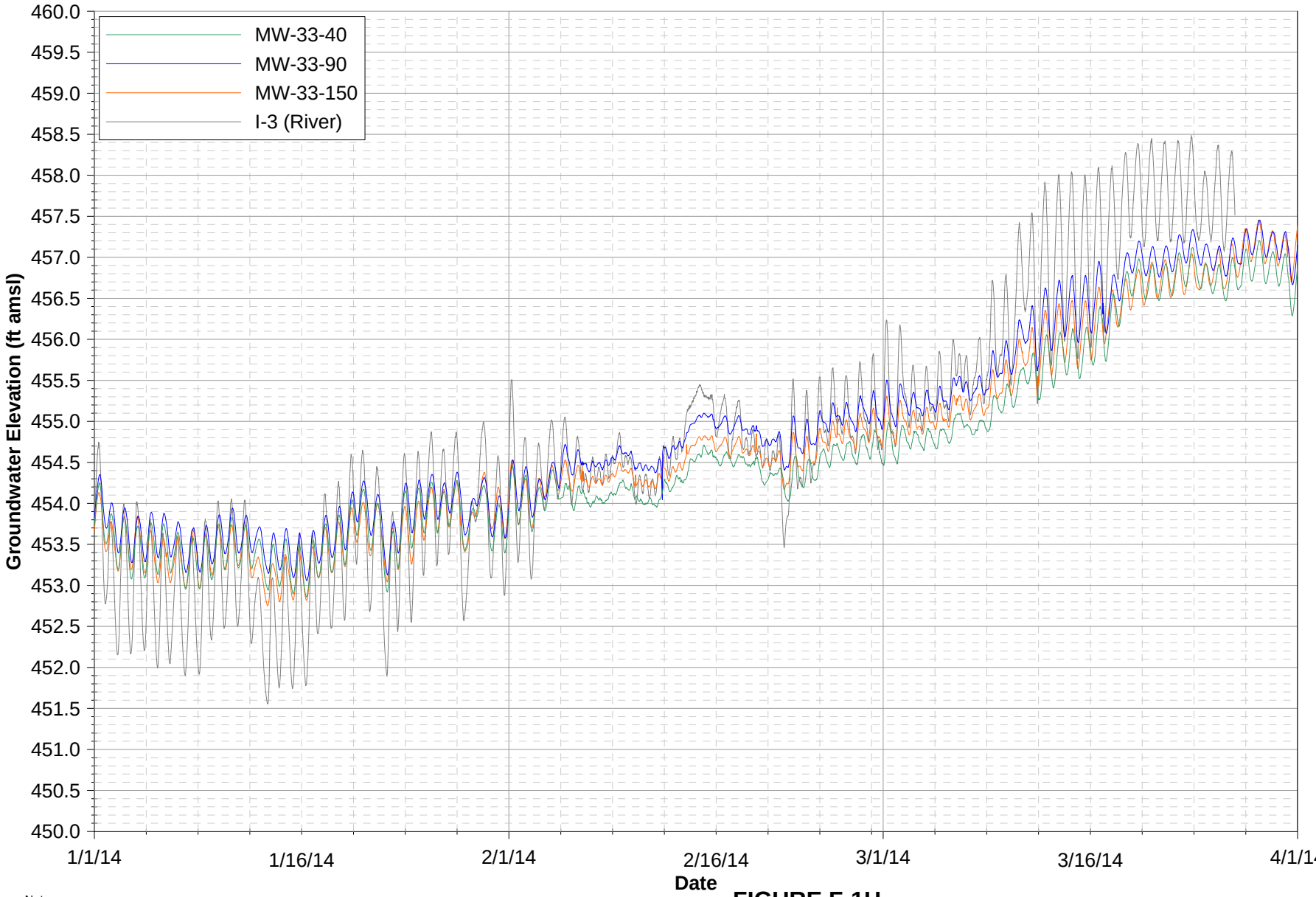
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1G
MW-32 HYDROGRAPH
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

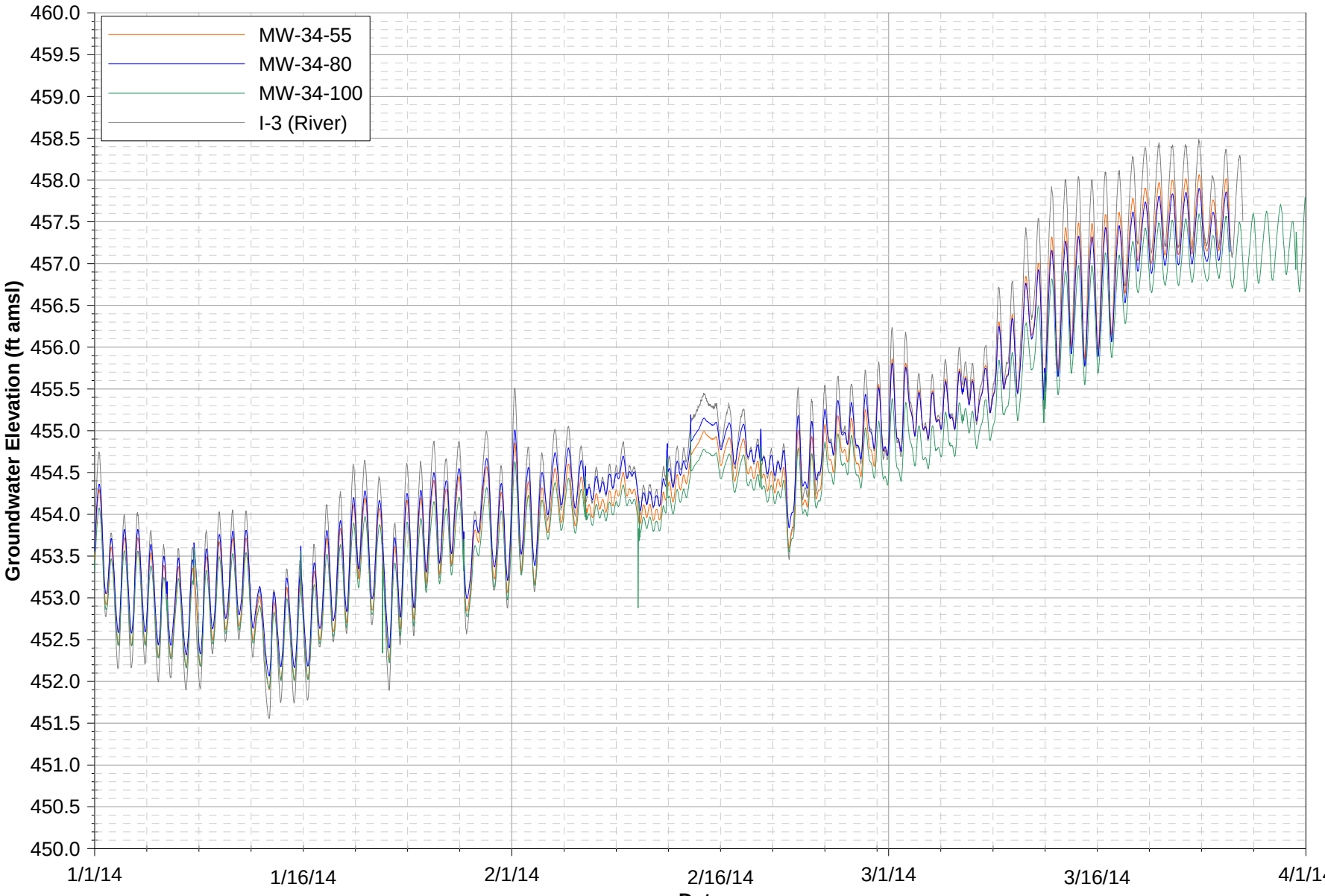
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1H
MW-33 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

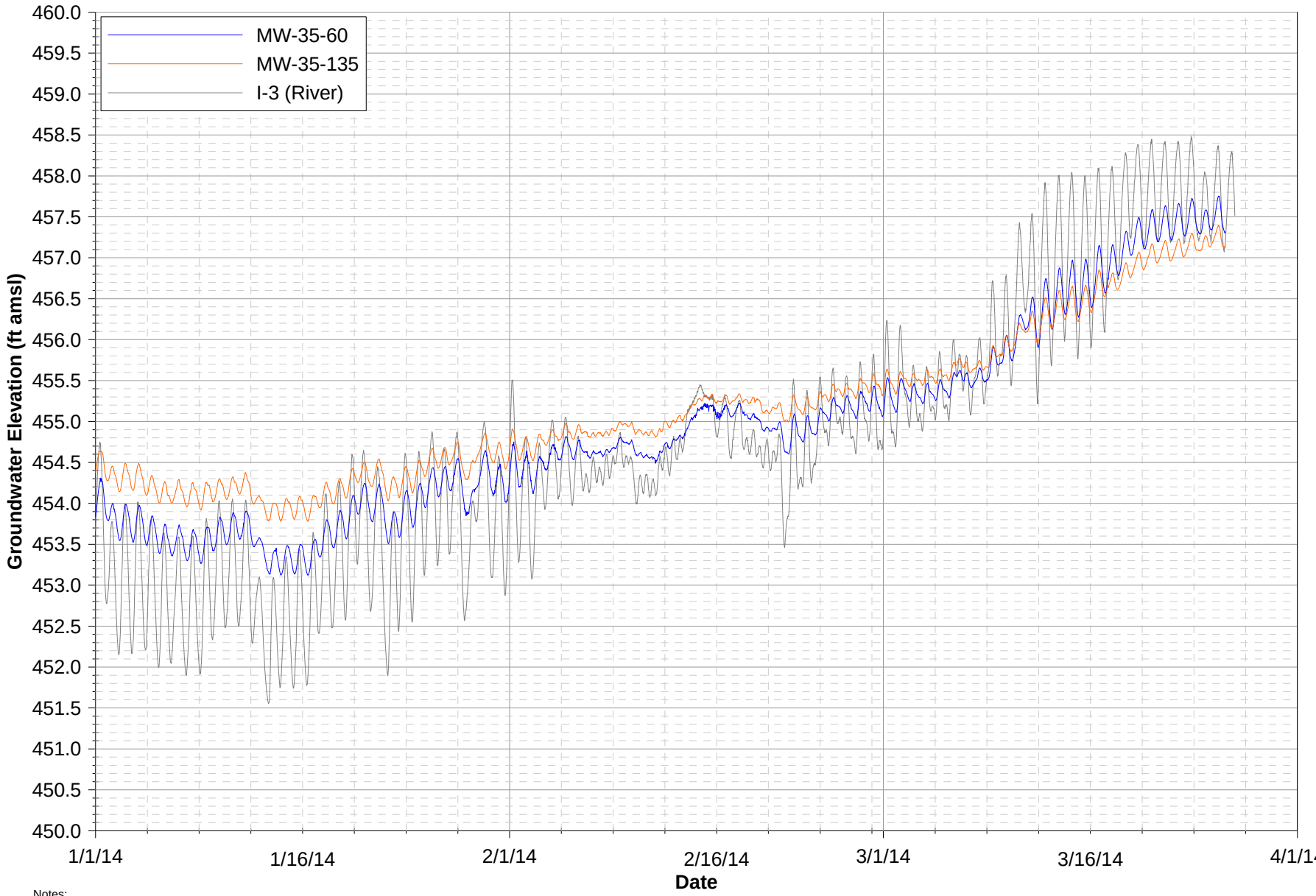
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1I
MW-34 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

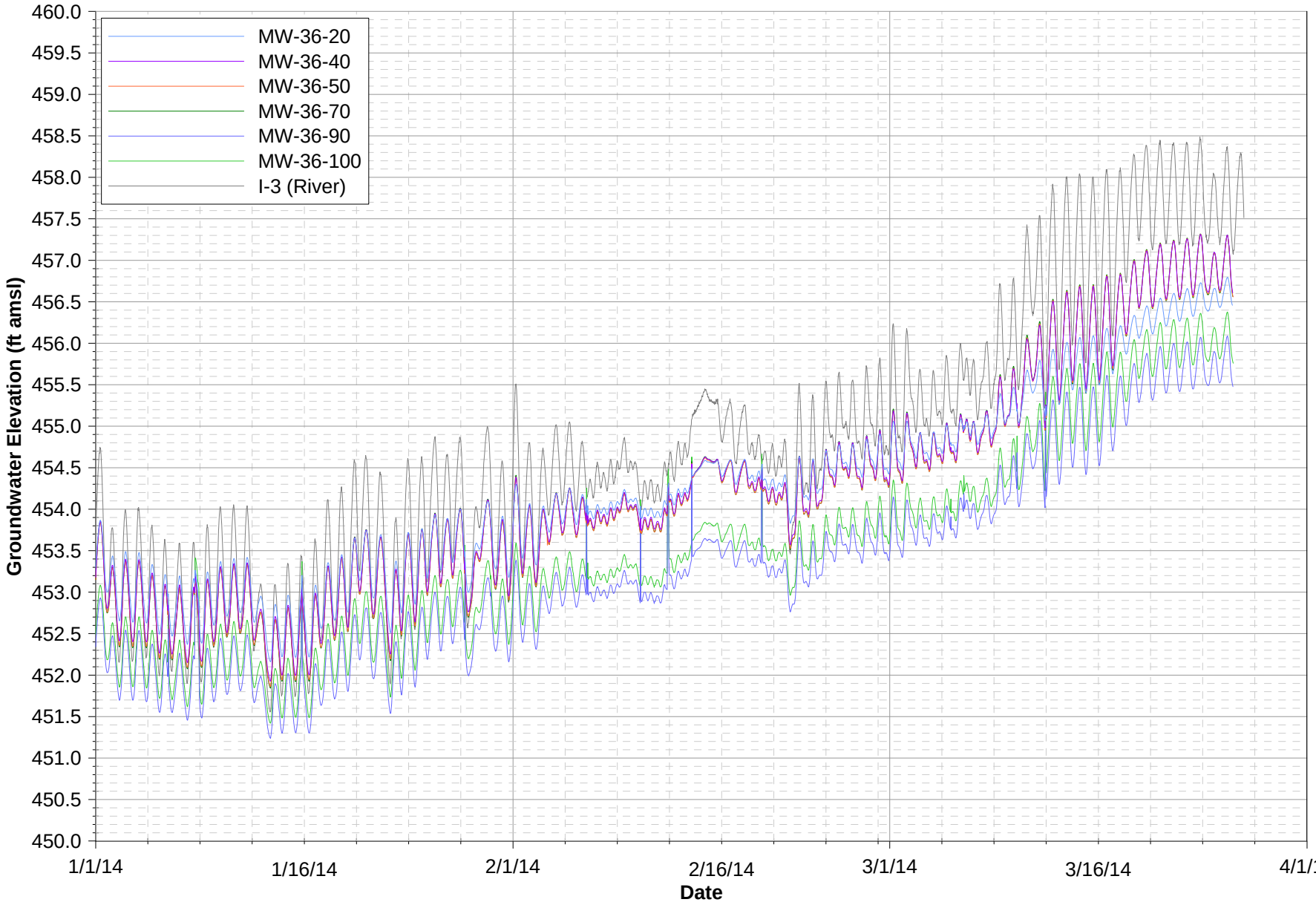
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1J
MW-35 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

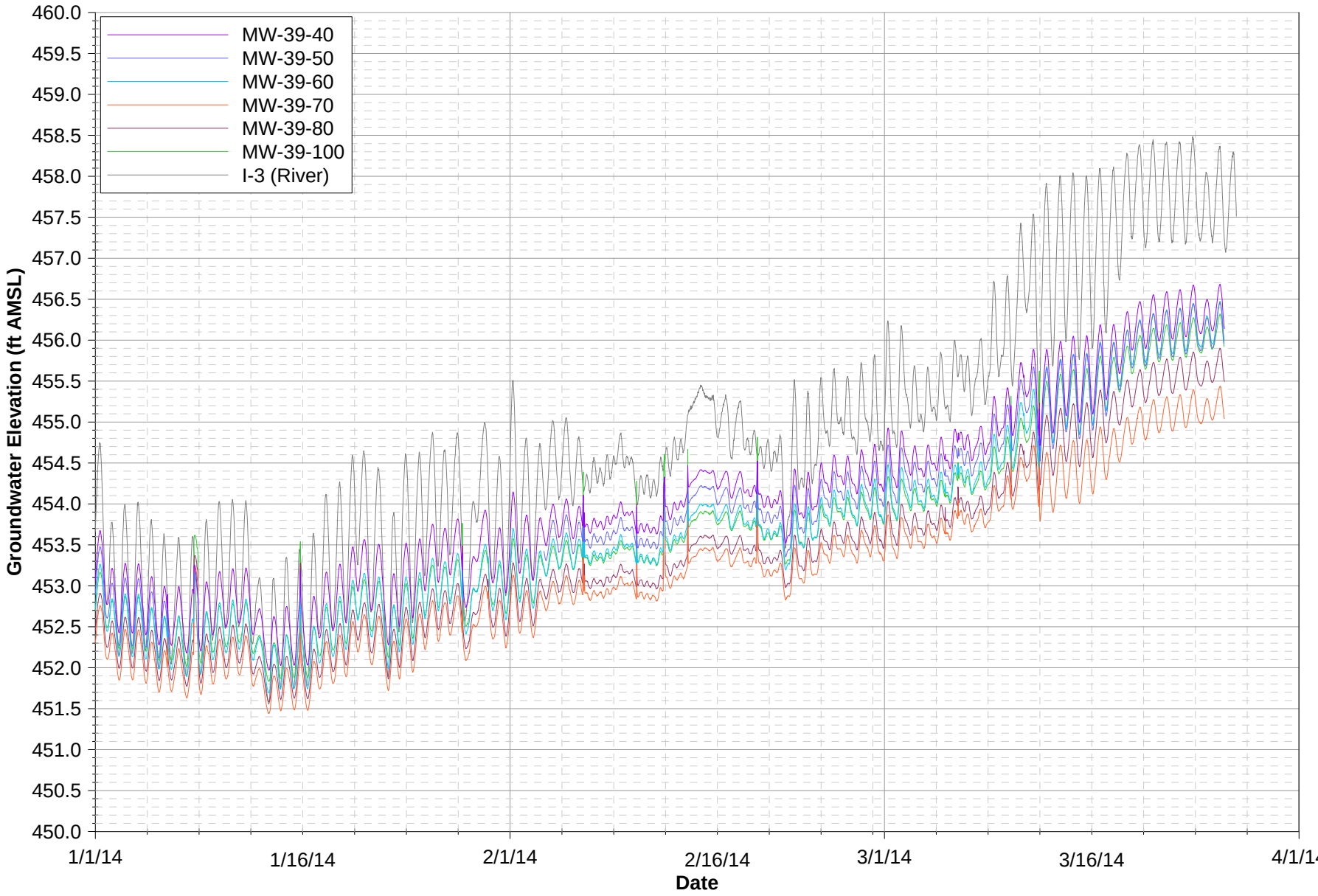
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

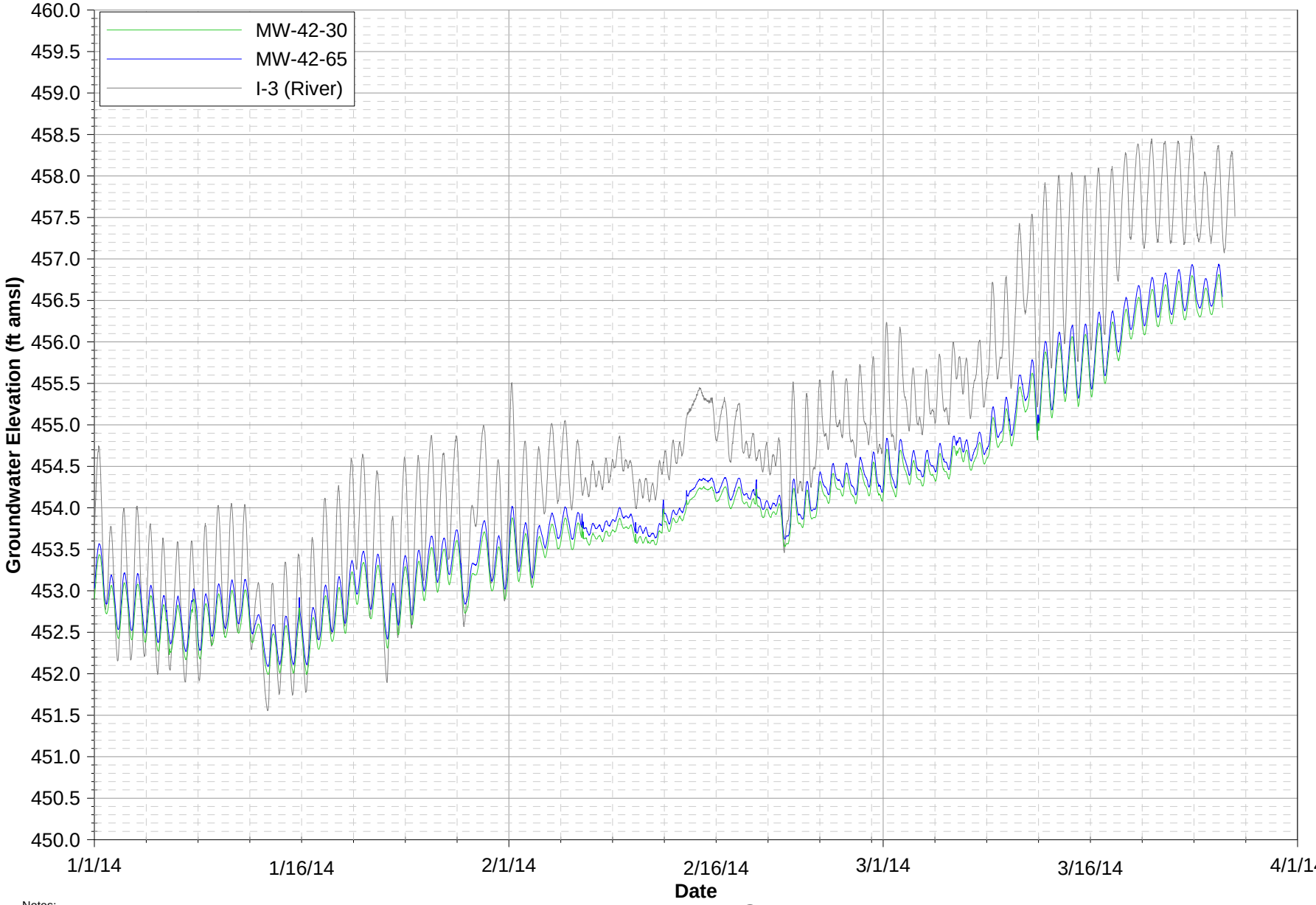
FIGURE F-1K
MW-36 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



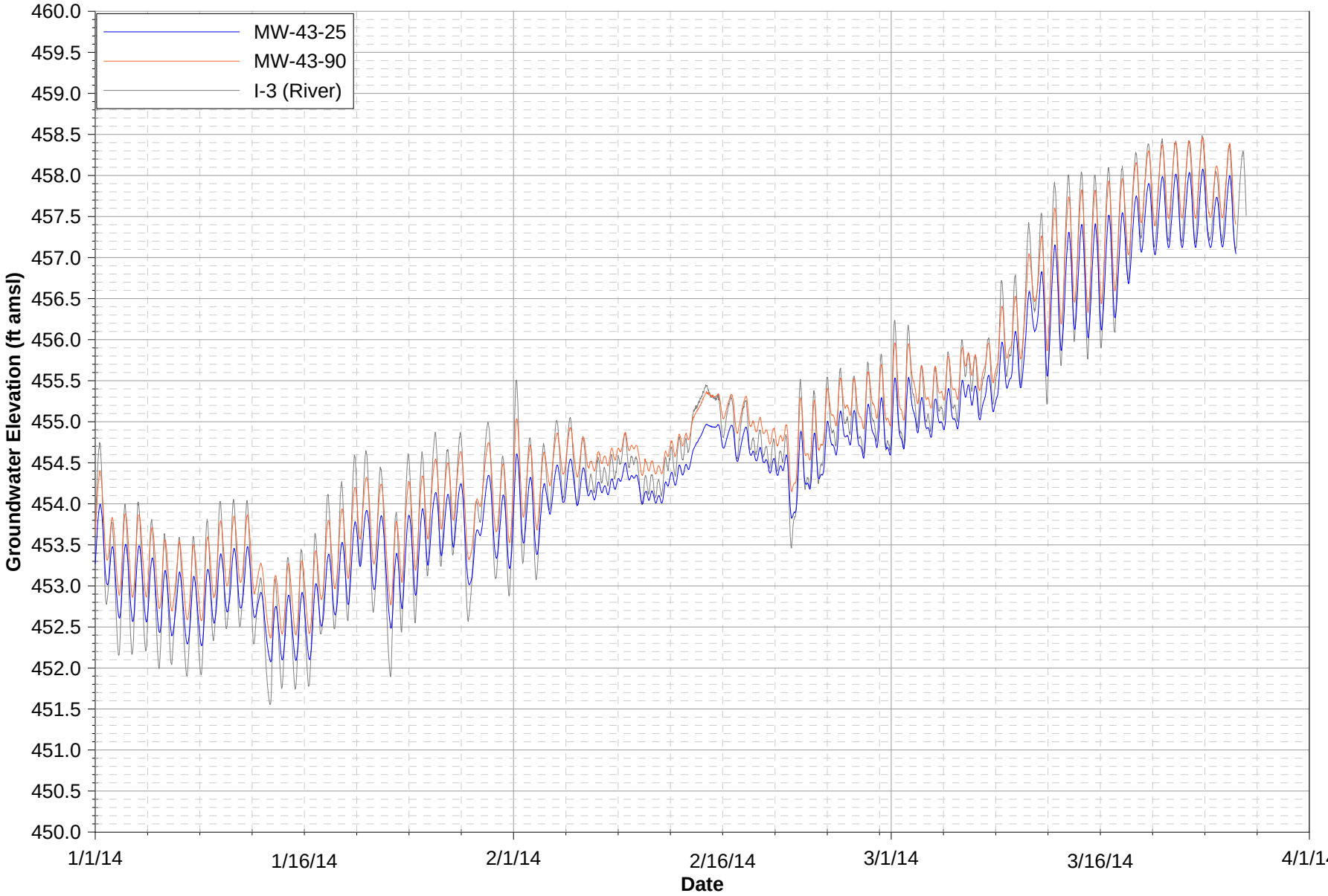
Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-39-50 data unavailable from January 6, 2014 through February 3, 2014 due to transducer failure.

FIGURE F-1L
MW-39 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



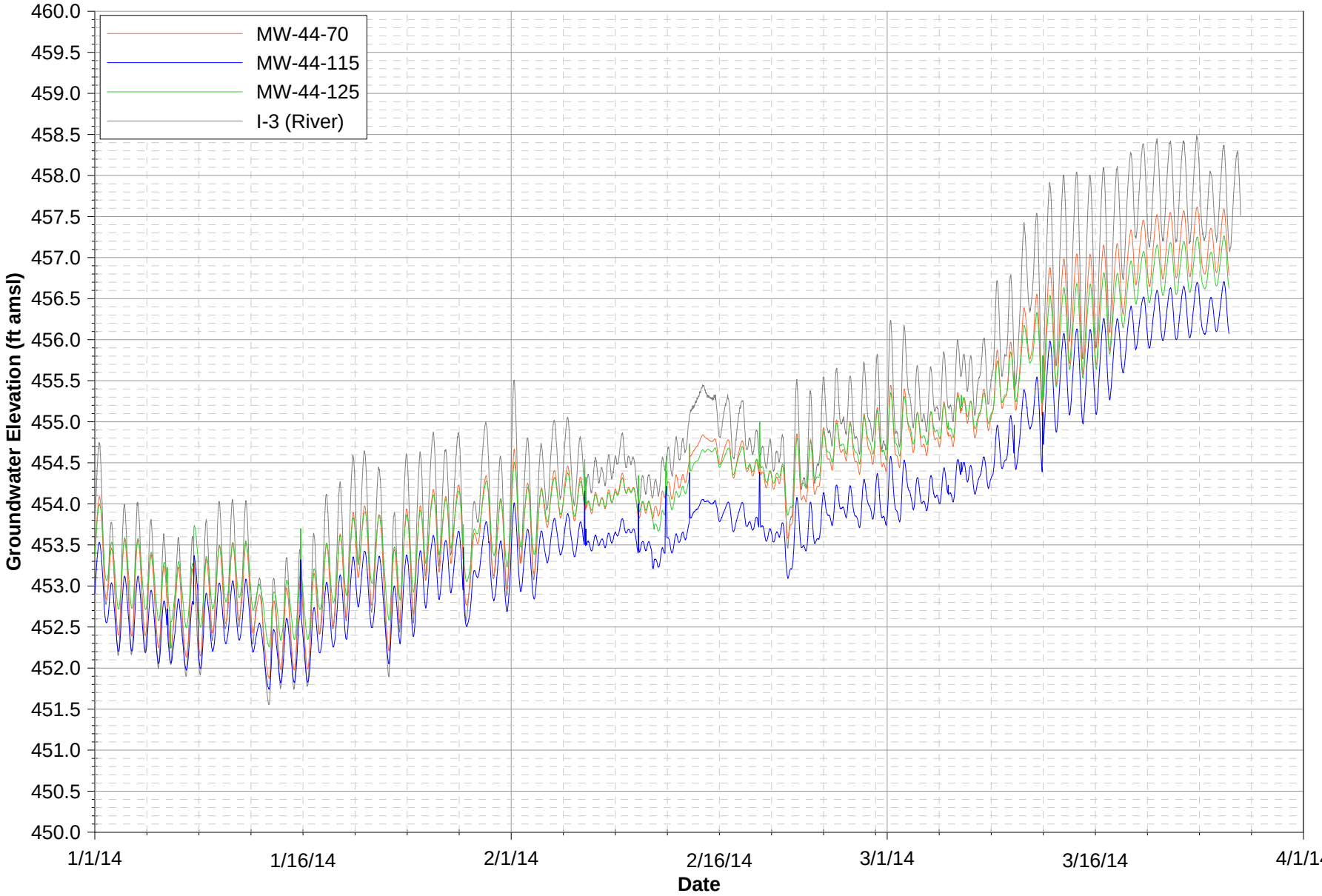
Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1M
MW-42 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



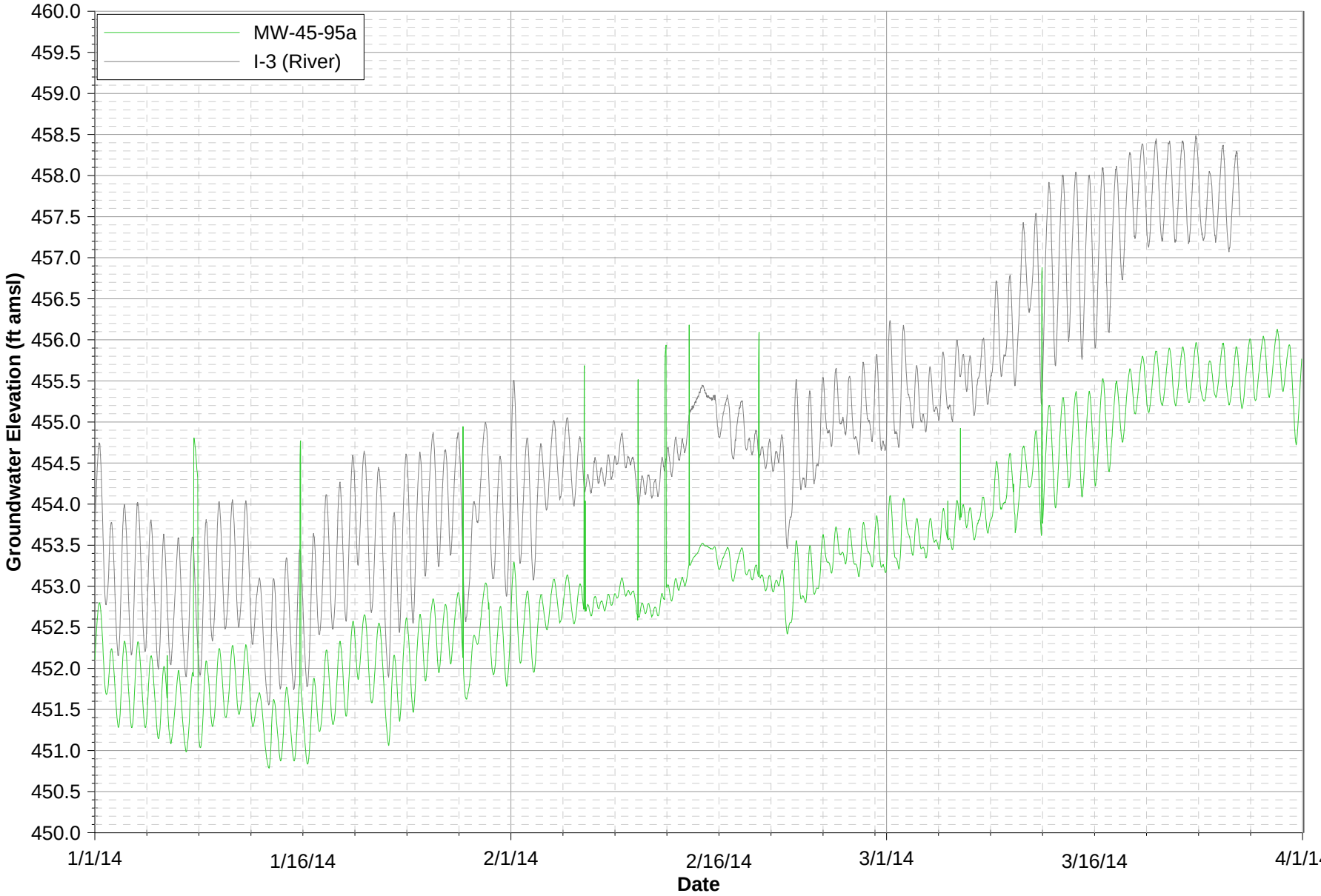
Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1N
MW-43 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

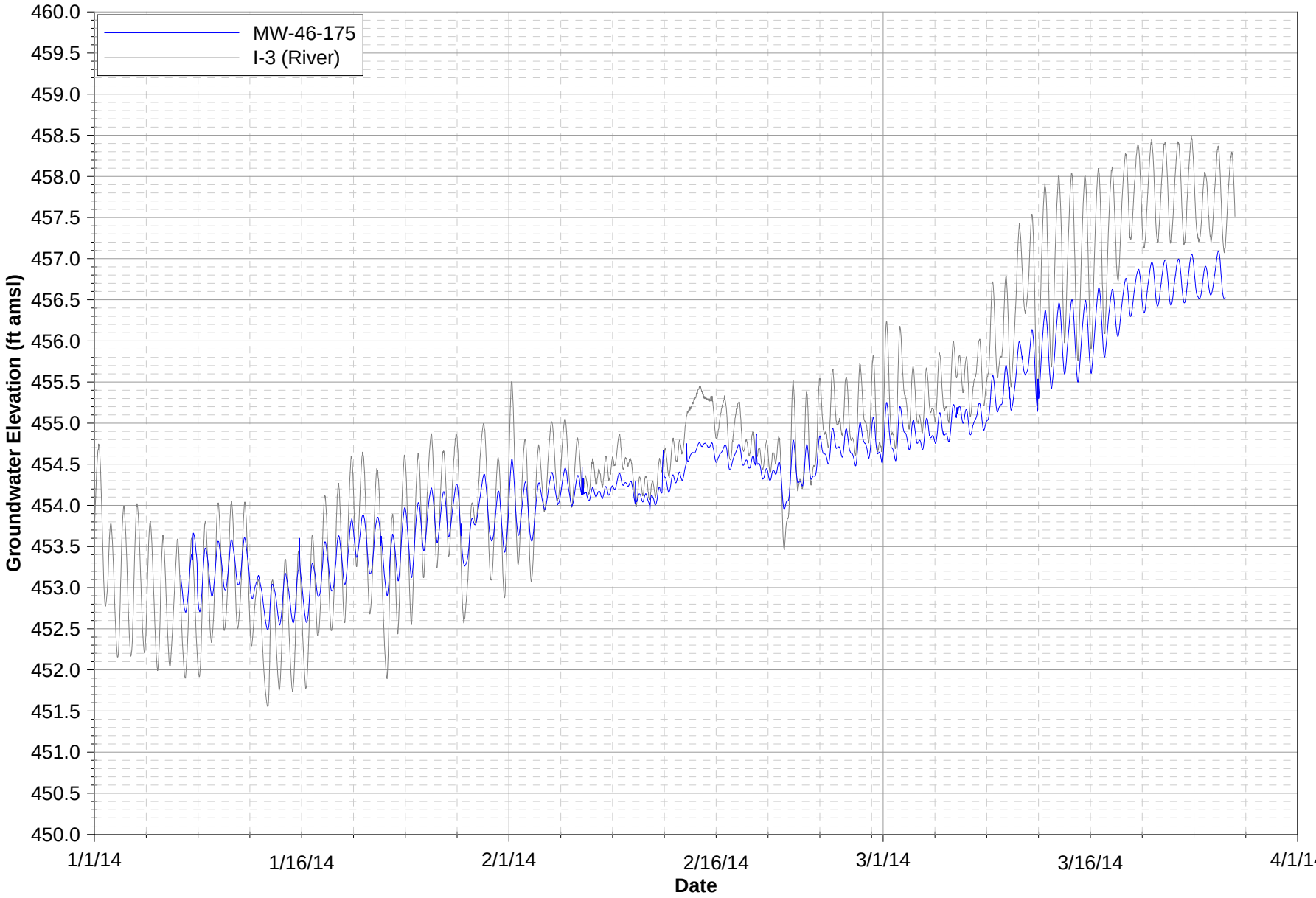
FIGURE F-1O
MW-44 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1P
MW-45-95a HYDROGRAPH
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

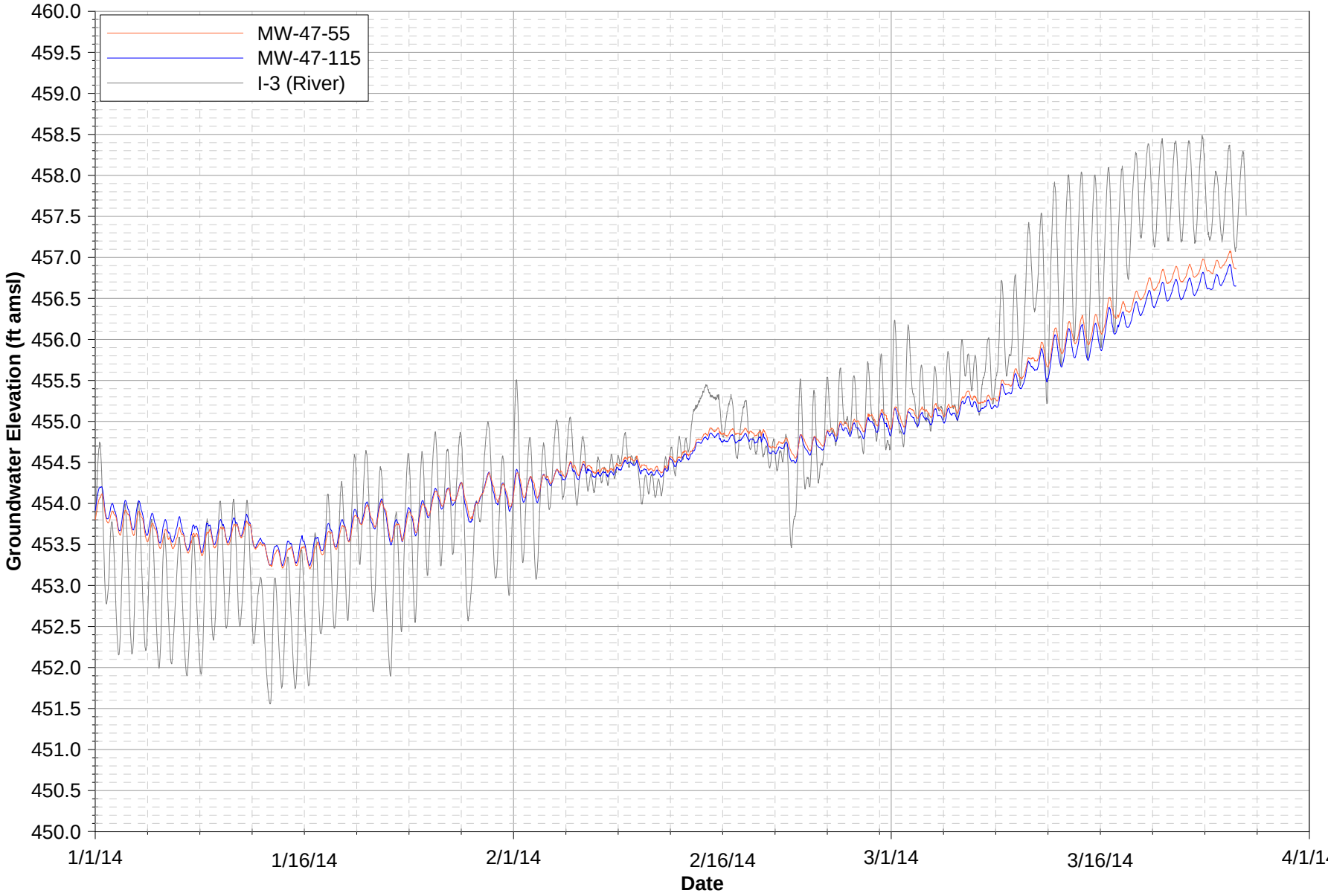


Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-46-175 data unavailable from January 1, 2014 through January 7, 2014 due to transducer failure.

FIGURE F-1Q
MW-46 HYDROGRAPH

FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

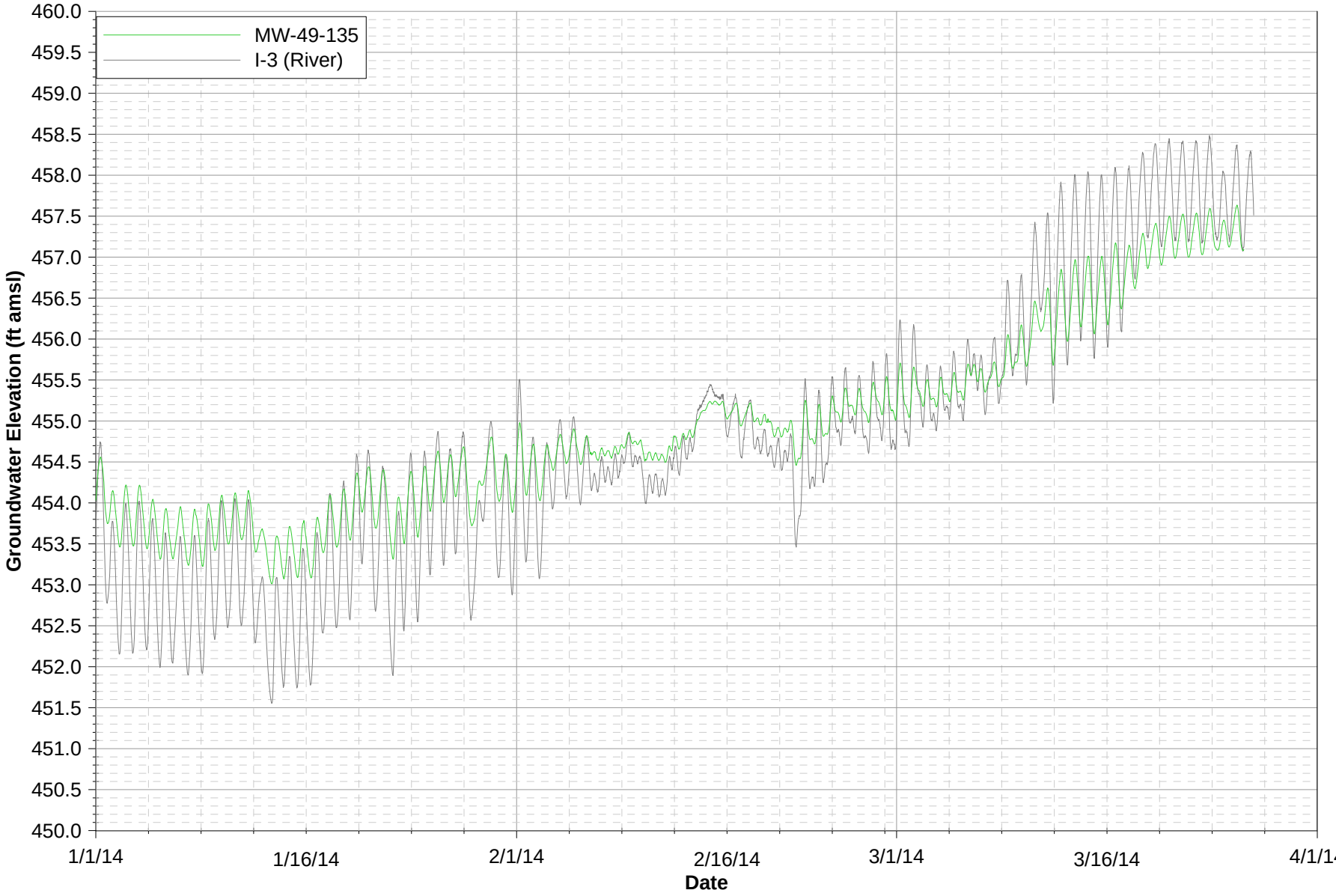
CH2MHILL



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

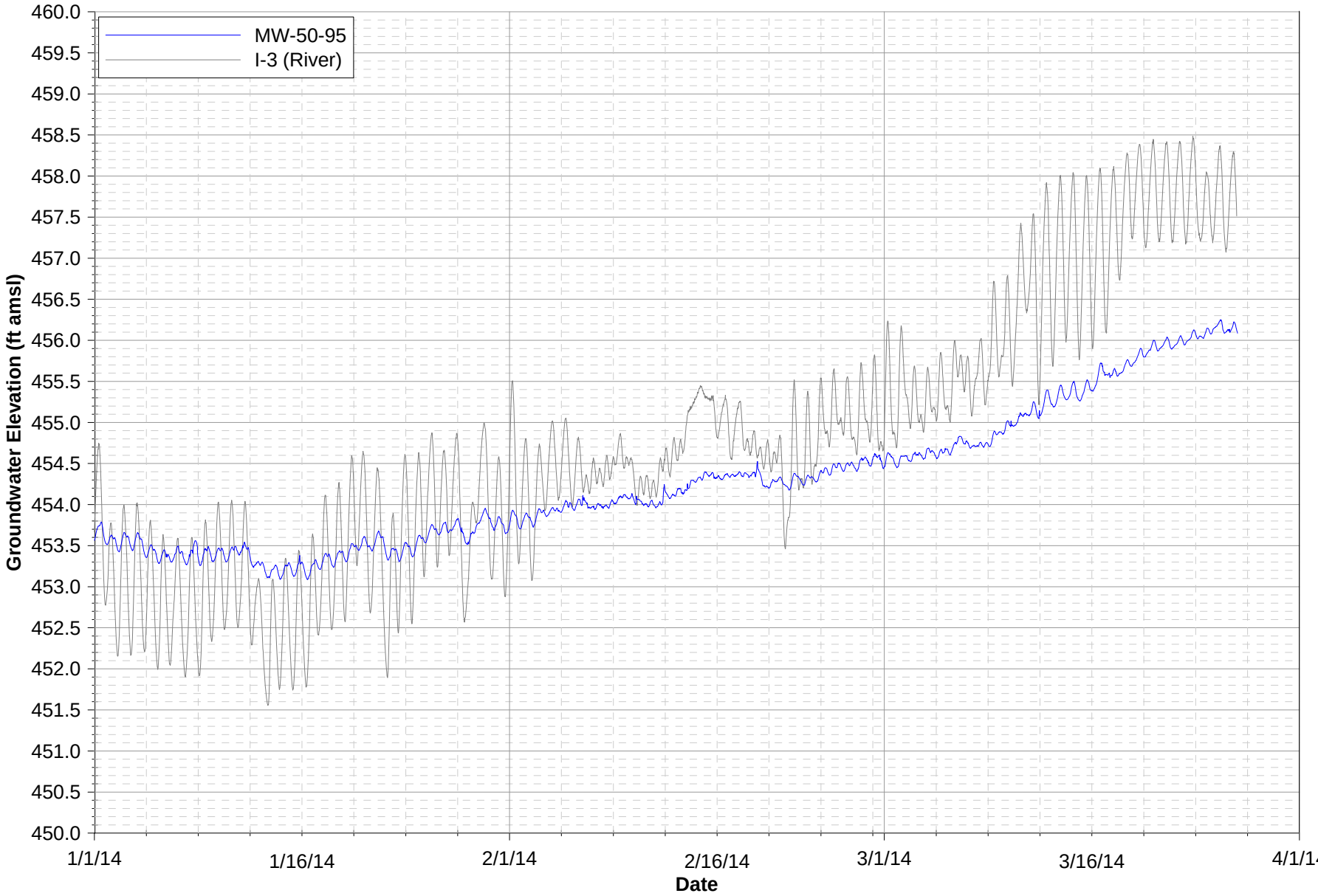
FIGURE F-1R
MW-47 CLUSTER HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



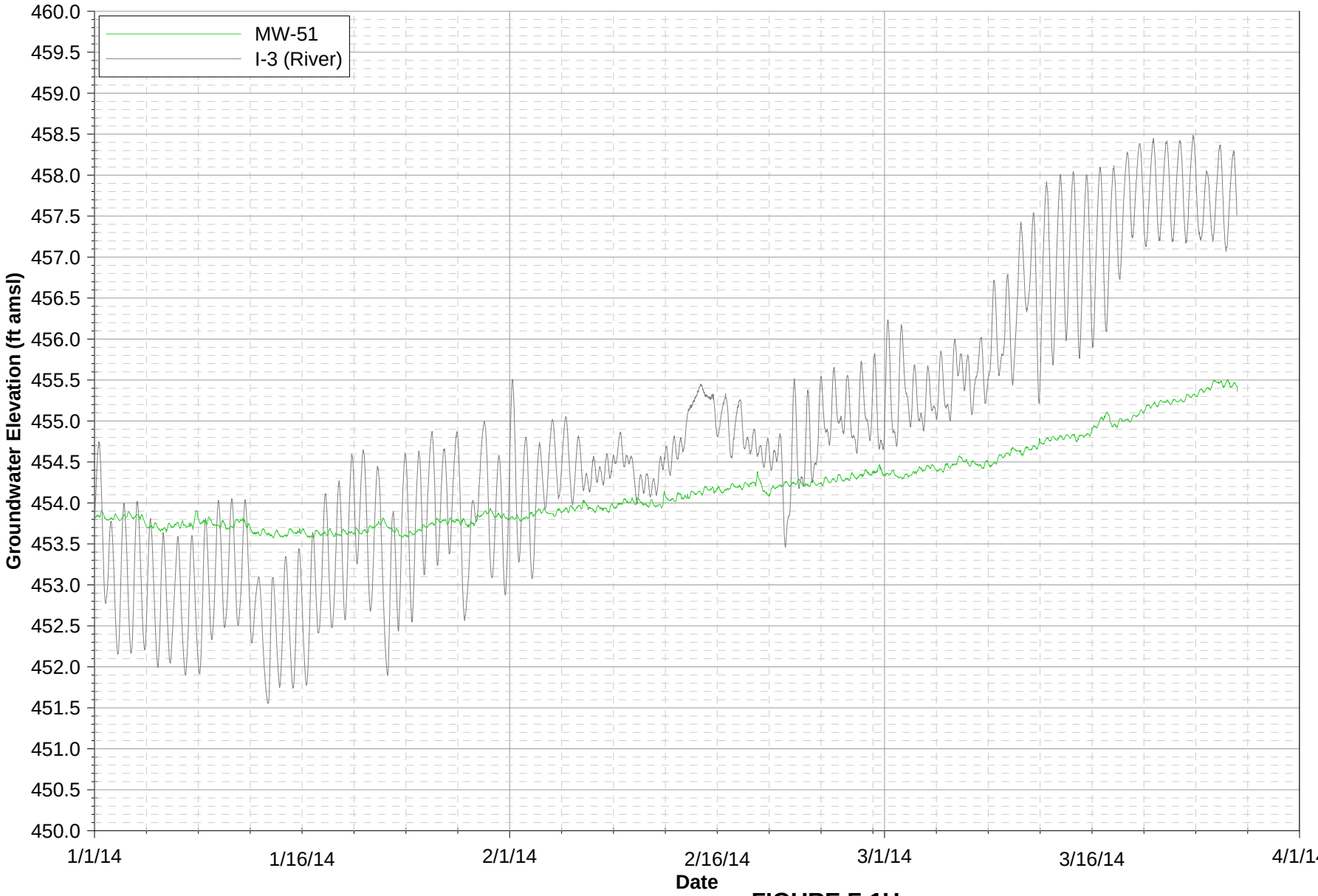
Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1S
MW-49 HYDROGRAPH
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

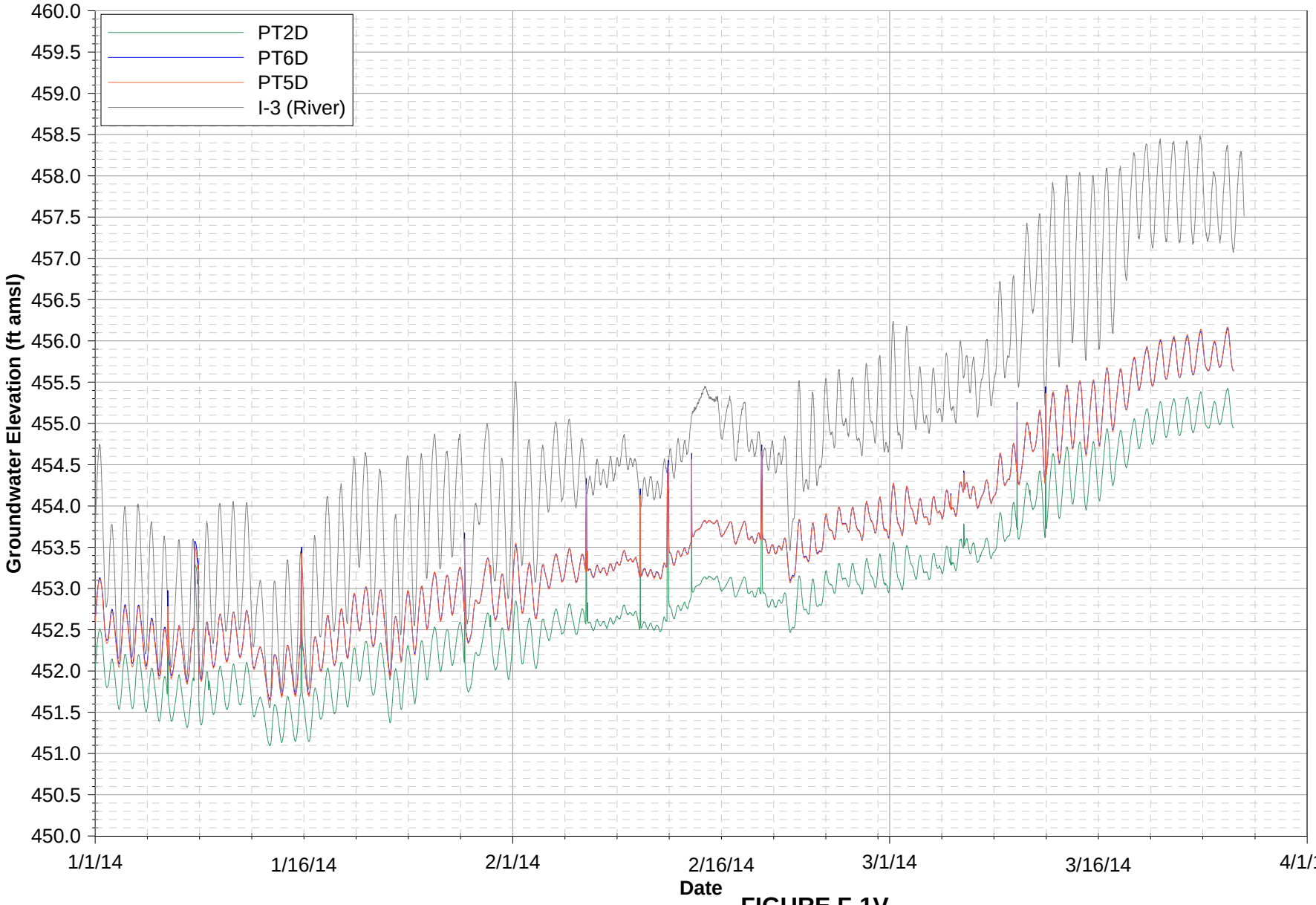
FIGURE F-1T
MW-50 HYDROGRAPH
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1U
MW-26 & MW-51 HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Note:
1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1V
INSITU PILOT STUDY WELL HYDROGRAPHS
FIRST QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL