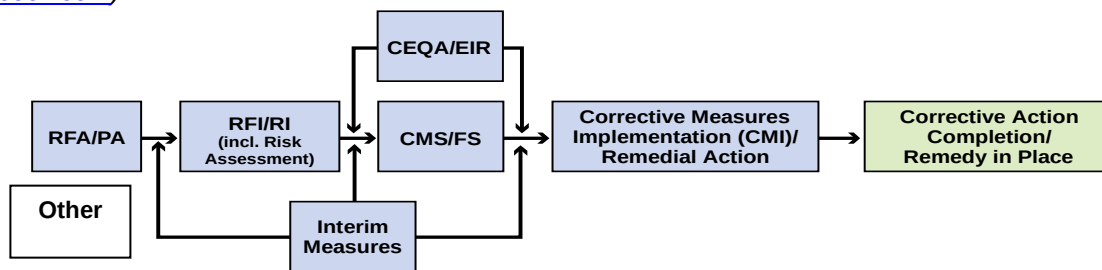


Topock Project Executive Abstract

Document Title: Third 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: 12/15/2014 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E
Priority Status: ☐ HIGH ☐ MED ☒ LOW Is this time critical? ☐ Yes ☒ No	Action Required: ☒ Information Only ☐ Review & Comment Return to: _____ By Date: _____ ☐ Other/Explain:
Type of Document: ☐ Draft ☒ Report ☐ Letter ☐ Memo ☐ 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:
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.	Is this a Regulatory Requirement? ☒ Yes ☐ No If no, why is the document needed?
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 Third Quarter 2014, which includes the months of July, August, September, and October 2014. The average pumping rate for the IM extraction system during the Third Quarter 2014 was 127.3 gallons per minute. To date, the IM extraction system has removed a total of 8,070 pounds (3,660 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

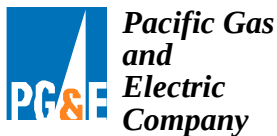
RFA/PA – RCRA Facility Assessment/Preliminary Assessment

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



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December 15, 2014

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

Subject: *Third Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* (Document ID: PGE20141215A)

Dear Mr. Yue:

Enclosed is the *Third Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*, for Pacific Gas and Electric Company's (PG&E's) Interim Measures (IM) Performance Monitoring Program and the Groundwater Monitoring Program (GMP) and Surface Water Monitoring Program (RMP) for the Topock project. This report presents the Third Quarter 2014 (July through October 2014) performance monitoring results for the IM hydraulic containment system and summarizes the operations and performance evaluation for the reporting period. In compliance with the requirements for the GMP and RMP directive of April 2005 (DTSC, 2005a), this report also presents groundwater and surface water monitoring activities, results, and analyses related to the GMP and RMP during Third 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; July 23, 2010; and June 27, 2014.

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

Sincerely,

A handwritten signature in blue ink that reads 'Yvonne Meeks'.

Yvonne Meeks
Topock Project Manager

Enclosure

Third 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
Bruce Campbell/AZ-SLD

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

Document ID: PGE20141215A

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

On behalf of
Pacific Gas and Electric Company

December 15, 2014

CH2MHILL®

155 Grand Avenue Suite 800
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Third 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

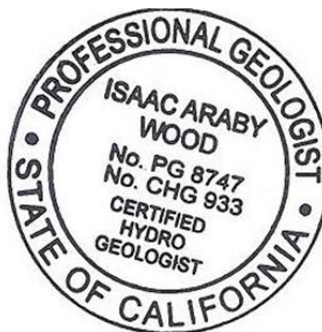
On behalf of
Pacific Gas and Electric Company

December 15, 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 Introduction	1-1
1.1 Site-wide Groundwater and Surface Water Monitoring Program.....	1-1
1.1.1 Groundwater Monitoring Program and Surface Water Monitoring Program Monitoring Networks.....	1-2
1.2 Interim Measure Performance Monitoring Program	1-2
1.2.1 Performance Monitoring Program Monitoring Networks.....	1-3
1.3 Sustainability.....	1-3
2 Third 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 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 Arsenic Sampling in Monitoring Wells.....	3-1
3.3 Surface Water Sampling Results	3-2
3.4 Data Validation and Completeness.....	3-2
4 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	4-4
4.7 Quarterly Performance Monitoring Program Evaluation Summary.....	4-4
5 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 References.....	6-1

Tables

- 1-1 Topock Monitoring Reporting Schedule
- 3-1 Groundwater Sampling Results, July 2013 through October 2014
- 3-2 Groundwater COPCs and In Situ Byproducts Sampling Results, Third Quarter 2014
- 3-3 Surface Water Sampling Results, Third Quarter 2014
- 3-4 COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, Third Quarter 2014
- 4-1 Pumping Rate and Extracted Volume for IM System, Third Quarter 2014
- 4-2 Analytical Results for Extraction Wells, July 2013 through October 2014
- 4-3 Average Hydraulic Gradients Measured at Well Pairs, Third 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, Third Quarter 2014
- 3-1b Cr(VI) Sampling Results, Deep Wells in Alluvial Aquifer and Bedrock, Third Quarter 2014
- 4-1 Maximum Cr(VI) Concentrations in Alluvial Aquifer and Bedrock, Third Quarter 2014
- 4-2 Cr(VI) Concentrations Floodplain Cross-section B, Third Quarter 2014
- 4-3 Cr(VI) Concentration Trends in Selected Performance Monitoring Wells, April 2005 through October 2014
- 4-4a Average Groundwater Elevations in Shallow Wells and River Elevations, Third Quarter 2014
- 4-4b Average Groundwater Elevations in Mid-depth Wells, Third Quarter 2014
- 4-4c Average Groundwater Elevations in Deep Wells, Third Quarter 2014
- 4-5 Average Groundwater Elevations for Wells in Floodplain Cross-section A, Third Quarter 2014
- 4-6 Measured Hydraulic Gradients, River Elevations, and Pumping Rate, Third Quarter 2014
- 4-7 Past and Predicted Future River Levels at Topock Compressor Station

Appendices

- A Well Inspection and Maintenance Log, Third Quarter 2014
- B Lab Reports, Third 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, Third 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
ID	identification
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 July 1, 2014 through October 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). On June 27, 2014, DTSC approved changes to the reporting schedule that added 2 weeks to the preparation of the third quarter report (DTSC, 2014) and included changes to the sample frequencies. Table 1-1 shows the reporting schedule. (Tables are located at the end of the report.)

Starting in Third Quarter 2014 (July through October), the groundwater sample collection method was switched from the traditional three-volume method to the minimal drawdown method, as approved by DTSC (June 2014). Minimal drawdown sample collection is conducted following the standard operating procedures detailed in the *Sampling and Analysis Field Procedures Topock Program Manual, Revision 1, Pacific Gas and Electric Company, Topock Project* (CH2M HILL, 2005a) and relevant updates.

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, 2014a).

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

1.1.1 Groundwater Monitoring Program and Surface Water Monitoring Program Monitoring Networks

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

- 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 this quarter (Third Quarter 2014), following the DTSC direction given June 27, 2014 (DTSC, 2014). Figure 1-2 shows the new sampling frequencies, with the sampling purge method indicated by the font of the well identification labels. These changes include sampling all three Arizona monitoring well locations at semi-annual frequency following DTSC's direction; previously one location was sampled annually since 2010. Sampling frequencies for the Arizona monitoring wells were previously 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). Modifications to GMP analytical plans are currently under way; DTSC requested an updated sampling plan for non-chromium water quality analyses with the June 27, 2014 response to sampling program modifications.

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 Third Quarter 2014 PMP evaluation report for the IM monitoring activities from July 1, 2014 through October 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. Extraction wells PE-1 and TW-3D currently 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, 2005b) 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; July 23, 2010, and June 27, 2014 (DTSC, 2007a, 2008a-b, 2010a, 2014).

1.2.1 Performance Monitoring Program Monitoring Networks

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

- Floodplain wells: monitoring wells on the Colorado River floodplain.
- Intermediate wells: monitoring wells 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.

1.3 Sustainability

The GMP, PMP, and RMP monitoring programs strive to use sustainable sampling and data collection practices. This section briefly describes some of the sustainability practices now in use.

As approved by the California Regional Water Quality Control Board in 2006, groundwater sampling purge water is disposed via the onsite IM-3 treatment plant and injection process, eliminating offsite transport and disposal of sampling purge water. In 2011, onsite IM-3 staff were trained to take on the role of groundwater

sampling support in place of an offsite support contractor. The monitoring teams also designed a groundwater sampling truck that was locally fabricated. The use of local staff and a local sampling truck eliminated mobilizations from the Los Angeles area by the former offsite contractor. Additionally, the RMP boat contractor has always been a local Lake Havasu City-based business. Benefits of using local resources for sampling support are reduced fuel consumption and greenhouse gas emissions, and increased local business support.

To reduce the potential for impacts to floodplain areas with nesting habitat, water level data telemetry systems were installed from 2011-2012 at the five key gradient compliance well locations. The solar-powered data telemetry systems eliminated the need for weekly download visits and allows for monthly or less-frequent visits for key well transducer calibrations and maintenance.

The DTSC approved the provisional use of minimal drawdown sampling on June 27, 2014 (DTSC, 2014) at most alluvial screened wells. Minimal drawdown sampling will reduce the volume of purge water and sampling footprint at most wells. For wells still using the three-casing-volume purge sampling methods (primarily bedrock and long screened wells), pumps and tubing are sized for the optimum purge technique at each monitoring well. Utility vehicles (for example, Polaris Ranger or Kawasaki Mule) and one quiet electric four-wheel drive utility vehicle are used to access wells on the floodplain and some culturally sensitive well locations rather than the full-size pickup truck. These best practices reduce generator use, impacts from well access, and decontamination water volume to further decrease the monitoring footprint.

Third 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 July, August, September, and October 2014 and was analyzed for Cr(VI), chromium, total dissolved solids (TDS), and pH.

2.1.2 Quarterly

Per the July 23, 2010 sampling schedule approval (DTSC, 2010a), the Third Quarter 2014 GMP quarterly groundwater monitoring event was conducted from September 22, 2014 through October 2, 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 Third 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:

- 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). That frequency was modified with the June 27, 2014 email from DTSC.
- 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, 2005b) and the *Sampling and Analysis Field Procedures Topock Program Manual, Revision 1, Pacific Gas and Electric Company, Topock Project* (CH2M HILL, 2005a) 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 July 15, 2014 through July 16, 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 quarterly sampling event. In addition, PMP pressure transducers, which are used to monitor hydraulic gradients of the Alluvial Aquifer, were downloaded in the first week of every month (July, August, September, and October). 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.

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. Starting in Third Quarter 2014, sample collection switched from the traditional three-volume method to the minimal drawdown (or micropurge) method, as approved by DTSC (June 2014). Minimal drawdown sampling is performed following the standard operating procedures in the *Sampling and Analysis Field Procedures Topock Program Manual, Revision 1, Pacific Gas and Electric Company, Topock Project* (CH2M HILL, 2005a) and in relevant updates. In Table 3-1, sample collection method changes are distinguished by the column called “sampled method.” During Third Quarter 2014, the maximum detected Cr(VI) concentration was 27,000 µg/L at well MW-68-180. The laboratory reports for analytical results from Third Quarter 2014 sampling are presented in Appendix B.

Figures 3-1a and 3-1b present the Cr(VI) results for wells monitoring the shallow (upper depth interval) and deep (lower depth interval) wells of the Alluvial Aquifer and bedrock, respectively, from Third Quarter 2014. The mid-depth map (normally Figure 3-1b) was not included in this report because there were no samples collected from the mid-depth sampling interval this quarter. Figures 3-1a and 3-1b 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 Third Quarter 2014 and the Second Quarter of 2014 when data monitoring data for additional monitoring wells were sampled. 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, 2013a-d, and 2014a-b).

3.2 Other Groundwater Monitoring Results

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

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

- MW-46-175 with a molybdenum concentration of 170 µg/L
- MW-68-180 with a nitrate concentration of 28.0 milligrams per liter
- MW-68-180 with a selenium concentration of 18.0 µg/L
- MW-58BR with a manganese concentration of 560 µg/L
- MW-38S and MW-72BR-200 with an arsenic concentration of 14.0 µg/L

3.2.2 Arsenic Sampling in Monitoring Wells

Select Alluvial Aquifer and bedrock wells were sampled for arsenic in the Third Quarter 2014 event. Selected arsenic results are presented with the COPCs and in situ byproducts results in Table 3-2. Additional arsenic results are presented in Appendix C, Table C-1.

3.3 Surface Water Sampling Results

Table 3-3 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 3-4 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. Low arsenic (less than 3 µg/L), low barium (equal to or less than 130 µg/L), low molybdenum (less than 5 µg/L), low nitrate/nitrite as nitrogen (less than 1.5 milligram per liter), and low selenium (less than 2 µg/L), concentrations were detected at all sampled locations. The dissolved manganese results were also generally low and near or below laboratory reporting limits, with the exception of the sample collected at C-MAR-S, where moderate values were reported. The C-MAR-S sample location is near the east side of the Colorado River at the mouth of the Topock Marsh area as shown on Figure 1-3. This location is out of the main river channel and adjacent to an area of naturally reducing geochemical conditions in groundwater. Elevated manganese concentrations are typical of reduced geochemical environments. Dissolved iron results were generally low and near or below laboratory reporting limits.

3.4 Data Validation and Completeness

Laboratory analytical data from the Third 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:

- One Cr(VI)(USEPA Method 218.6) result 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.
- One field duplicate pair had a relative percent difference greater than the upper control limit for dissolved manganese (USEPA Method 6020). The results were qualified as estimated and flagged "J." As explained in table footnotes, a "J" flag indicates that the concentration as reported is considered to be an estimate.
- Based on the March 2007 USEPA ruling and reaffirmed in the May 2012 USEPA ruling, pH has a 15-minute holding time. As a result, all samples analyzed in a certified lab by Method SM4500-HB (pH) are analyzed outside the USEPA recommended holding time. Therefore, the pH results for the Third Quarter sampling events analyzed in a certified lab were qualified as estimated and flagged "J."

No other significant analytical deficiencies were identified in the Third Quarter 2014 data. Additional details are provided in the data validation reports, which are kept in the project file and are available upon request.

Interim Measure Performance Monitoring Program Evaluation

4.1 Water Quality Results for Performance Monitoring Program Floodplain Wells

In July 2008 and June 2014, DTSC approved modifications to the PMP IM chemical performance monitoring parameters (DTSC, 2008b, 2014). 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, 2014a). Figure 1-4 shows the locations of the monitoring wells sampled for the performance monitoring parameters. Water samples from the selected performance monitoring locations are analyzed for general chemistry parameters, including TDS, chloride, sulfate, nitrate, bromide, calcium, potassium, magnesium, sodium, boron, alkalinity, 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 Third Quarter 2014 distribution of Cr(VI) in the upper (shallow 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 Third 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 most recent Cr(VI) concentration contours shown for the Alluvial Aquifer on these figures are based on groundwater samples collected in Third Quarter 2014 for the shallow and deep depth intervals, and the Second Quarter of 2014 for the mid-depth interval.

Figure 4-3 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through October 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; only MW-44-115, MW-46-165, and MW-34-100 were sampled this quarter. 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 October 2014. During Third Quarter 2014, the well purging method was switched from the traditional three-volume method to the minimal drawdown method as approved by DTSC (June 2014). On trend graphs in Appendix D, the sample purging method change is indicated by a different symbol on the same graph with the data from the recently adopted purge method labeled “MP” for micropurge or minimal drawdown. The six monitoring wells sampled with micropurge methods in the third quarter GMP event are MW-34-100, MW-44-115, MW-46-175, MW-65-160, MW-65-225, and MW-68-180. Micropurge results generally agree with historical trends (and seasonal trends where present) at these locations. Micropurge results will be reviewed in greater detail as a larger dataset of micropurge results is developed for comparison to the previous three-volume purging method.

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.

Wells showing marked decreases in concentration over time are generally in the floodplain area where IM pumping is removing chromium contaminated 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 Third 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 (data in Appendix D; see Figure 1-4 for locations) sampled during Third Quarter 2014 include:

- As shown on Figure 4-3 and on 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.
- 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 on Figure D-10 in Appendix D.
- 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 well MW-46-175 (see Appendix D, Figures D-6 and D-11, respectively). River levels are discussed in Section 4.6.

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, 2005b, 2006; PG&E, 2007, 2008). Appendix D includes Cr(VI) concentration trend graphs for the IMCP wells. The IMCP well Cr(VI) results in Third 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 July 1 through October 31, 2014 are presented in Table 4-1. From July 1, 2014 through October 31, 2014, the volume of groundwater extracted and treated by the IM-3 system was 22,553,648 gallons. This resulted in the removal of an estimated 107 pounds (48.6 kilograms) of chromium from the aquifer during the period from June 1, 2014 through September 30, 2014.² Through September 2014, the IMs have removed approximately 8,070 pounds of chromium from the floodplain at the Topock site.

During Third Quarter 2014, extraction wells TW-3D and PE-1 operated at a combined pumping rate of 127.3 gallons per minute (gpm), including periods of planned and unplanned downtime. The average monthly pumping rates during the reporting period were 129.5 (July), 116.1 (August), 129.0 (September), and 134.8 (October). Extraction well TW-2S was not operated during Third Quarter 2014. Extraction well TW-2D ran for limited durations on September 23 and 24, 2014. The operational runtime percentage for the IM extraction system was 94.5 percent during this reporting period. The operations log for the extraction system during Third Quarter 2014, including planned and unplanned downtime, is included in Appendix E.

² Chromium removed this reporting period includes the period of June 1 through September 30, 2014. On July 23, 2010, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from June 1, 2014 through September 30, 2014.

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. Seven containers of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada, during Third 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 720 µg/L in July and October of 2014 to a minimum value of 703 µg/L in September, as shown in Table 4-2. TDS concentrations in TW-3D for this reporting period have also remained stable, as shown in Table 4-2.

The Cr(VI) concentrations in the extracted groundwater at well PE-1 on the floodplain ranged from 3.6 to 3.8 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 Third 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 Third 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 Third 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 0.0046 to 0.0060 feet per foot (ft/ft), which is 4.6 to 6.0 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 2.1 to 2.4 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from 8.4 to 11.6 times the target gradient. The southern well pair gradients averaged 3.2 to 4.2 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 November 2014 is based on the October 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 October 2014. There is more uncertainty in these projections at longer times in the future because water demand is based on various elements including climatic factors.

Current USBR projections, presented in Table 4-4, show that the average projected Davis Dam release for November 2014 (10,700 cubic feet per second) will be more than the actual release in October 2014 (10,434 cubic feet per second). Based on November 2014 USBR predictions, it is anticipated that the Colorado River level at the I-3 gauge location in November 2014 will be approximately 0.51 foot lower compared to the actual levels in October 2014. Current projections show that the water levels will continue to decrease through the rest of the next quarterly reporting period (November through December), as shown on Figure 4-7.

4.7 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from July 2014 through October 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 Third Quarter 2014 were 4.6 to 6.0 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 Third Quarter 2014 reporting period.

A total of 22,553,648 gallons of groundwater was extracted from July through October 2014 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during Third Quarter 2014, including system downtime, was 127.3 gpm. An estimated 107 pounds (48.6 kilograms) of chromium were removed and treated between June 1 and September 30, 2014. To date, the IMs have removed approximately 8,070 pounds of chromium from the floodplain at the Topock site through September 2014.

The wells that are monitored to detect trends in Cr(VI) in the IM pumping area (for example, MW-34-100, MW-44-115, and MW-46-175) continue to show overall stable or declining Cr(VI) concentrations relative to prior monitoring results, as shown in Appendix D.

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 Fourth Quarter 2014 monitoring report, which will be submitted by March 15, 2015.

5.1 Groundwater Monitoring Program

5.1.1 Quarterly Monitoring

As described in the July 23, 2010, DTSC sampling schedule approval (DTSC, 2010a), the Fourth Quarter monitoring event is planned for November 3, 2014, through December 18, 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 Fourth Quarter 2014 surface water monitoring event was conducted at locations in the RMP monitoring network in November 2014. Results will be reported in the Fourth 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 Fourth 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 Fourth Quarter 2014. Downloads of the remainder of the transducers will occur during the first week of each month during Fourth Quarter 2014.

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Tables

Table 1-1

Topock Monitoring Reporting Schedule
*Third 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 - February	March - May	June - September	October - December

TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	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	3V	240	236	2,600	31	7.5
MW-10	SA	12-Dec-13	3V	380	367	2,500	-26	7.5
		14-May-14	3V	260	250	2,400	57	7.2
		14-May-14 FD	3V	260	260	2,400	FD	FD
MW-12	SA	25-Sep-13	3V	2,260	2,590	6,700	200	8.1
		10-Dec-13	3V	2,440	2,350	7,000	-18	8.2
		25-Feb-14	3V	2,560	2,480	7,000	84	8.0
		01-May-14	3V	2,400	2,200	6,000	-19	8.1
MW-13	SA	13-Nov-13	3V	19.4	16.9	2,000	140	7.5
MW-14	SA	19-Dec-13	3V	17.2	17.3	1,700	5.0	7.5
MW-15	SA	11-Nov-13	3V	10.7	10.3	1,400	280	7.7
MW-16	SA	06-Nov-13	3V	8.5	8.3	920	150	8.1
		22-Apr-14	3V	9.9	9.7	---	44	7.6
MW-17	SA	11-Nov-13	3V	11.8	11.6	1,200	260	8.0
		23-Apr-14	3V	12.0	12.0	---	36	7.9
MW-18	SA	11-Nov-13	3V	18.6	17.5	1,200	230	7.6
MW-19	SA	05-Dec-13	3V	522	487	2,100	190	7.6
		28-Apr-14	3V	550	520	---	77	7.3
MW-20-70	SA	11-Dec-13	3V	2,140	2,520	1,900	16	7.6
		07-May-14	3V	2,200	2,400	1,600	-7	7.5
MW-20-100	MA	11-Dec-13	3V	2,140	2,080	2,500	23	7.2
		07-May-14	3V	2,900	2,900	2,400	-40	7.2
MW-20-130	DA	17-Dec-13	3V	9,370	9,620	11,000	-64	7.4
		17-Dec-13 FD	3V	9,370	10,700	11,000	FD	FD
		12-May-14	3V	9,100	9,000	9,900	-85	7.5
MW-21	SA	10-Sep-13	3V	ND (1.0)	1.5	10,000	120	7.1
		05-Nov-13	3V	1.5	2.8	8,900	190	5.7
		19-Feb-14	3V	2.6	3.5	---	8.0	7.1
		22-Apr-14	3V	1.9	1.8	8,300	-190	7.2
MW-22	SA	14-Nov-13	3V	ND (1.0)	ND (1.0)	20,000	-36	6.6
		30-Apr-14	3V	ND (1.0)	ND (1.0)	---	-160	6.8
MW-23-060	BR	17-Sep-13	3V	36.9	38.4	15,000	120	9.4

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-23-060	BR	11-Nov-13	3V	35.9	34.9	15,000	160	9.3
		13-Feb-14	3V	34.9	38.0	---	70	9.4
		22-Apr-14	3V	39.0	34.0	---	21	9.2
MW-23-080	BR	17-Sep-13	3V	13.7	14.3	15,000	140	9.9
		11-Nov-13	3V	11.0	11.2	15,000	81	10.2
		13-Feb-14	3V	8.4	9.0	---	16	10.2
		22-Apr-14	3V	15.0	13.0	---	-60	10.1
MW-24BR	BR	10-Sep-13	3V	ND (1.0)	ND (1.0)	14,000	-180	8.1
		03-Dec-13	3V	ND (0.2)	ND (1.0)	14,000	-230	8.0
		20-Feb-14	3V	ND (1.0)	ND (1.0)	---	-250	8.0
		29-Apr-14	3V	ND (1.0)	ND (1.0)	---	-250	8.0
MW-25	SA	09-Dec-13	3V	191	188	1,600	-4	7.4
MW-26	SA	04-Dec-13	3V	1,970	2,000	3,800	45	7.3
		05-May-14	3V	2,200	2,200	3,600	-8	7.3
MW-27-20	SA	04-Nov-13	3V	ND (0.2)	ND (1.0)	900	19	7.4
		14-Apr-14	3V	ND (0.2)	ND (1.0)	1,000	4.0	7.5
MW-27-60	MA	02-Oct-13	3V	ND (0.2)	ND (1.0)	760	-86	7.4
		04-Nov-13	3V	ND (0.2)	ND (1.0)	950	-78	7.6
		10-Feb-14	3V	ND (0.2)	ND (1.0)	860	-180	7.6
		14-Apr-14	3V	ND (0.2)	ND (1.0)	920	-190	7.6
		14-Apr-14	FD 3V	ND (0.2)	ND (1.0)	900	FD	FD
MW-27-85	DA	02-Oct-13	3V	ND (1.0)	ND (1.0)	9,000	-38	7.2
		04-Nov-13	3V	ND (0.2)	ND (1.0)	9,800	-16	7.3
		10-Feb-14	3V	ND (1.0)	ND (1.0)	9,600	-280	7.3
		14-Apr-14	3V	ND (1.0)	ND (1.0)	11,000	-230	7.3
MW-28-25	SA	05-Nov-13	3V	ND (0.2)	ND (1.0)	6,700	200	7.2
		15-Apr-14	3V	ND (0.2)	ND (1.0)	910	-240	7.3
MW-28-90	DA	11-Sep-13	3V	ND (0.2)	ND (1.0)	6,600	-56	7.1
		05-Nov-13	3V	ND (0.2)	ND (1.0)	6,700	190	7.3
		12-Feb-14	3V	ND (0.2)	ND (1.0)	7,000	-54	7.3
		15-Apr-14	3V	ND (0.2)	ND (1.0)	6,700	-220	7.2
		15-Apr-14	FD 3V	ND (0.2)	ND (1.0)	6,600	FD	FD
MW-29	SA	05-Nov-13	3V	ND (0.2)	ND (1.0)	1,800 J	-74	7.2
		05-Nov-13	FD 3V	ND (0.2)	ND (1.0)	2,300 J	FD	FD

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TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-29	SA	16-Apr-14	3V	ND (0.2)	ND (1.0)	2,300	-170	7.3
MW-30-30	SA	04-Nov-13	3V	ND (0.2)	ND (1.0)	5,300	-190	7.8
		14-Apr-14	3V	0.21	ND (1.0)	6,800	-260	7.8
MW-30-50	MA	04-Nov-13	3V	ND (0.2)	ND (1.0)	1,100	-120	7.6
MW-31-60	SA	03-Dec-13	3V	422	383	3,100	20	7.5
		12-May-14	3V	270	270	---	-30	7.5
MW-31-135	DA	07-Nov-13	3V	11.5	11.3	12,000	-110	7.7
MW-32-20	SA	16-Dec-13	3V	ND (1.0)	ND (1.0)	40,000	-100	6.7
MW-32-35	SA	06-Nov-13	3V	ND (1.0)	ND (1.0)	12,000	-79	7.2
		16-Apr-14	3V	ND (1.0)	ND (1.0)	---	-190	7.1
MW-33-40	SA	16-Sep-13	3V	ND (1.0)	ND (1.0)	10,000	180	7.7
		03-Dec-13	3V	ND (1.0)	ND (1.0)	9,600	110	7.9
		12-Feb-14	3V	0.28	ND (1.0)	7,100	120	8.0
		17-Apr-14	3V	ND (0.2)	ND (1.0)	5,600	-170	8.1
MW-33-90	MA	16-Sep-13	3V	13.6	13.6	8,800	230	7.4
		03-Dec-13	3V	13.1	12.6	9,600	120	7.4
		12-Feb-14	3V	13.3	15.5	9,900	140	7.4
		21-Apr-14	3V	11.0	10.0	8,800	-230	7.2
		21-Apr-14	FD 3V	12.0 J	9.8 J	8,700	FD	FD
MW-33-150	DA	16-Sep-13	3V	10.6	10.9	15,000	160	7.4
		03-Dec-13	3V	10.7	11.0	16,000	140	7.5
		12-Feb-14	3V	9.7	10.6	16,000	170	7.5
		12-Feb-14	FD 3V	9.4	10.8	16,000	FD	FD
		17-Apr-14	3V	12.0 J	9.6 J	14,000	-290	7.5
MW-33-210	DA	12-Sep-13	3V	12.5	13.0	17,000	110	7.3
		03-Dec-13	3V	12.5	13.2	18,000	140	7.4
		03-Dec-13	FD 3V	12.9	13.0	18,000	FD	FD
		12-Feb-14	3V	11.6	13.5	18,000	130	7.4
		21-Apr-14	3V	10.0	8.4	17,000	-300	7.3
MW-34-55	MA	20-Nov-13	3V	ND (0.2)	ND (1.0)	780	-65	7.7
MW-34-80	DA	02-Oct-13	3V	ND (1.0)	ND (1.0)	6,600	-37	7.4
		20-Nov-13	3V	ND (1.0)	ND (1.0)	7,300	14	7.4
		20-Nov-13	FD 3V	ND (1.0)	ND (1.0)	7,300	FD	FD

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TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-34-80	DA	10-Feb-14	3V	ND (0.2)	ND (1.0)	---	-290	7.4
		17-Apr-14	3V	ND (0.2)	ND (1.0)	---	-280	7.3
MW-34-100	DA	02-Oct-13	3V	82.6	79.5	15,000	80	7.6
		02-Oct-13	FD 3V	81.5	84.5	15,000	FD	FD
		20-Nov-13	3V	143	136	18,000	-120	7.7
		20-Nov-13	FD 3V	137	141	18,000	FD	FD
		16-Dec-13	3V	246	268	---	-130	7.6
		22-Jan-14	3V	263	270	---	-220	6.8
		10-Feb-14	3V	159	170	---	-160	7.7
		17-Apr-14	3V	3.0	3.5	---	-220	7.5
		02-Oct-14	MP	100	89.0	---	-230	7.4
MW-35-60	SA	10-Sep-13	3V	21.9	21.2	7,000	200	7.2
		12-Nov-13	3V	20.5	17.2	6,600	-11	7.4
		17-Feb-14	3V	21.1	21.8	6,200	98	6.9
		17-Feb-14	FD 3V	21.4	20.4	6,400	FD	FD
		24-Apr-14	3V	25.0	24.0	5,600	0.0	7.4
		24-Apr-14	FD 3V	25.0	22.0	5,700	FD	FD
MW-35-135	DA	12-Nov-13	3V	29.9	27.5	9,200	58	7.8
		24-Apr-14	3V	29.0	25.0	---	-86	7.5
MW-36-20	SA	11-Nov-13	3V	ND (0.2)	ND (1.0)	5,500	-150	7.7
		11-Nov-13	FD 3V	ND (0.2)	ND (1.0)	5,400	FD	FD
MW-36-40	SA	11-Nov-13	3V	ND (0.2)	ND (1.0)	1,300	-280	7.8
MW-36-50	MA	11-Nov-13	3V	ND (0.2)	ND (1.0)	920	-57	7.3
MW-36-70	MA	11-Nov-13	3V	ND (0.2)	ND (1.0)	930	-17	7.9
MW-36-90	DA	11-Nov-13	3V	ND (0.2)	ND (1.0)	1,000	-90	8.3
		17-Apr-14	3V	ND (0.2)	ND (1.0)	---	-310	8.2
MW-36-100	DA	16-Dec-13	3V	53.8	59.5	7,800	-140	7.2
		17-Apr-14	3V	48.0	47.0	7,000	-360	7.3
MW-37S	MA	06-Nov-13	3V	9.8	9.3	5,000	140	7.7
MW-37D	DA	02-Dec-13	3V	12.0	13.0	13,000	-180	7.7
		10-Apr-14	3V	110	99.0	15,000	-190	7.6
MW-38S	SA	24-Sep-13	3V	3.2	6.8	1,700	-170	7.6
		03-Dec-13	3V	0.59	2.4	---	-240	7.9

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TABLE 3-1
Groundwater Sampling Results, July 2013 through October 2014
Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-38S	SA	14-May-14	3V	1.5	2.1	---	-260	7.6
		22-Sep-14	3V	ND (0.2)	ND (1.0)	---	---	7.9
MW-38D	DA	17-Sep-13	3V	7.5	8.1	20,000	-79	8.1
		13-Nov-13	3V	9.1	10.2	---	19	8.1
		14-May-14	3V	17.0	14.0	---	-310	8.0
MW-39-40	SA	12-Nov-13	3V	ND (0.2)	ND (1.0)	1,100	-150	8.0
MW-39-50	MA	12-Nov-13	3V	ND (0.2)	ND (1.0)	1,100	-34	7.8
MW-39-60	MA	12-Nov-13	3V	ND (0.2)	ND (1.0)	1,500	30	7.9
MW-39-70	MA	12-Nov-13	3V	ND (0.2)	ND (1.0)	1,800	200	7.6
MW-39-80	DA	12-Nov-13	3V	ND (0.2)	ND (1.0)	5,600	27	7.3
MW-39-100	DA	04-Dec-13	3V	52.2	53.9	14,000	110	6.7
		04-Dec-13 FD	3V	52.2	51.4	14,000	FD	FD
MW-40S	SA	11-Nov-13	3V	8.2	8.1	1,300	270	7.7
MW-40D	DA	02-Dec-13	3V	153	148	14,000	240	7.4
		24-Apr-14	3V	130	110	13,000	-13	7.4
MW-41S	SA	04-Nov-13	3V	17.4	15.3	4,900	180	7.9
MW-41M	DA	04-Nov-13	3V	9.7	9.6	14,000	210	7.7
MW-41D	DA	04-Nov-13	3V	3.8	4.3	20,000	250	7.6
		10-Apr-14	3V	2.6	2.4	---	-210	7.6
MW-42-30	SA	05-Nov-13	3V	ND (0.2)	ND (1.0)	2,600	-160	7.8
MW-42-55	MA	11-Sep-13	3V	ND (0.2)	2.8	1,700	-110	8.0
		05-Nov-13	3V	ND (0.2)	2.3	2,600	-150	7.9
		11-Feb-14	3V	ND (0.2)	2.3	---	-290	8.1
		14-Apr-14	3V	0.23	1.6	---	-210	8.0
MW-42-65	MA	11-Sep-13	3V	ND (0.2)	ND (1.0)	6,800	-28	7.2
		05-Nov-13	3V	ND (0.2)	ND (1.0)	7,100	-34	7.3
		11-Feb-14	3V	ND (0.2)	ND (1.0)	---	-350	7.3
		14-Apr-14	3V	ND (0.2)	ND (1.0)	---	-220	7.3
MW-43-25	SA	06-Nov-13	3V	ND (0.2)	ND (1.0)	1,100	-120	7.3
		15-Apr-14	3V	ND (0.2)	ND (1.0)	---	-170	7.2
MW-43-75	DA	06-Nov-13	3V	ND (1.0)	ND (1.0)	9,700	-110	7.1

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TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-43-90	DA	06-Nov-13	3V	ND (0.2)	ND (1.0)	16,000	-80	6.9
		15-Apr-14	3V	ND (1.0)	ND (1.0)	---	-160	6.9
MW-44-70	MA	02-Dec-13	3V	ND (0.2)	ND (1.0)	2,000	-97	7.7
		16-Apr-14	3V	ND (0.2)	ND (1.0)	---	-290	7.4
MW-44-115	DA	12-Sep-13	3V	47.1	46.0	10,000	190	7.4
		02-Dec-13	3V	39.5	43.1	10,000	-190	8.0
		11-Feb-14	3V	41.6	42.9	11,000	-370	7.9
		16-Apr-14	3V	40.0	37.0	11,000	-300	7.8
		23-Sep-14	MP	37.0	32.0	---	---	8.0
		23-Sep-14	FD MP	37.0	31.0	---	FD	FD
MW-44-125	DA	12-Sep-13	3V	ND (1.0)	4.9	8,600	-160	7.6
		12-Sep-13	FD 3V	ND (0.2)	4.7	8,600	FD	FD
		02-Dec-13	3V	ND (0.2)	4.1	10,000	-160	7.7
		02-Dec-13	FD 3V	ND (0.2)	4.8	11,000	FD	FD
		11-Feb-14	3V	ND (1.0)	5.5	11,000	-150	7.8
		11-Feb-14	FD 3V	ND (1.0)	5.6	11,000	FD	FD
		16-Apr-14	3V	ND (0.2)	5.5	9,200	-230	7.5
		16-Apr-14	FD 3V	ND (0.2)	5.1	9,200	FD	FD
MW-45-095a	DA	02-Dec-13	3V	13.7	14.2	8,400	-58	7.6
MW-46-175	DA	11-Sep-13	3V	29.5	29.6	17,000	130	8.0
		20-Nov-13	3V	34.2	33.8	19,000	220	8.4
		16-Dec-13	3V	50.0	52.5	---	-180	8.3
		22-Jan-14	3V	46.3	46.1	---	-150	7.8
		11-Feb-14	3V	35.6	38.0	18,000	-400	8.3
		11-Feb-14	FD 3V	35.4	39.7	18,000	FD	FD
		15-Apr-14	3V	21.0	19.0	19,000	-330	8.2
		23-Sep-14	MP	14.0	13.0	---	-300	8.4
MW-46-205	DA	20-Nov-13	3V	6.0	5.1	23,000	210	8.4
		15-Apr-14	3V	5.5	4.8	---	-420	8.3
MW-47-55	SA	12-Nov-13	3V	17.2	16.4	4,500	160	7.6
		23-Apr-14	3V	16.0	14.0	---	-11	7.4
MW-47-115	DA	12-Nov-13	3V	17.4	14.3	12,000	170	7.6
		23-Apr-14	3V	23.0	20.0	---	-180	7.5
		23-Apr-14	FD 3V	24.0	20.0	---	FD	FD

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TABLE 3-1
Groundwater Sampling Results, July 2013 through October 2014
Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-48	BR	11-Sep-13	3V	ND (1.0)	ND (1.0)	16,000	24	7.4
		06-Nov-13	3V	ND (1.0)	ND (1.0)	17,000	140	7.8
		20-Feb-14	3V	ND (1.0)	ND (1.0)	---	130	7.5
		23-Apr-14	3V	ND (1.0)	ND (1.0)	---	-200	6.6
MW-49-135	DA	06-Nov-13	3V	1.3	2.0	12,000	24	7.6
MW-49-275	DA	06-Nov-13	3V	2.0	2.9	24,000	100	7.8
MW-49-365	DA	07-Nov-13	3V	ND (0.2)	ND (1.0)	40,000	-150	7.8
MW-50-095	MA	06-Nov-13	3V	12.3	11.5	4,800	140	7.9
		23-Apr-14	3V	13.0	12.0	---	-10	7.7
MW-50-200	DA	26-Sep-13	3V	7,060	6,760	19,000	160	7.6
		17-Dec-13	3V	6,600	7,110	20,000	-32	7.6
		26-Feb-14	3V	7,010	6,940	---	-70	7.3
		12-May-14	3V	7,400	7,200	---	-7	7.7
MW-51	MA	11-Dec-13	3V	4,520 J	4,550	9,800	13	7.4
		12-May-14	3V	4,800	4,700	9,900	-50	7.5
MW-52S	MA	13-Nov-13	MP	ND (0.2)	ND (1.0)	7,800	-100	6.8
		30-Apr-14	MP	ND (0.2)	ND (1.0)	---	-200	6.8
MW-52M	DA	13-Nov-13	MP	ND (1.0)	ND (1.0)	15,000	-140	7.5
		13-Nov-13 FD	MP	ND (1.0)	ND (1.0)	13,000	FD	FD
		30-Apr-14	MP	ND (1.0)	ND (1.0)	---	-280	7.4
MW-52D	DA	13-Nov-13	MP	ND (1.0)	ND (1.0)	20,000	-150	7.6
		30-Apr-14	MP	ND (1.0)	ND (1.0)	---	-260	7.7
MW-53M	DA	13-Nov-13	MP	ND (1.0)	ND (1.0)	16,000	-190	8.0
		30-Apr-14	MP	ND (1.0)	ND (1.0)	---	-240	7.9
MW-53D	DA	13-Nov-13	MP	ND (1.0)	ND (1.0)	22,000	-180	8.1
		30-Apr-14	MP	ND (1.0)	ND (1.0)	---	-260	8.2
MW-54-85	DA	21-Nov-13	3V	ND (1.0)	ND (1.0)	9,750	12	7.6
		09-Apr-14	3V	ND (1.0) J	ND (1.0)	9,230 J	-220	7.6
MW-54-140	DA	21-Nov-13	3V	ND (1.0)	ND (1.0)	12,100	15	7.7
		09-Apr-14	3V	ND (1.0) J	ND (1.0)	12,300 J	-230	7.7
		09-Apr-14 FD	3V	ND (1.0) J	ND (1.0)	12,200 J	FD	FD
MW-54-195	DA	21-Nov-13	3V	ND (1.0)	ND (1.0)	18,000	-110	8.1
		09-Apr-14	3V	ND (1.0) J	ND (1.0)	18,300 J	-240	8.0

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TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-55-45	MA	21-Nov-13	3V	ND (0.2)	ND (1.0)	1,450	30	7.8
MW-55-120	DA	21-Nov-13	3V	7.2	7.6	8,220	-2	7.9
		21-Nov-13 FD	3V	7.3	7.6	8,280	FD	FD
MW-56S	SA	14-Nov-13	MP	ND (0.2)	2.6	6,160	-110	7.0
		10-Apr-14	MP	ND (1.0) J	5.3	6,390 J	-230	7.0
MW-56M	DA	14-Nov-13	MP	ND (1.0)	ND (1.0)	18,700	-110	7.3
		10-Apr-14	MP	ND (1.0) J	1.8	14,400 J	-250	7.3
MW-56D	DA	14-Nov-13	MP	ND (1.0)	1.6 J	13,700	-130	7.7
		10-Apr-14	MP	ND (1.0) J	ND (1.0)	19,800 J	-260	7.7
MW-57-070	BR	23-Sep-13	3V	554	561	2,000	210	7.2
		12-Dec-13	3V	461	512	2,200	-36	7.2
		24-Feb-14	3V	394	409	---	61	7.2
		28-Apr-14	3V	430	460	---	86	7.0
MW-57-185	BR	10-Sep-13	3V	10.1	10.1	18,000	150	8.0
		07-Nov-13	3V	9.5	9.4	19,000	-300	8.3
		07-Nov-13 FD	3V	9.7	9.4	19,000	FD	FD
		13-Feb-14	3V	9.2	10.5	18,000	11	8.8
		22-Apr-14	3V	8.8	7.8	17,000	-81	8.8
MW-58BR	BR	19-Sep-13	MP	0.73	ND (1.0)	8,400	110	7.6
		17-Dec-13	MP	1.1	1.5	8,600	-170	7.5
		25-Feb-14	MP	2.3	3.1	---	-160	7.5
		06-May-14	MP	0.87	ND (1.0)	---	-270	7.6
		24-Sep-14	MP	2.1	2.2	---	---	7.5
MW-59-100	SA	25-Sep-13	3V	4,180	4,120	9,800	320	6.8
		10-Dec-13	3V	3,860	3,960	9,100	28	6.9
		25-Feb-14	3V	3,740	3,780	9,900	36	6.4
		07-May-14	3V	4,000	4,000	9,600	-10	7.0
MW-60-125	BR	24-Sep-13	3V	1,120	1,050	8,600	110	7.3
		24-Sep-13 FD	3V	1,100	1,020	8,400	FD	FD
		04-Dec-13	3V	1,100	1,070	8,100	34	7.3
		25-Feb-14	3V	1,030	1,070	9,100	---	---
		01-May-14	3V	1,200	1,100	7,700	-42	7.5
MW-60BR-245	BR	17-Sep-13	3V	ND (1.0)	2.6	16,000	-140	8.3

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TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014

Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-60BR-245	BR	04-Dec-13	3V	ND (1.0)	ND (1.0)	16,000	-220	8.1
		19-Feb-14	3V	ND (1.0)	2.0	17,000	-260	8.1
		29-Apr-14	3V	ND (1.0)	1.2	16,000	-76	8.1
		25-Sep-14	3V	1.5	3.0	---	---	---
MW-61-110	BR	23-Sep-13	3V	576	616	14,000	60	7.4
		05-Dec-13	3V	565	563	14,000	76	7.4
		05-Dec-13	FD 3V	601	581	15,000	FD	FD
		19-Feb-14	3V	588	619	15,000	-76	7.2
		29-Apr-14	3V	470	460	15,000	-160	7.5
MW-62-065	BR	23-Sep-13	3V	500	518	5,800	180	7.4
		11-Dec-13	3V	471	476	5,800	-6	7.4
		20-Feb-14	3V	469	474	---	63	7.3
		29-Apr-14	3V	550	550	---	-1	7.4
		23-Sep-14	3V	540	500	---	---	7.4
MW-62-110	BR	18-Sep-13	3V	808	857	8,100	220	7.3
		13-Nov-13	3V	910	1,040	7,600	190	7.5
		19-Feb-14	3V	976	927	8,600	110	7.6
		07-May-14	3V	910	940	8,000	30	7.1
		23-Sep-14	3V	1,000	1,000	---	---	7.5
MW-62-190	BR	18-Sep-13	3V	ND (1.0)	ND (1.0)	16,000	-3	7.6
		13-Nov-13	3V	ND (1.0)	ND (1.0)	15,000	0.0	7.7
		19-Feb-14	3V	ND (1.0)	ND (1.0)	17,000	-82	7.1
		07-May-14	3V	ND (1.0)	ND (1.0)	16,000	-65	7.2
MW-63-065	BR	09-Sep-13	3V	1.9	1.8	7,000	110	7.2
		04-Dec-13	3V	1.6	1.9	6,800	120	7.1
		12-Feb-14	3V	1.2	1.5	6,700	130	7.2
		09-Apr-14	3V	1.4	1.1	6,600	-1	7.1
		22-Sep-14	3V	1.6	1.4	---	---	7.2
MW-64BR	BR	17-Sep-13	MP	ND (1.0)	ND (1.0)	13,000	40	7.4
		16-Dec-13	MP	ND (1.0)	ND (1.0)	13,000	18	7.4
		26-Feb-14	MP	ND (1.0)	ND (1.0)	---	16	7.4
		06-May-14	MP	ND (1.0)	ND (1.0)	---	-200	7.5
		30-Sep-14	MP	ND (1.0)	ND (1.0)	---	-190	7.3
MW-65-160	SA	19-Sep-13	3V	113	115	3,800	270	7.3
		02-Dec-13	3V	96.8	102	3,700	240	7.5

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	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-14	3V	125	126	4,000	11	7.0
		24-Apr-14	3V	110	95.0	3,600	-17	7.1
		25-Sep-14	MP	90.0	83.0	---	---	7.3
MW-65-225	DA	23-Sep-13	3V	583	613	9,800	150	7.2
		23-Sep-13 FD	3V	579	580	9,600	FD	FD
		02-Dec-13	3V	551	580	10,000	-59	7.2
		19-Feb-14	3V	513	529	11,000	-59	7.1
		29-Apr-14	3V	460	450	12,000	-57	7.3
		25-Sep-14	MP	130	110	---	---	7.5
MW-66-165	SA	23-Sep-13	3V	631	694	4,200	200	7.3
		03-Dec-13	3V	595	622	4,200	8.0	7.2
		19-Feb-14	3V	594	638	4,400	70	7.0
		01-May-14	3V	750	720	3,800	110	7.2
		01-May-14 FD	3V	720	750	3,800	FD	FD
MW-66-230	DA	25-Sep-13	3V	5,120	6,030	17,000	300	7.9
		12-Dec-13	3V	6,630 J	6,850	19,000	-33	7.1
		26-Feb-14	3V	5,730	6,570	20,000	67	7.6
		07-May-14	3V	6,700	6,700	17,000	-130	8.0
MW-66BR-270	BR	23-Sep-13	3V	ND (1.0)	ND (1.0)	16,000	-230	9.6
		17-Dec-13	3V	ND (1.0)	ND (1.0)	18,000	56	9.9
		26-Feb-14	3V	ND (1.0)	ND (1.0)	18,000	-120	9.7
		13-May-14	3V	ND (1.0)	ND (1.0)	15,000	-350	9.6
MW-67-185	SA	25-Sep-13	3V	2,280	2,220	5,000	200	7.2
		04-Dec-13	3V	2,180	2,260	5,100	17	7.2
		24-Feb-14	3V	1,960	2,150	5,600	150	7.2
		05-May-14	3V	2,300	2,500	5,000	-32	7.2
MW-67-225	MA	25-Sep-13	3V	3,100	2,920	6,800	310	7.5
		09-Dec-13	3V	3,070	3,010	7,000	43	7.4
		24-Feb-14	3V	2,890	3,120	7,500	120	7.3
		06-May-14	3V	3,200	3,300	6,300	-81	7.4
MW-67-260	DA	25-Sep-13	3V	2,040	1,980	16,000	120	8.1
		25-Sep-13 FD	3V	2,050	1,920	16,000	FD	FD
		09-Dec-13	3V	1,980	1,820	17,000	-97	8.0
		24-Feb-14	3V	1,940	2,010	18,000	-90	7.9
		05-May-14	3V	2,000	1,900	15,000	-250	8.5

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014

Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-68-180	SA	26-Sep-13	3V	19,200	20,700	3,800	200	7.2
		12-Dec-13	3V	21,100	25,600	4,200	32	7.4
		12-Dec-13	FD 3V	20,900	23,900	4,200	FD	FD
		27-Feb-14	3V	22,900	23,800	4,300	28	7.3
		12-May-14	3V	10,000	11,000	3,000	34	7.3
		30-Sep-14	MP	27,000	28,000	---	5.0	7.3
MW-68-240	DA	24-Sep-13	3V	2,120	1,920	15,000	160	7.4
		04-Dec-13	3V	1,960	2,110	15,000	-79	7.3
		25-Feb-14	3V	2,020	2,050	17,000	-40	7.1
		06-May-14	3V	2,200	2,100	14,000	-190	7.3
		06-May-14	FD 3V	2,200	2,100	14,000	FD	FD
MW-68BR-280	BR	18-Sep-13	3V	ND (1.0)	ND (1.0)	19,000	-79	8.4
		18-Dec-13	3V	ND (1.0)	ND (1.0)	20,000	-170	8.6
		27-Feb-14	3V	ND (1.0)	ND (1.0)	22,000	-120	8.5
		13-May-14	3V	ND (1.0)	ND (1.0)	19,000	-200	8.3
MW-69-195	BR	24-Sep-13	3V	938	963	3,500	120	7.1
		03-Dec-13	3V	932	952	3,500	-25	6.9
		19-Feb-14	3V	893	905	3,500	67	7.2
		01-May-14	3V	1,000	1,000	3,100	53	7.1
		25-Sep-14	3V	860	950	---	---	7.3
		25-Sep-14	FD 3V	930	990	---	FD	FD
MW-70-105	BR	23-Sep-13	3V	122	123	3,300	35	7.8
		04-Dec-13	3V	163	164	3,400	11	7.8
		17-Feb-14	3V	145	136	3,500	-180	7.9
		28-Apr-14	3V	75.0	70.0	3,200	-130	7.8
MW-70BR-225	BR	24-Sep-13	3V	2,170	2,040	13,000	100	7.4
		10-Dec-13	3V	1,950	1,910	13,000	-9	7.3
		25-Feb-14	3V	1,900	2,080	14,000	-90	7.1
		05-May-14	3V	2,400	2,500	12,000	-160	7.3
MW-71-035	SA	10-Sep-13	3V	ND (1.0)	ND (1.0)	7,900	120	7.3
		11-Dec-13	3V	0.47	ND (1.0)	8,000	98	7.3
		18-Feb-14	3V	0.32	ND (1.0)	8,400	-28	8.7
		24-Apr-14	3V	1.0	1.0	7,700	---	---
MW-72-080	BR	19-Sep-13	3V	139	141	15,000	110	7.8

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-72-080	BR	19-Sep-13	FD 3V	138	140	15,000	FD	FD
		04-Dec-13	3V	137	136	15,000	110	7.7
		18-Feb-14	3V	121	125	16,000	14	7.7
		24-Apr-14	3V	100	82.0	16,000	-12	7.5
		22-Sep-14	3V	140	120	---	---	7.7
MW-72BR-200	BR	19-Sep-13	3V	5.7	6.2	15,000	-11	8.2
		05-Nov-13	3V	5.4	5.6	16,000	19	8.3
		05-Nov-13	FD 3V	5.6	5.8	16,000	FD	FD
		17-Feb-14	3V	7.1	7.5	15,000	-95	8.2
		17-Feb-14	FD 3V	7.1	7.0	15,000	FD	FD
		21-Apr-14	3V	6.2 J	4.7 J	14,000	26	8.4
		24-Sep-14	3V	5.4	4.5	---	---	8.3
MW-73-080	BR	11-Sep-13	3V	31.6	30.9	9,700	300	7.2
		05-Dec-13	3V	32.3	34.9	10,000	120	7.4
		18-Feb-14	3V	48.5	49.2	11,000	4.0	7.2
		29-Apr-14	3V	53.0	48.0	11,000	89	7.1
		23-Sep-14	3V	27.0	23.0	---	100	7.1
MW-74-240	BR	18-Sep-13	3V	ND (0.2)	ND (1.0)	780	19	8.9
		05-Dec-13	3V	ND (0.2)	ND (1.0)	710	-44	8.8
		26-Feb-14	3V	ND (0.2)	ND (1.0)	880	-81	8.6
		01-May-14	3V	ND (0.2)	ND (1.0)	800	-160	8.1
OW-3S	SA	13-Nov-13	3V	22.3	22.5	1,400	160	7.7
OW-3M	MA	13-Nov-13	3V	15.0	14.0	5,400	130	7.9
OW-3D	DA	05-Nov-13	3V	8.6	8.3	9,000	49	7.9
PE-1	DA	02-Jul-13	3V	4.7	5.3	4,130	---	---
		06-Aug-13	3V	5.0	5.7	4,200	---	---
		03-Sep-13	3V	5.1	5.4	4,330	---	---
		01-Oct-13	3V	5.2	5.1	4,160	---	---
		05-Nov-13	3V	5.2 J	5.0	4,160 J	---	---
		03-Dec-13	3V	5.5	6.0	3,950	---	---
		07-Jan-14	3V	5.5	5.6	3,960	---	---
		04-Feb-14	3V	5.6	6.0	3,820	---	---
		04-Mar-14	3V	4.8	4.8	3,680	---	---
		08-Apr-14	3V	4.0	4.2	4,150	---	---
		06-May-14	3V	3.9	4.3	4,540	---	---

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
 Third 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	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
PE-1	DA	03-Jun-14	3V	3.7	4.1	4,480	---	---
		01-Jul-14	3V	3.6	3.7	4,420	---	---
		05-Aug-14	3V	3.7	3.9	4,320	---	---
		02-Sep-14	3V	3.8	4.0	4,260	---	---
		07-Oct-14	3V	3.7	4.2	4,160	---	---
PGE-7BR	BR	10-Dec-13	3V	ND (1.0)	ND (1.0)	16,000	-170	7.1
PGE-8	BR	18-Dec-13	3V	ND (1.0)	ND (1.0)	18,000	-300	8.1
Park Moabi-3	MA	19-Dec-13	3V	4.1	7.9 UF	1,200	-61	7.7
Park Moabi-4	MA	19-Dec-13	3V	12.6	18.0 UF	2,000	-64	7.5
TW-1	SA-MA-DA	26-Sep-13	3V	2,770	2,600	6,900	160	7.1
		17-Dec-13	3V	2,770	2,880	7,300	-91	7.2
		20-Feb-14	3V	2,500	2,620	7,200	72	7.1
		13-May-14	3V	2,800	2,700	6,000	-140	7.3
TW-2S	SA-MA	19-Dec-13	3V	545	492	5,400	-40	7.7
TW-2D	DA	19-Dec-13	3V	162	156	8,000	-38	7.3
TW-3D	DA	02-Jul-13	3V	934	828	7,400	---	---
		06-Aug-13	3V	816	892	7,530	---	---
		03-Sep-13	3V	728	832	7,770	---	---
		01-Oct-13	3V	846	720	7,620	---	---
		05-Nov-13	3V	816 J	817	7,550 J	---	---
		03-Dec-13	3V	934	832	7,410	---	---
		07-Jan-14	3V	905	761	7,290	---	---
		04-Feb-14	3V	816	804	7,570	---	---
		04-Mar-14	3V	816	752	7,980	---	---
		08-Apr-14	3V	662	772	7,810	---	---
		06-May-14	3V	601	742	8,270	---	---
		03-Jun-14	3V	725	737	8,090	---	---
		01-Jul-14	3V	720	736	8,180	---	---
		05-Aug-14	3V	704	695	8,020	---	---
		02-Sep-14	3V	703	729	8,070	---	---
		07-Oct-14	3V	720	733	7,910	---	---
TW-4	DA	12-Nov-13	3V	7.4	6.5	19,000	130	7.6
TW-5	DA	06-Nov-13	3V	10.3	11.3	13,000	160	7.8

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2013 through October 2014
*Third 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.
3V = three volume.
FD = field duplicate sample.
J = concentration or reporting limit (RL) estimated by laboratory or data validation.
mV = millivolts.
MP = minimal drawdown/micro purge.
ND = not detected at listed RL.
ORP = oxidation-reduction potential.
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.

Starting in Third Quarter 2014, the groundwater sample collection method was switched from the traditional three-volume purge method (3V) to the minimal drawdown, or micropurge (MP) method at many short screen wells screened in alluvial sediments. The method for purging prior to sample collection is indicated in the sample method column of 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, Third Quarter 2014
 Third 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	Sample Method	Arsenic Dissolved (µg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-34-100	DA	02-Oct-14	MP	1.3	56.0	ND (2.5)	ND (0.5)	0.64
MW-38S	SA	22-Sep-14	3V	14.0	47.0	ND (0.5)	220	ND (0.05)
MW-44-115	DA	23-Sep-14	MP	5.5	91.0	ND (0.5)	3.1 J	0.17
		23-Sep-14 _{FD}	MP	5.5	88.0	ND (2.5)	ND (0.5) J	0.21
MW-46-175	DA	23-Sep-14	MP	---	170	ND (2.5)	---	0.86
MW-58BR	BR	24-Sep-14	MP	1.1	26.0	1.3	560	0.19
MW-60BR-245	BR	25-Sep-14	3V	4.9	61.0	ND (2.5)	ND (0.5)	0.28
MW-62-065	BR	23-Sep-14	3V	1.3	15.0	3.2	ND (0.5)	4.20
MW-62-110	BR	23-Sep-14	3V	6.4	44.0	2.8	69.0	3.60
MW-63-065	BR	22-Sep-14	3V	1.5	18.0	0.99	ND (0.5)	1.10
MW-64BR	BR	30-Sep-14	MP	2.0	40.0	ND (2.5)	490	0.12
MW-65-160	SA	25-Sep-14	MP	0.8	26.0	7.9	ND (0.5)	12.0
MW-65-225	DA	25-Sep-14	MP	2.6	55.0	ND (2.5)	12.0	2.20
MW-68-180	SA	30-Sep-14	MP	2.5	50.0	18.0	ND (0.5)	28.0
MW-69-195	BR	25-Sep-14	3V	2.5	90.0	12.0	ND (0.5)	16.0
		25-Sep-14 _{FD}	3V	2.3	83.0	11.0	ND (0.5)	17.0
MW-72-080	BR	22-Sep-14	3V	9.4	72.0	ND (2.5)	25.0	1.10
MW-72BR-200	BR	24-Sep-14	3V	14.0	82.0	ND (2.5)	6.2	0.093
MW-73-080	BR	23-Sep-14	3V	2.0	24.0	2.7	ND (0.5)	3.30
PE-1	DA	01-Jul-14	3V	---	---	---	62.2	ND (0.5)
		05-Aug-14	3V	---	---	---	62.0	ND (0.5)
		02-Sep-14	3V	---	---	---	61.6	ND (0.5)
		07-Oct-14	3V	---	---	---	61.7	ND (0.5)
TW-3D	DA	01-Jul-14	3V	---	---	---	7.1	3.44
		05-Aug-14	3V	---	---	---	7.5	3.42
		02-Sep-14	3V	---	---	---	7.1	3.26
		07-Oct-14	3V	---	---	---	8.6	3.29

TABLE 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, Third Quarter 2014
Third 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.

3V = three volume.

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.

MP = minimal drawdown/micro purge.

ND = not detected at listed reporting limit.

µg/L = micrograms per liter.

Nitrate samples were analyzed using USEPA Method 4500NO₃, except for TW-3D and PE-1, which were analyzed using USEPA Method 300.0. USEPA Method 4500NO₃ 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 4500NO₃ are expected to be essentially the same as previous samples analyzed using USEPA Method 300.0 and reported as nitrate as nitrogen.

Starting in Third Quarter 2014, the groundwater sample collection method was switched from the traditional three-volume purge method (3V) to the minimal drawdown, or micropurge (MP) method at many short screen wells screened in alluvial sediments. The method for purging prior to sample collection is indicated in the sample method column of this table.

The background study upper tolerance limit (UTL) for arsenic is 24.3 µg/L.

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

The background study UTL for molybdenum is 36.3 µg/L.

There is no USEPA or California MCL for molybdenum.

The background study UTL for selenium is 10.3 µg/L.

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

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

The background study UTL for nitrate as nitrogen is 5.03 mg/L.

The USEPA and California MCL for nitrate as nitrogen is 10 mg/L.

The background study UTL for fluoride is 7.1 mg/L.

The USEPA MCL for fluoride is 4 mg/L, and the California MCL for fluoride is 2 mg/L.

Wells are assigned to separate aquifer zones for results reporting:

SA = shallow interval of Alluvial Aquifer.

MA = mid-depth interval of Alluvial Aquifer.

DA = deep interval of Alluvial Aquifer.

PA = perched aquifer (unsaturated zone).

BR = well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock).

TABLE 3-3
 Surface Water Sampling Results, Third Quarter 2014
 Third 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	07/15/2014	ND (0.2)	ND (1.0)	930	8.2 J
C-CON-S	07/16/2014	ND (0.2)	ND (1.0)	900	8.2 J
C-CON-D	07/16/2014	ND (0.2)	ND (1.0)	900	8.2 J
C-I-3-S	07/15/2014	ND (0.2)	ND (1.0)	920	8.2 J
C-I-3-D	07/15/2014	ND (0.2)	ND (1.0)	920	8.2 J
C-MAR-S	07/15/2014	ND (0.2)	ND (1.0)	990	7.8 J
C-NR1-S	07/16/2014	ND (0.2)	ND (1.0)	900	8.3 J
C-NR1-D	07/16/2014	ND (0.2)	ND (1.0)	900	8.2 J
C-NR3-S	07/16/2014	ND (0.2)	ND (1.0)	910	8.3 J
C-NR3-D	07/16/2014	ND (0.2)	ND (1.0)	900	8.3 J
C-NR4-S	07/16/2014	ND (0.2)	ND (1.0)	920	8.2 J
C-NR4-D	07/16/2014	ND (0.2)	ND (1.0)	910	8.3 J
C-R22a-S	07/15/2014	ND (0.2)	ND (1.0)	920	8.3 J
C-R22a-D	07/15/2014	ND (0.2)	ND (1.0)	920	8.2 J
C-R27-S	07/15/2014	ND (0.2)	ND (1.0)	920	8.2 J
C-R27-D	07/15/2014	ND (0.2)	ND (1.0)	920	8.2 J
C-TAZ-S	07/15/2014	ND (0.2)	ND (1.0)	910	8.3 J
C-TAZ-D	07/15/2014	ND (0.2)	ND (1.0)	920	8.3 J
Shoreline Samples					
R-19	07/16/2014	ND (0.2)	ND (1.0)	920	8.3 J
R-28	07/16/2014	ND (0.2)	ND (1.0)	910	8.2 J
R63	07/15/2014	ND (0.2)	ND (1.0)	900	8.1 J
RRB	07/16/2014	ND (0.2)	ND (1.0)	920	8.0 J
Other Surface Water Monitoring Locations					
SW1	07/16/2014	ND (0.2)	ND (1.0)	910	7.8 J
SW2	07/16/2014	ND (0.2)	ND (1.0)	920	7.8 J

TABLE 3-3

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

Notes:

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

ND = not detected at listed reporting limit.

µg/L = micrograms per liter.

µS/cm = microSiemens per centimeter.

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

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

pH is reported to two significant figures.

TABLE 3-4
COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, Third Quarter 2014
Third 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	07/15/2014	2.4	110	31.0	ND (20.0)	ND (0.50)	4.1	0.350	1.4	ND (10.0)
C-CON-S	07/16/2014	2.4	110	22.0	ND (20.0)	ND (0.50)	4.0	0.430	1.3	ND (10.0)
C-CON-D	07/16/2014	2.3	110	48.0	ND (20.0)	ND (0.50)	4.1	0.420	1.3	ND (10.0)
C-I-3-S	07/15/2014	2.3	110	36.0	ND (20.0)	ND (0.50)	4.0	1.20	1.3	ND (10.0)
C-I-3-D	07/15/2014	2.3	110	61.0	ND (20.0)	ND (0.50)	3.9	0.380	1.4	ND (10.0)
C-MAR-S	07/15/2014	2.3	120	4000	ND (20.0)	81.0	3.9	0.290	1.1	150
C-NR1-S	07/16/2014	2.5	110	33.0	ND (20.0)	ND (0.50)	4.2	0.380	1.4	ND (10.0)
C-NR1-D	07/16/2014	2.5	120	41.0	ND (20.0)	ND (0.50)	4.3	0.380	1.4	ND (10.0)
C-NR3-S	07/16/2014	2.4	110	ND (20.0)	ND (20.0)	ND (0.50)	4.0	0.380	1.3	ND (10.0)
C-NR3-D	07/16/2014	2.4	110	37.0	ND (20.0)	ND (0.50)	3.9	0.350	1.3	ND (10.0)
C-NR4-S	07/16/2014	2.3	100	ND (20.0)	ND (20.0)	ND (0.50)	3.9	0.460	1.3	ND (10.0)
C-NR4-D	07/16/2014	2.4	110	29.0	ND (20.0)	ND (0.50)	4.2	0.390	1.4	ND (10.0)
C-R22a-S	07/15/2014	2.3	100	31.0	ND (20.0)	ND (0.50)	3.9	0.390	1.3	ND (10.0)
C-R22a-D	07/15/2014	2.4	110	37.0	ND (20.0)	ND (0.50)	3.9	0.360	1.4	ND (10.0)
C-R27-S	07/15/2014	2.4	110	22.0	ND (20.0)	ND (0.50)	4.1	0.380	1.3	ND (10.0)
C-R27-D	07/15/2014	2.3	110	39.0	ND (20.0)	ND (0.50)	4.0	0.730	1.3	ND (10.0)
C-TAZ-S	07/15/2014	2.4	110	33.0	ND (20.0)	ND (0.50)	4.0	0.350	1.4	ND (10.0)
C-TAZ-D	07/15/2014	2.3	110	36.0	ND (20.0)	ND (0.50)	4.0	0.420	1.3	ND (10.0)
Shoreline Samples										
R-19	07/16/2014	2.3	110	66.0	ND (20.0)	ND (0.50)	4.0	0.410	1.4	ND (10.0)
R-28	07/16/2014	2.4	110	45.0	41.0	ND (0.50)	4.0	0.370	1.4	ND (10.0)
R63	07/15/2014	2.5	120	390	ND (20.0)	6.7	4.4	0.320	1.5	ND (10.0)
RRB	07/16/2014	2.5	130	110	ND (20.0)	4.2	3.9	0.350	1.4	ND (10.0)

Notes:
COPC = contaminants of potential concern (molybdenum, selenium, and nitrate).
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
TSS = total suspended solids.
µg/L = micrograms per liter.
USEPA = United States Environmental Protection Agency.

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

USEPA Methods:
Alkalinity - SM2320B.
Metals - SW6010B/SW6020A.
Nitrate - SM4500NO3.
Total Suspended Solids - SM2540D.

Table 4-1

Pumping Rate and Extracted Volume for IM System, Third Quarter 2014
*Third Quarter 2014 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California*

Extraction Well ID	July 2014		August 2014		September 2014		October 2014		Third Quarter 2014	
	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)
TW-02S	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
TW-02D	0.00	0	0.00	0	3.67	158,349	0.00	0	0.92	158,349
TW-03D	101.45	4,528,924	91.14	4,068,464	98.33	4,247,803	107.25	4,787,741	99.54	17,632,932
PE-01	28.06	1,252,475	24.91	1,112,189	27.05	1,168,521	27.54	1,229,181	26.89	4,762,367
TOTAL	129.5	5,781,399	116.1	5,180,653	129.0	5,574,674	134.8	6,016,923	127.3	22,553,648
Chromium Removed This Quarter (kg)										48.6
Chromium Removed Project to Date (kg)										3660
Chromium Removed This Quarter (lb)										107
Chromium Removed Project to Date (lb)										8070

TABLE 4-2

Analytical Results for Extraction Wells, July 2013 through October 2014
 Third 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-Jul-13	828 LF	934	4,920	7.5 J
	06-Aug-13	892 LF	816	4,560	7.5 J
	03-Sep-13	832 LF	728	4,630	7.5 J
	01-Oct-13	720 LF	846	5,010	7.5 J
	05-Nov-13	817 LF	816 J	4,990 J	7.7 J
	03-Dec-13	832 LF	934	4,860	7.4 J
	07-Jan-14	761 LF	905	5,140	7.4 J
	04-Feb-14	804 LF	816	5,190	7.6 J
	04-Mar-14	752 LF	816	5,050	7.5 J
	08-Apr-14	772 LF	662	5,210	7.4 J
	06-May-14	742 LF	601	4,820	7.3 J
	03-Jun-14	737 LF	725	4,750	7.4 J
	01-Jul-14	736 LF	720	4,970	7.3 J
	05-Aug-14	695 LF	704	4,830	7.4 J
	02-Sep-14	729 LF	703	5,150	7.4 J
	07-Oct-14	733 LF	720	5,000	7.4 J
PE-1	02-Jul-13	5.3 LF	4.7	2,620	7.5 J
	06-Aug-13	5.7 LF	5.0	2,700	7.5 J
	03-Sep-13	5.4 LF	5.1	2,700	7.6 J
	01-Oct-13	5.1 LF	5.2	2,600	7.6 J
	05-Nov-13	5.0 LF	5.2 J	2,580 J	7.7 J
	03-Dec-13	6.0 LF	5.5	2,560	7.5 J
	07-Jan-14	5.6 LF	5.5	2,680	7.4 J
	04-Feb-14	6.0 LF	5.6	2,630	7.6 J
	04-Mar-14	4.8 LF	4.8	2,510	7.5 J
	08-Apr-14	4.2 LF	4.0	2,700	7.5 J
	06-May-14	4.3 LF	3.9	2,680	7.4 J
	03-Jun-14	4.1 LF	3.7	2,610	7.5 J
	01-Jul-14	3.7 LF	3.6	2,500	7.6 J
	05-Aug-14	3.9 LF	3.7	2,560	7.6 J
	02-Sep-14	4.0 LF	3.8	2,610	7.5 J
	07-Oct-14	4.2 LF	3.7	2,580	7.6 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, Third Quarter 2014
 Third Quarter 2014 Interim Measures 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	July	0.0060	NA
	August	0.0046	NA
	September	0.0055	NA
	October	0.0059	NA
Northern Gradient Pair MW-31-135 / MW-33-150	July	0.0022	31 / 31
	August	0.0021	31 / 31
	September	0.0024	30 / 30
	October	0.0021	31 / 31
Central Gradient Pair MW-45-95 / MW-34-100	July	0.0115	31 / 31
	August	0.0084	31 / 31
	September	0.0101	30 / 30
	October	0.0116	26 / 31
Southern Gradient Pair MW-45-95 / MW-27-85	July	0.0042	31 / 31
	August	0.0032	31 / 31
	September	0.0040	30 / 30
	October	0.0040	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
 Third Quarter 2014 Interim Measures Performance Monitoring and
 Site-wide Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Month	Davis Dam Release			Colorado River Elevation at I-3		
	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft amsl)	Actual (ft amsl)	Difference (feet)
January 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	17,718	482	457.1	457.08	0.0
May 2014	16,700	16,622	78	456.8	456.68	-0.1
June 2014	15,900	15,917	-17	456.6	456.64	0.1
July 2014	15,100	14,640	460	456.3	456.24	0.0
August 2014	12,300	11,336	964	455.2	455.26	0.1
September 2014	13,100	12,211	889	455.3	455.30	0.0
October 2014	10,700	10,434	266	454.3	454.81	0.5
November 2014	10,700			454.3		

NOTES:

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

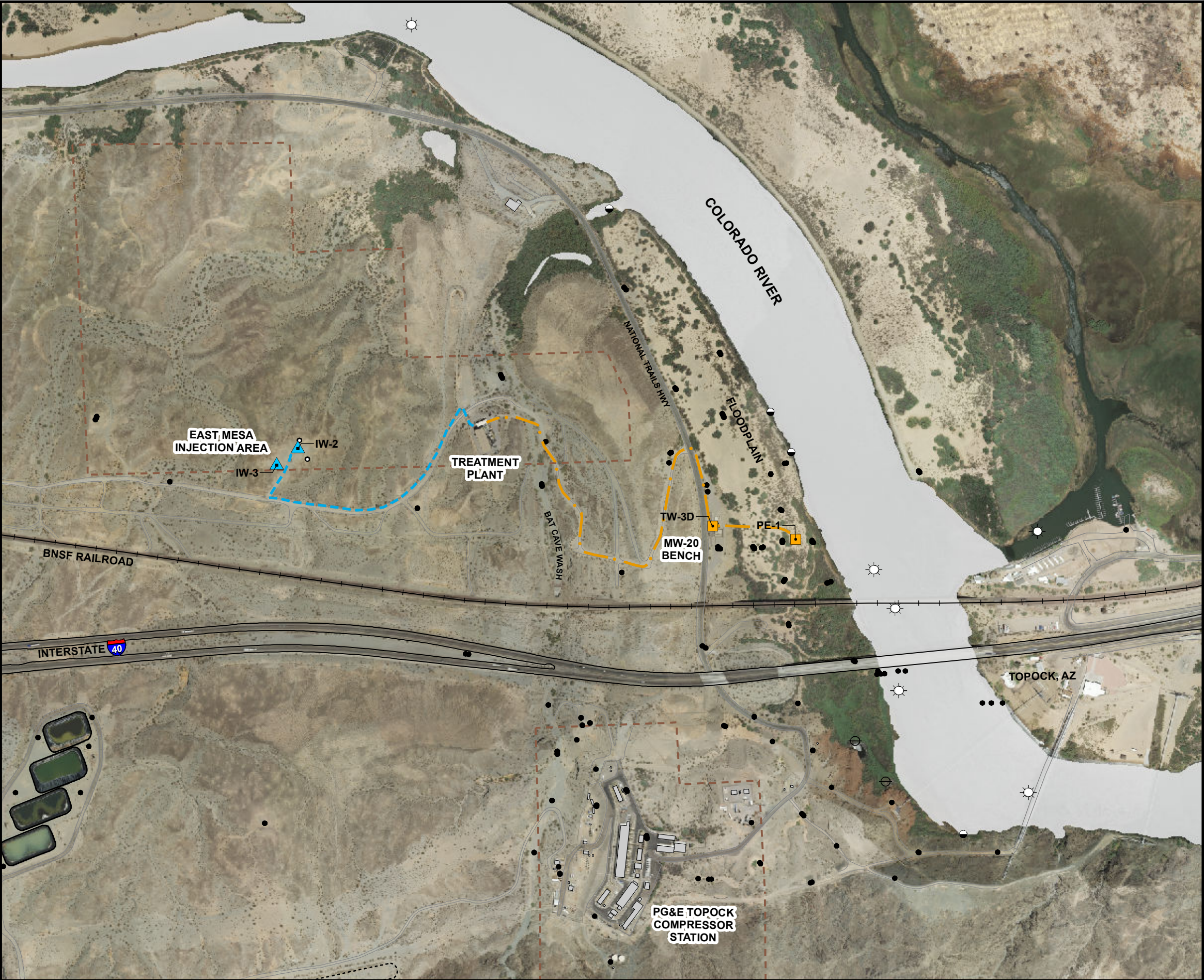
NA = Data unavailable during this time period.

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 November 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 BOR 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



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:

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

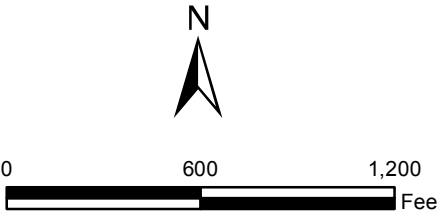
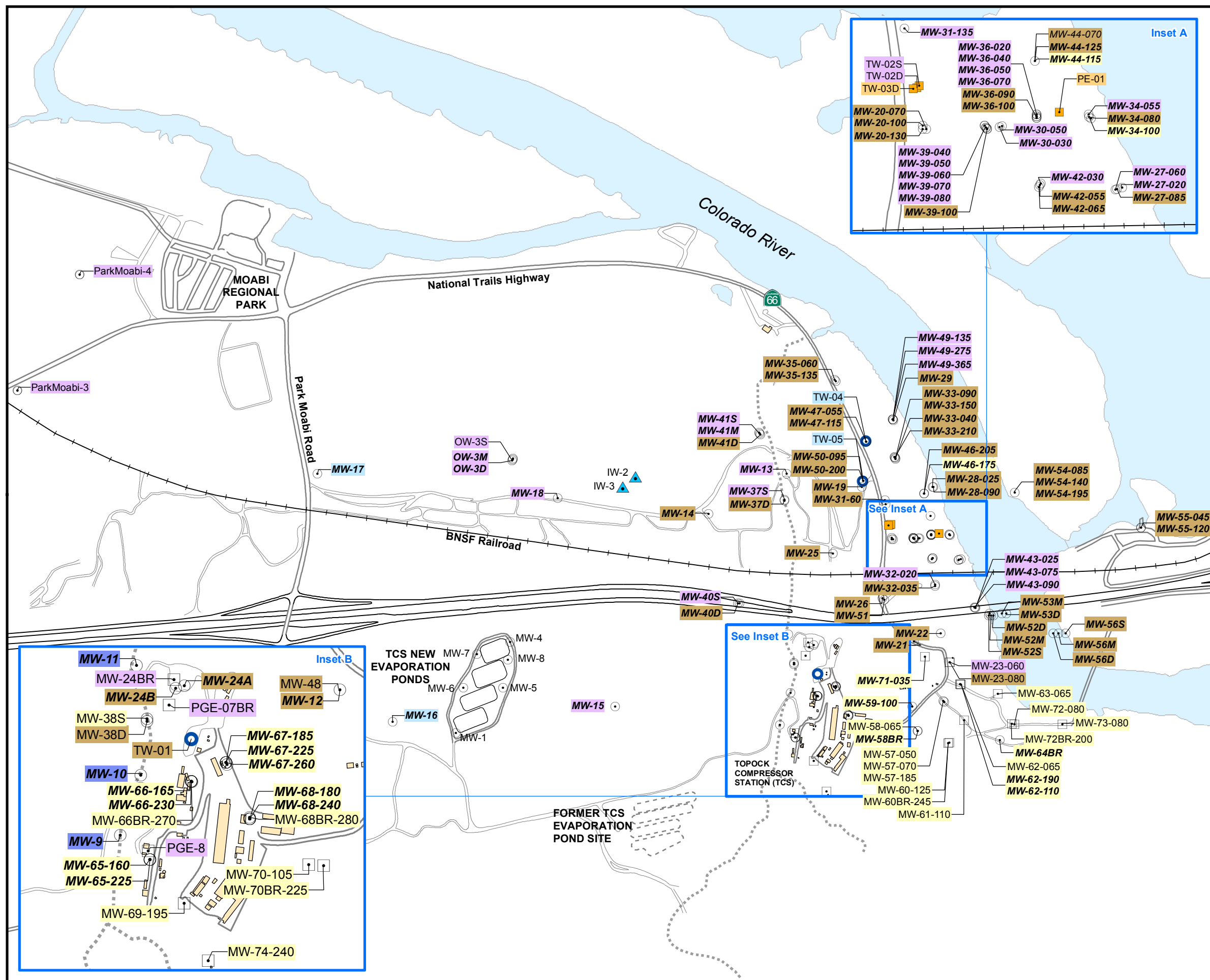


FIGURE 1-1
LOCATIONS OF IM-3 FACILITIES
AND MONITORING LOCATIONS
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



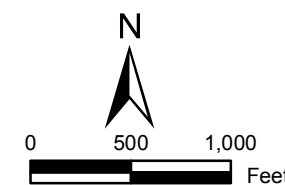
LEGEND

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

Sampling Frequency for Groundwater Monitoring Program (GMP)

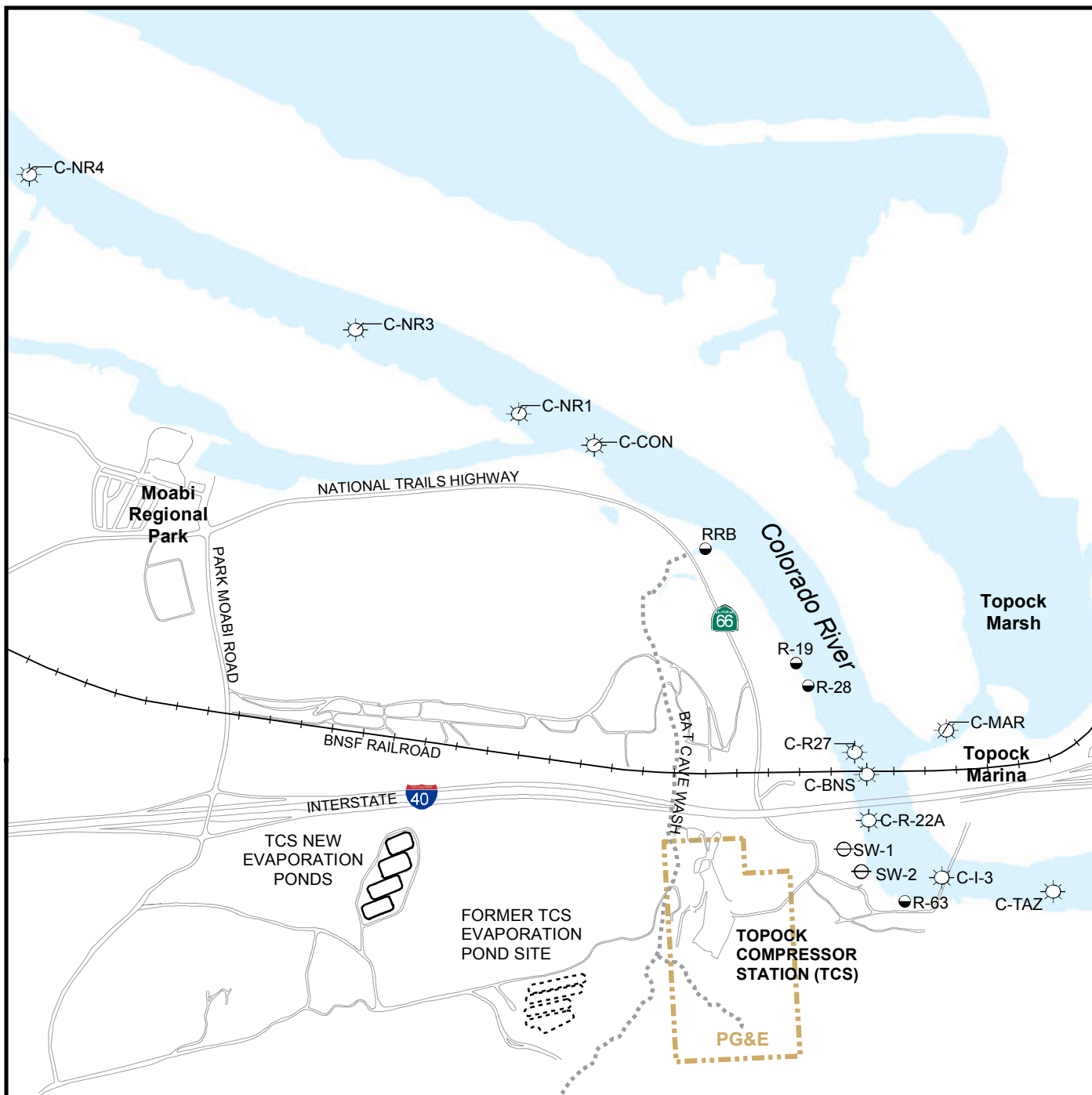
- MW-17** Biennial sampling
- MW-13** Annual sampling
 - Annual; plus the next quarterly event following any channel-wide flows in Bat Cave Wash with discharge through the highway culverts
- MW-09** Annual sampling
- MW-21** Semiannual sampling
- TW-01** Quarterly sampling
- TW-3D** Monthly sampling

Notes:
Bold/Italicized labels indicate sample collected using micropurge sampling method; otherwise, sample collected using the three-volume purge sampling method.



California State Plane NAD83 Zone 5 US Feet

FIGURE 1-2
MONITORING LOCATIONS AND
SAMPLING FREQUENCY FOR GMP
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

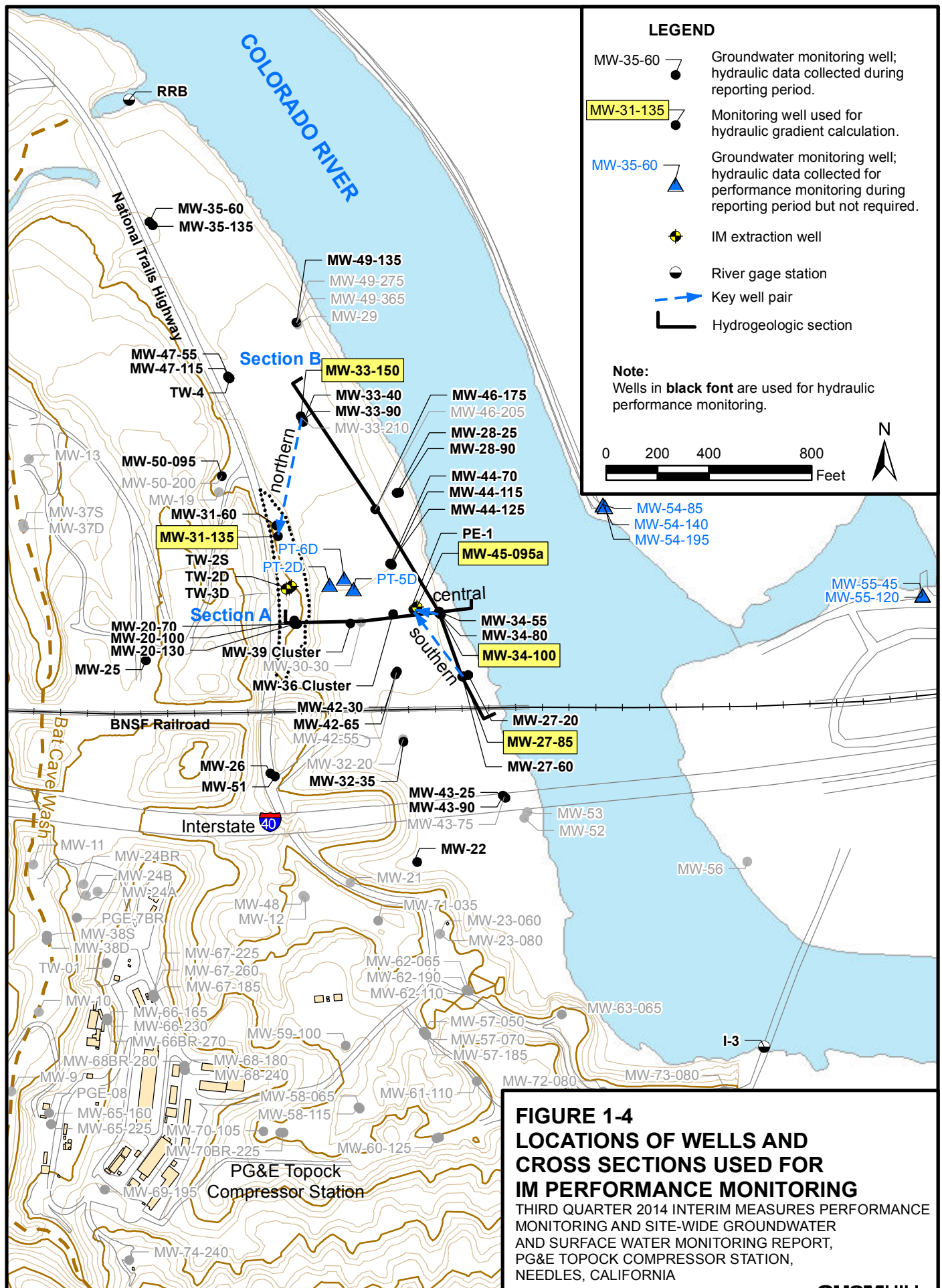
1. Shoreline, river channel, and other surface water monitoring locations are sampled quarterly and twice during periods of low river stage (typically November - January).
2. Location for SW-2 is approximate. GPS coverage was not available.
3. RMP = River Monitoring Program
4. TCS = Topock Compressor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

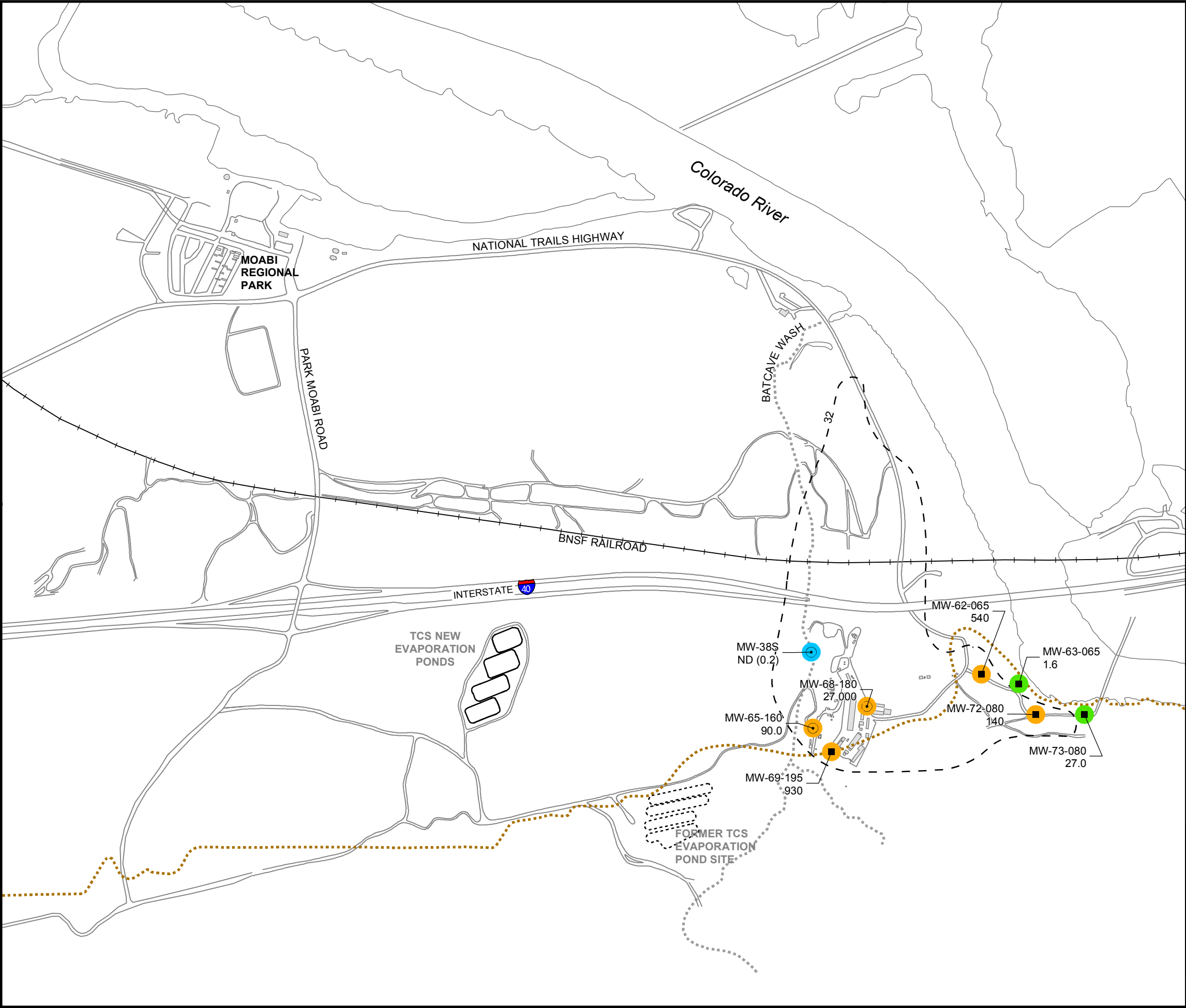
LEGEND

- 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

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





LEGEND

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

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

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

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

Cr(VI) Concentrations – Third Quarter 2014

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

--- Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations > 32 ug/L based on Second Quarter 2014, where a larger number of wells were sampled, and Third Quarter 2014 groundwater sampling results.

... Approximate bedrock contact at 455 feet above mean sea level.

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

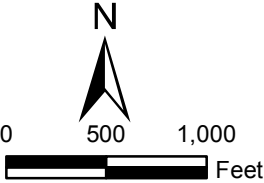
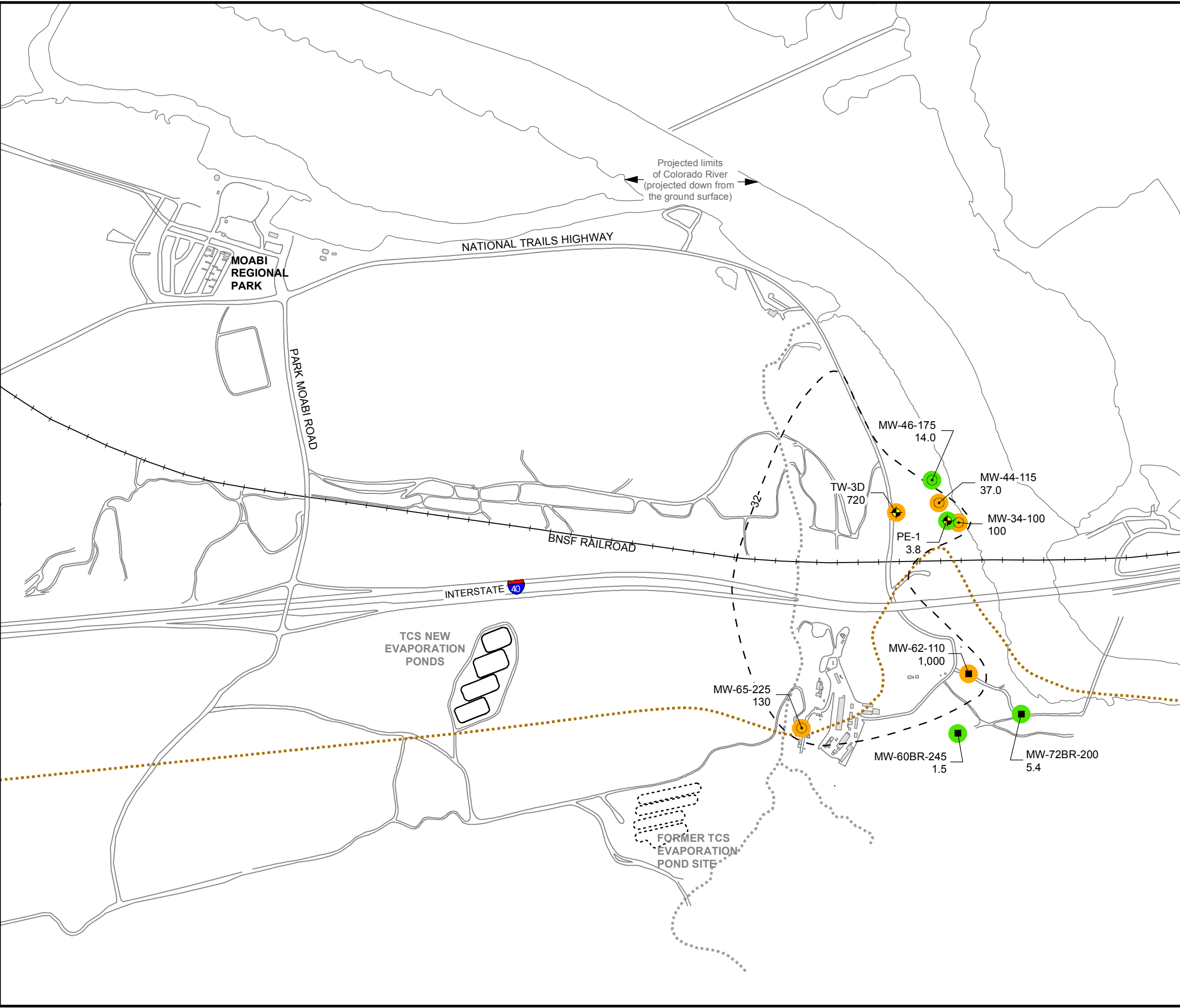


FIGURE 3-1a
Cr(VI) SAMPLING RESULTS,
SHALLOW WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, THIRD QUARTER 2014
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



LEGEND

○

Alluvial Aquifer well sampled during sampling event

■

Bedrock well sampled during sampling event

⬢

Extraction well sampled during sampling event

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 – Third Quarter 2014

●

Not detected at analytical reporting limit

●

Concentration between reporting limit and 32 µg/L

●

Concentration ≥ 32 µg/L

Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations > 32 ug/L based on Second Quarter 2014, where a larger number of wells were sampled, and Third Quarter 2014 groundwater sampling results.

Approximate bedrock contact at 395 feet above mean sea level.

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

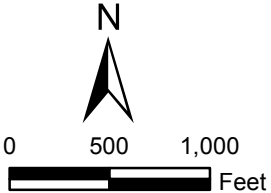
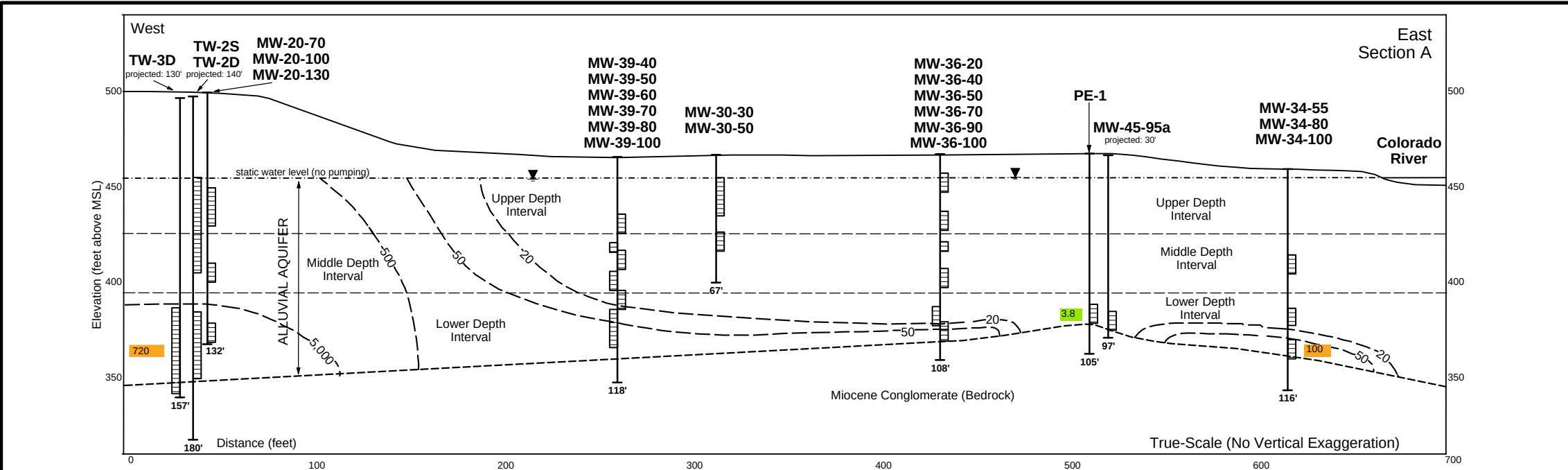


FIGURE 3-1b
Cr(VI) SAMPLING RESULTS,
DEEP WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, THIRD QUARTER 2014
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



LEGEND

●

Alluvial Aquifer well sampled during sampling event

■

Bedrock well sampled during sampling event

◆

Extraction well sampled during sampling event

●

Well not sampled during sampling event

6.48

Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L). Results posted are maximum Cr(VI) concentrations.

ND (0.2)

Cr(VI) not detected at listed reporting limit

J =

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

Cr(VI) Concentrations – Third Quarter 2014

●

Not detected at analytical reporting limit

●

Concentration between reporting limit and 32 µg/L

●

Concentration ≥ 32 µg/L

50

Inferred Cr(VI) concentration contour within the Alluvial Aquifer depth interval based on Second Quarter 2014 groundwater sampling results, where a larger number of wells were sampled, and Third 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.

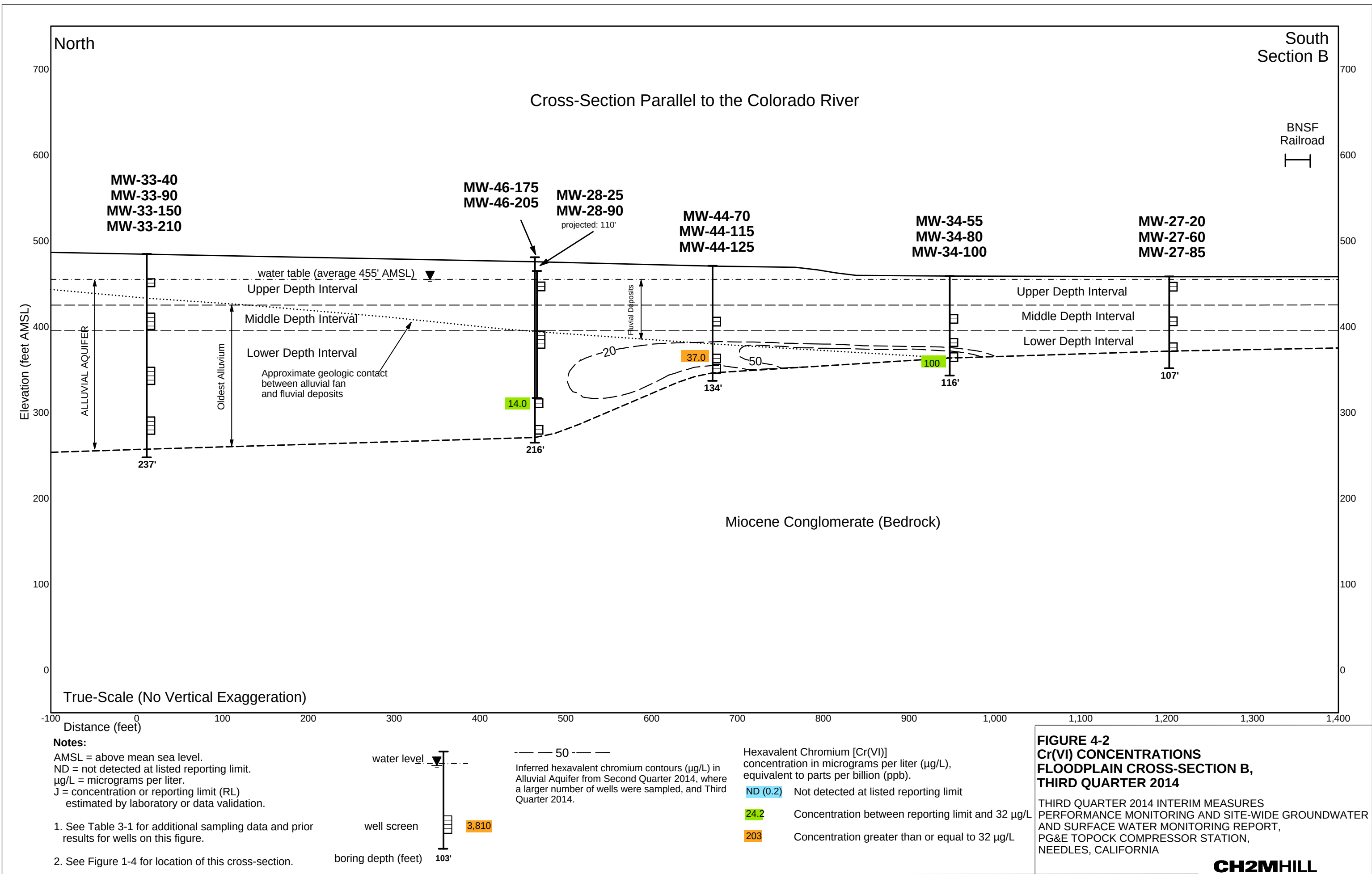
3.

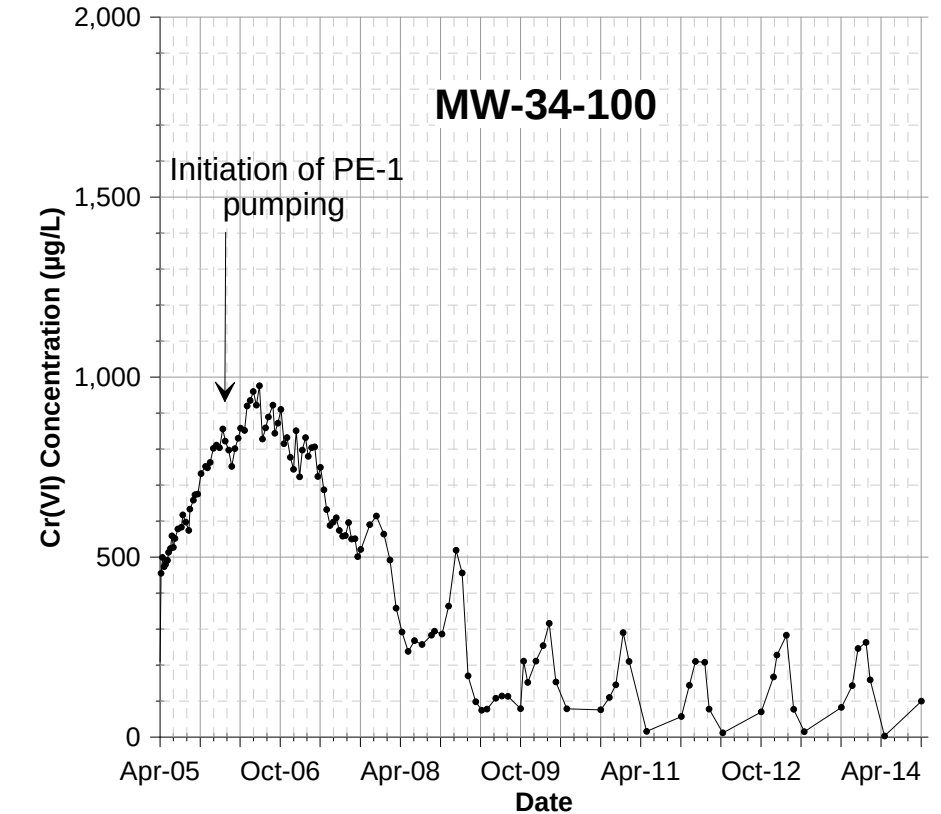
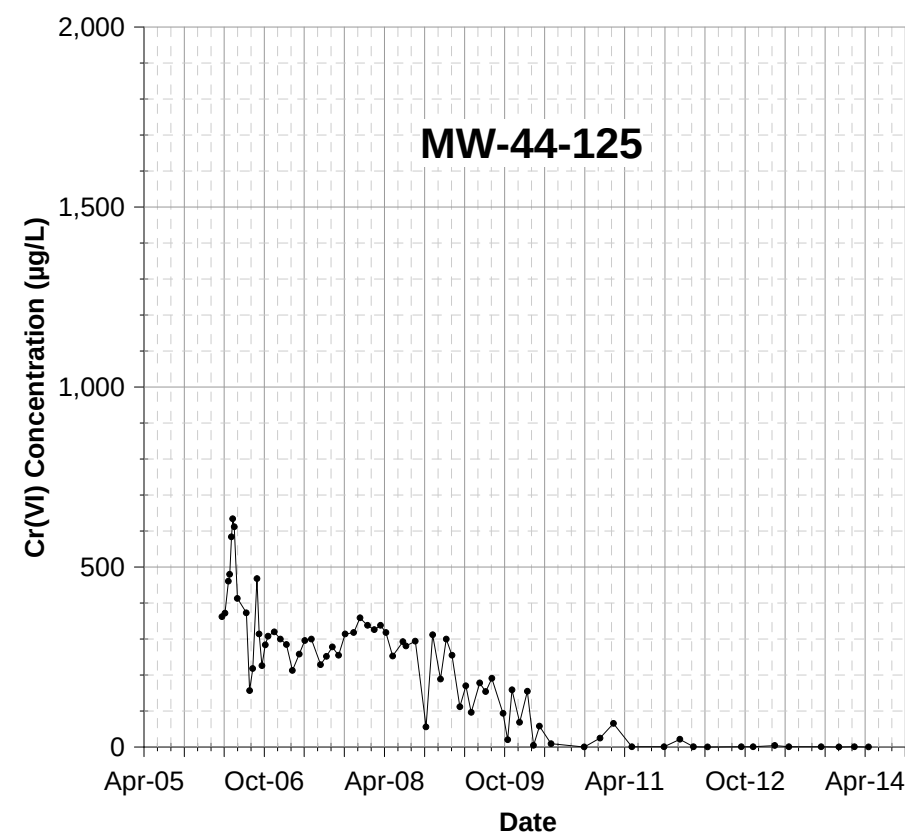
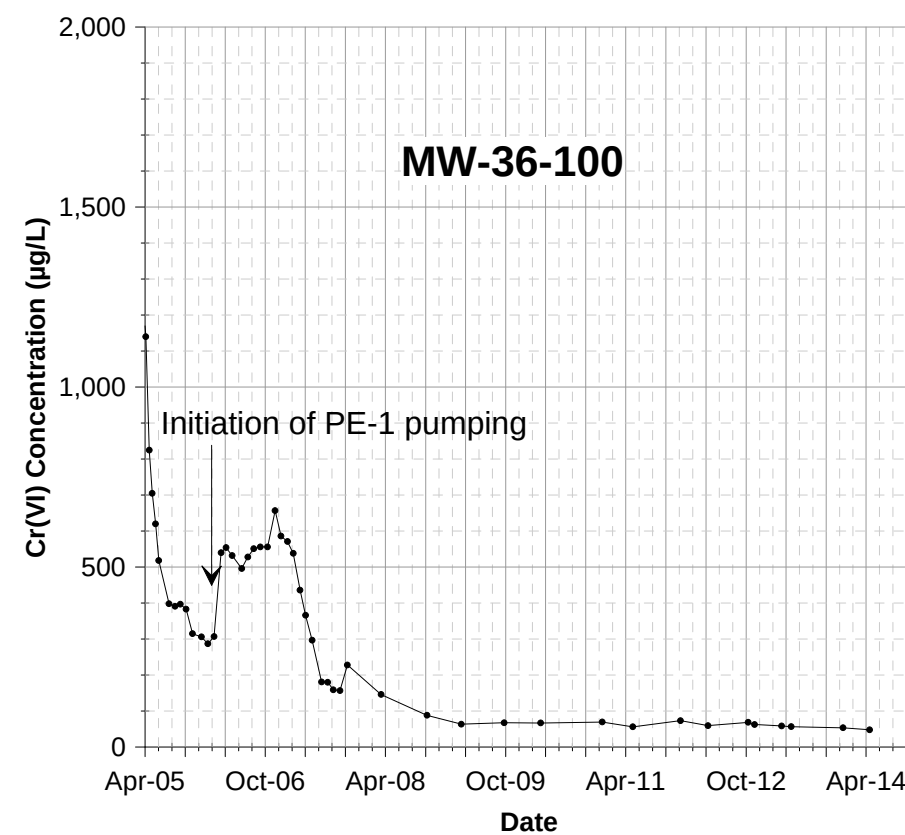
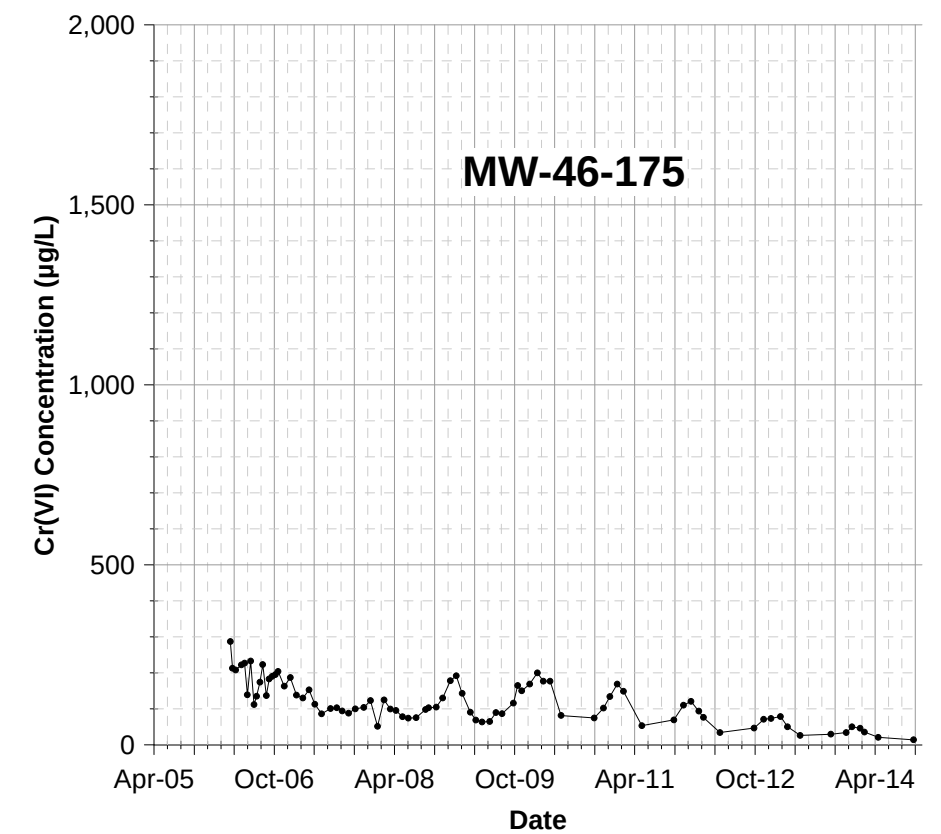
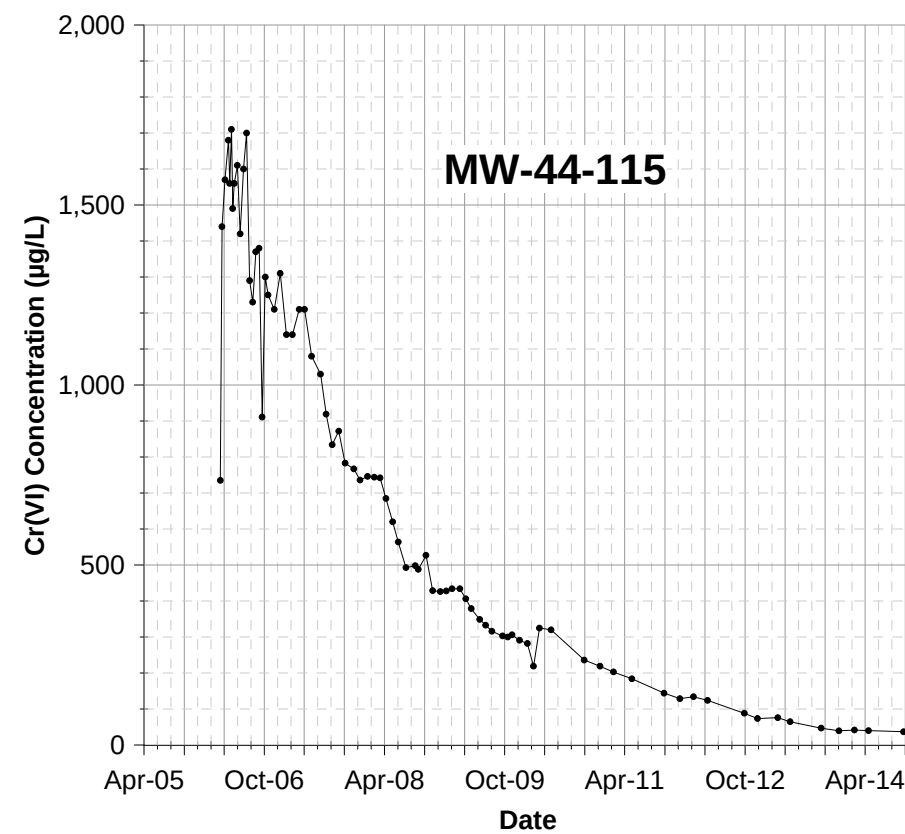
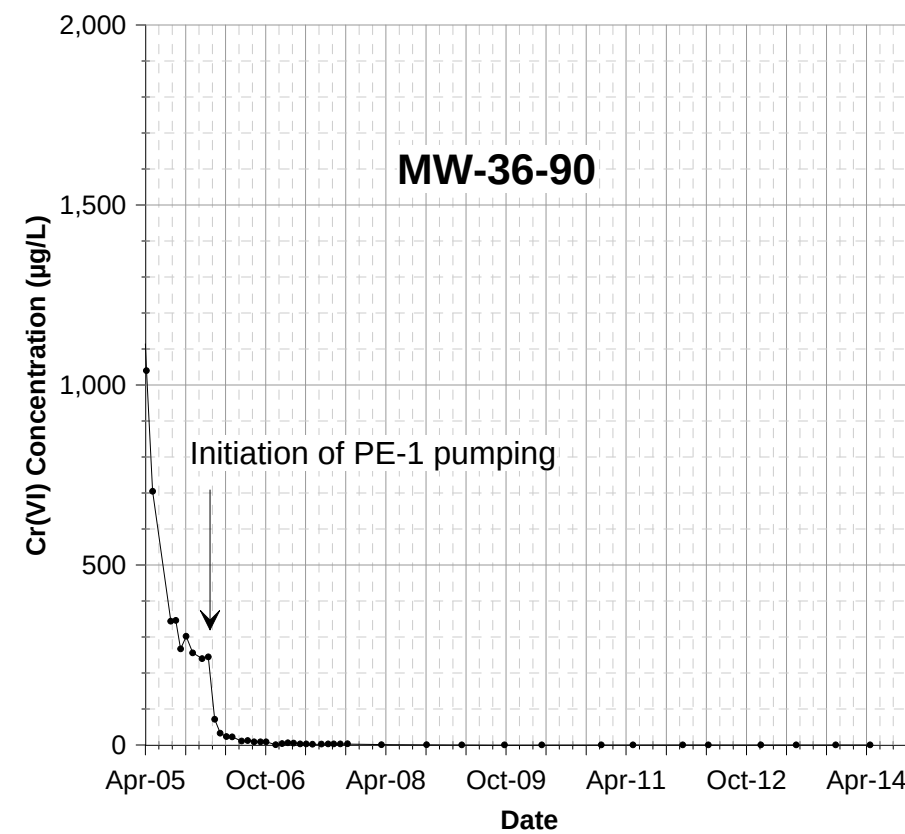
Long-screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-1 for complete results.

FIGURE 4-1
MAXIMUM Cr(VI) CONCENTRATIONS
IN ALLUVIAL AQUIFER AND BEDROCK,
THIRD QUARTER 2014
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

BAO\ZIN\FANDEL\PROJ\PACIFIC GAS ELECTRIC\TOPOCK PROGRAM\GIS\MAP FILES\2014\GMP-IMP\2014Q3\FIGURE 4-1_IMP_CR6_PPB_2014Q3_MAX.MXD ECLARK1 11/17/2014 2:08:48 PM

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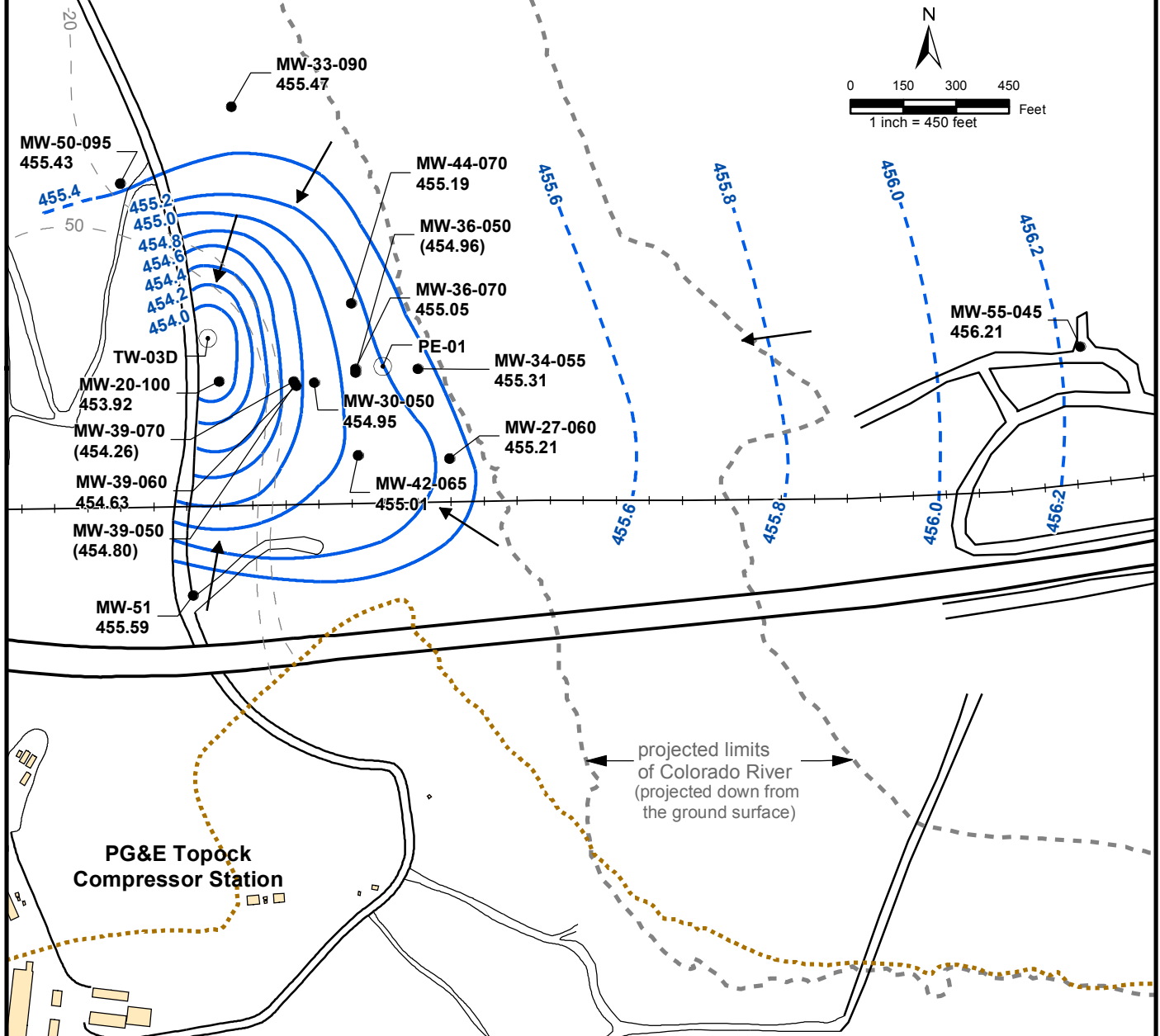
Notes:

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

FIGURE 4-3
Cr(VI) CONCENTRATION TRENDS IN
SELECTED PERFORMANCE MONITORING WELLS,
APRIL 2005 THROUGH OCTOBER 2014
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA
CH2MHILL

Notes:

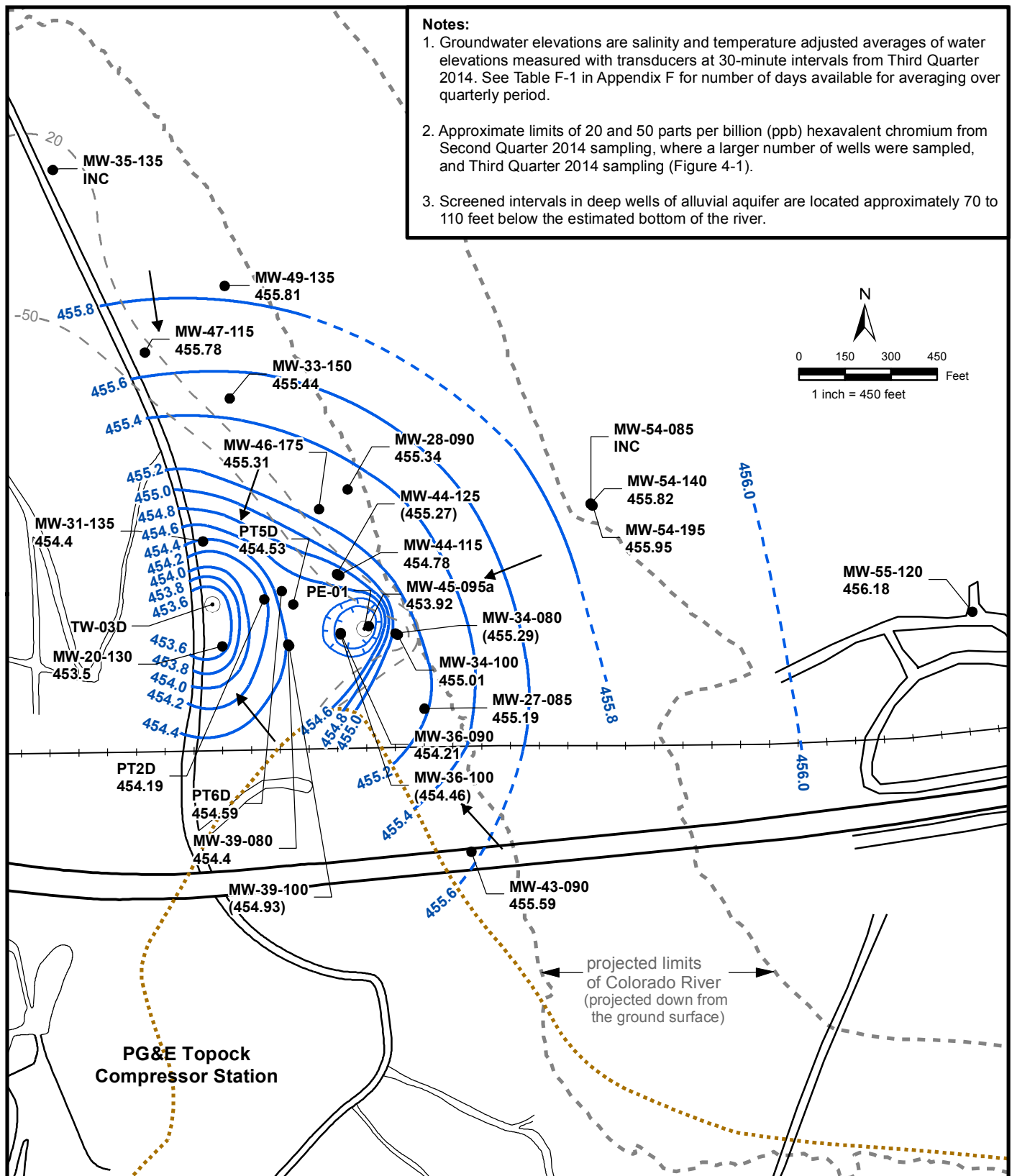
1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from Third Quarter 2014. See Table F-1 in Appendix F for number of days available for averaging.
2. Approximate limits of 20 and 50 parts per billion (ppb) hexavalent chromium from Second Quarter 2014 sampling, where a larger number of wells were sampled. No samples were collected from mid-depth wells during Third Quarter. The placement of 20 ppb contour on mid-depth map is based on shallow and deep chromium distribution maps (Figure 4-1).
3. Screened intervals in mid-depth wells of alluvial aquifer are located approximately 40 to 50 feet below the estimated bottom of the river.

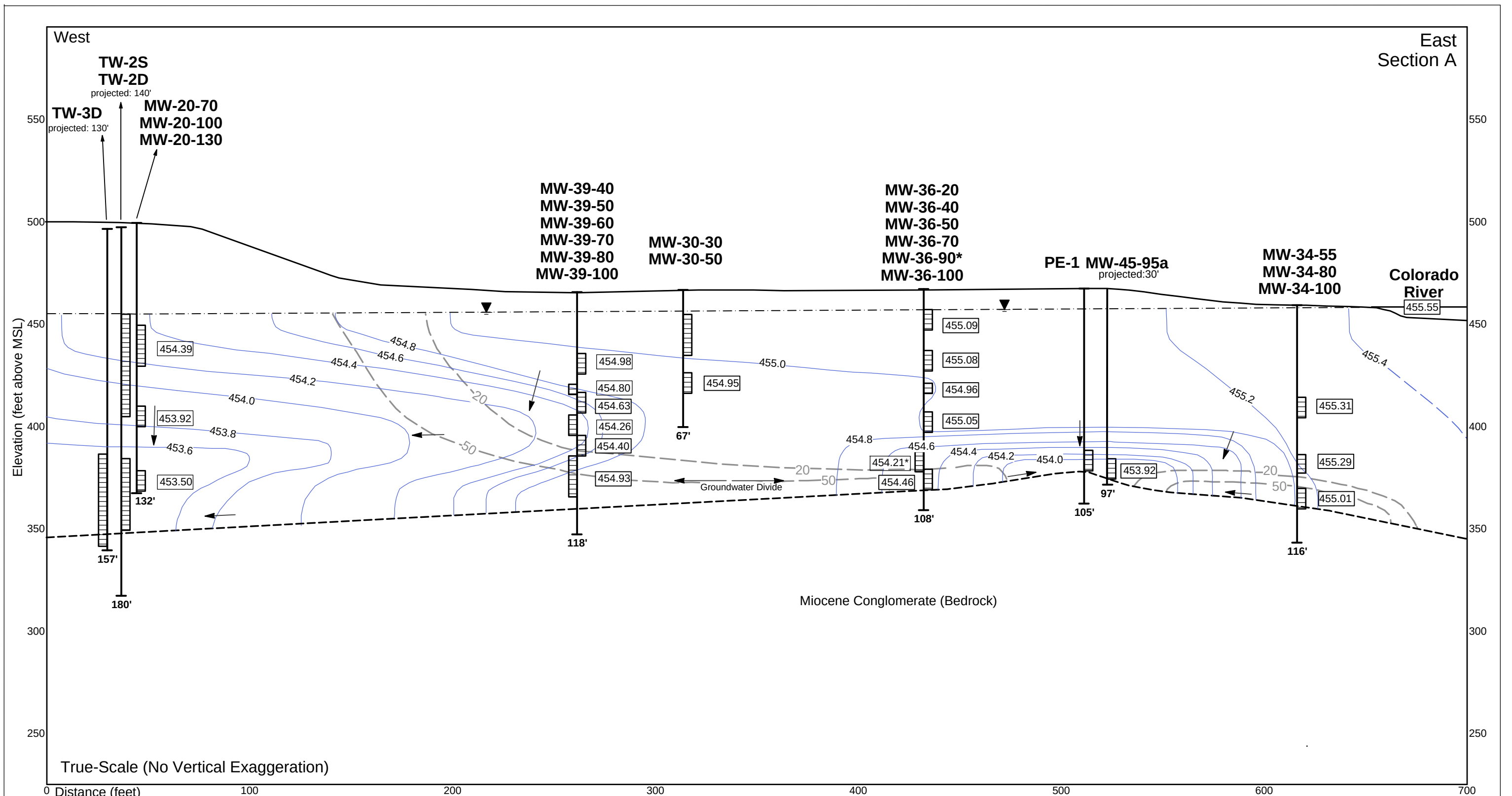


- MW-29 Average Groundwater Elevation at Monitoring Station (ft AMSL) 455.85
- MW-29 (455.85) Average Groundwater Elevation at Monitoring Station (ft AMSL) Not Used for Contouring
- Bedrock Contact at 425 ft AMSL elevation
- Monitoring Well
- Extraction Well
- Groundwater Elevation Contour 0.2 ft (dashed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

FIGURE 4-4b
AVERAGE GROUNDWATER ELEVATIONS
IN MID-DEPTH WELLS,
THIRD QUARTER 2014
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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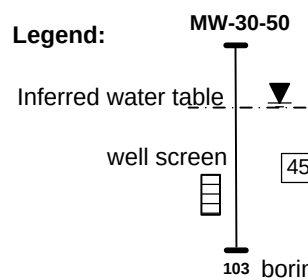




Notes:
Results show average groundwater elevations for July 1, 2014 through October 31, 2014 measured with transducers at 30 minute intervals.

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.

Legend:



Inferred hexavalent chromium contour (ppb) in Alluvial Aquifer from Second Quarter 2014, where a larger number of wells were sampled, and Third Quarter 2014.

Average groundwater head (ft AMSL)

453.5

Groundwater head contour

453.5

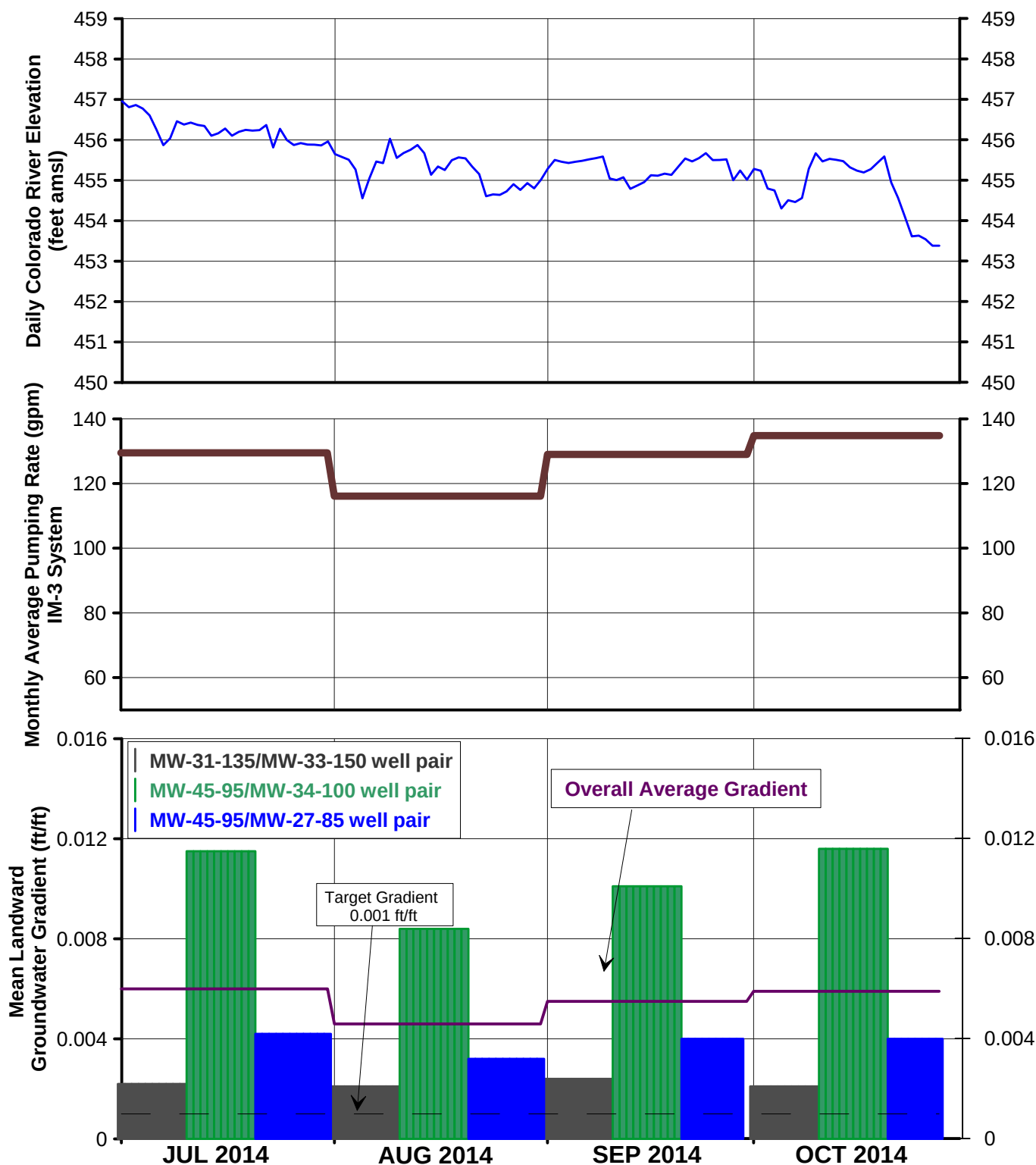
Inferred groundwater head contour

Interpreted groundwater flow direction

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

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

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Notes:

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

amsl = above mean sea level.

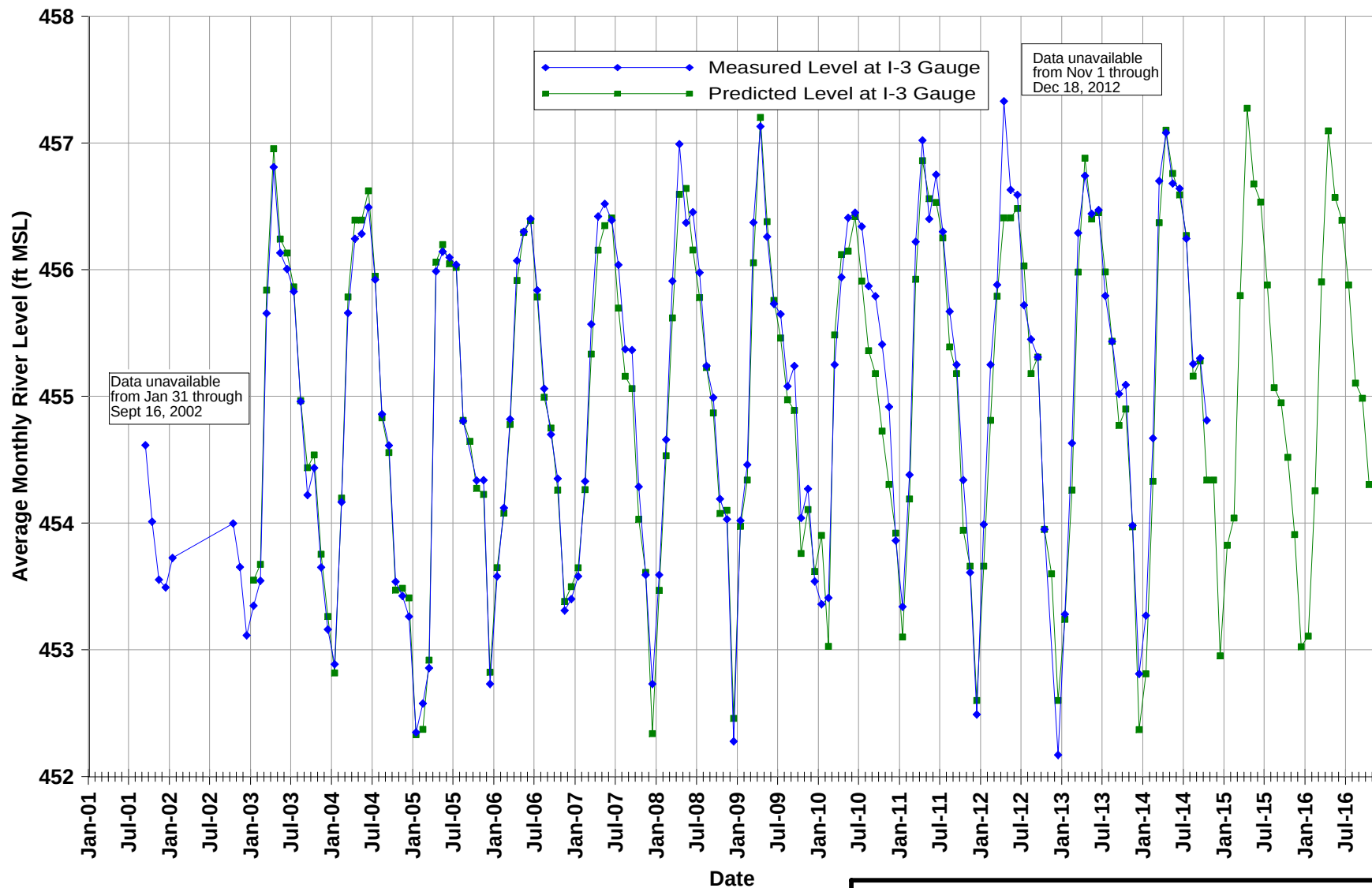
ft/ft = feet/foot.

gpm = gallons per minute.

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

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

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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 November 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

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

Appendix A
Well Inspection and Maintenance Log,
Third Quarter 2014

Well Inspection and Maintenance Log, Third Quarter 2014, PG&E Topock Groundwater Monitoring Program

In a letter from the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), dated January 28, 2013, Pacific Gas and Electric Company (PG&E) was directed to assess conditions at all existing wells quarterly, pursuant to PG&E's *Sampling and Analysis Field Procedures Topock Program Manual, Revision 1, Pacific Gas and Electric Company, Topock Project* (CH2M HILL, 2005a), and the *Draft Performance Monitoring Plan for Interim Measures in the Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California* (CH2M HILL, 2005b), to ensure the wells are in compliance with the California Well Standards. Table A-1 shows the inspection log of wells during Third Quarter 2014. Table A-1 summarizes well conditions, notes, and completed actions. Where there is a comment about well condition in the "Notes" column of Table A-1 without a "Required Action" listed, the noted condition is being monitored with quarterly inspections to assess whether future actions are needed.

In this reporting period, old 6-inch concrete pads were removed at MW-9 and MW-10 and were replaced with new 10-foot pads that are buried several feet underground.

A.1 Upcoming or Ongoing Maintenance

This section presents maintenance items that are planned or are ongoing at the time of this report:

1. Record search: P2/MWP-12/PX-2
2. Wellhead redesign before replacement: TW-1

A.2 Well Maintenance Photographs

This section presents photographs taken during well maintenance activities during Third Quarter 2014.



Above is the before picture of MW-10, taken in February of 2013.

Below is a picture of MW-10 taken during Third Quarter 2014, after repairs were performed.



Table A-1
Well Inspection Log, Third Quarter 2014
Third Quarter 2014 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Notes	Required Actions	Action Completed? (Y/N)	Action Completed Date
CW-1D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-1M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-2D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-2M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-3D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-3M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-4D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
CW-4M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-01	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-03	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-04	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-05	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-06	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-07	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-08	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-09	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	Y	Photograph			
MW-10	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	Y	Photograph			
MW-11	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-12	10/13/14	Y	N	Y	N	Y	Y	*	N *	Y	Y	N	Y	NA	Soil deposition around well. No change.			
MW-13	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-14	10/13/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-15	10/13/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-16	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	Needs paint	Needs paint.		
MW-17	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	needs lid painted.	Needs paint.		
MW-18	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-19	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-20-070	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	paint	Needs paint.		
MW-20-100	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	paint	Needs paint.		
MW-20-130	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	paint	Needs paint.		
MW-21	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-22	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-23-060 MW-23-080	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-24 BR	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-24A	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-24B	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-25	10/13/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-26	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-020	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-060	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-27-085	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-28-025	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-28-090	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-29	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-30-030	10/07/14	Y	N	Y	N	Y	NA	Y	N*	Y	Y	N	Y	NA	Sand deposited over pad.			
MW-30-050	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-31-060	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-31-135	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	paint	Needs paint.		

Table A-1
Well Inspection Log, Third Quarter 2014
Third Quarter 2014 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Notes	Required Actions	Action Completed? (Y/N)	Action Completed Date
MW-32-020	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-32-035	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-150	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-210	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-40	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-33-90	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-34-055	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-34-080	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-34-100	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-35-135	10/07/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-35-60	10/07/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-36-020	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-36-070																		
MW-36-090	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-36-040																		
MW-36-050	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-36-100																		
MW-37D	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	Only 2 bollards. No change.			
MW-37S	10/29/14	Y	N	Y	N	Y	N	Y	N	Y	Y	N	Y	NA	No bollards. No change.			
MW-38S	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-38D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-39-040	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-39-070																		
MW-39-050	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-39-080																		
MW-39-060	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-39-100																		
MW-40D	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-40S	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-41D	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Slight erosion under pad, 1"; no change.			
MW-41M	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Slight erosion under pad, 1"; no change.			
MW-41S	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-030	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-055	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-42-065	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-025	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-075	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-43-090	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-44-125	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-44-070																		
MW-44-115	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-45-095a	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-45-095b																		
MW-46-175	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-46-205																		
MW-47-055	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-47-115																		

Table A-1
Well Inspection Log, Third Quarter 2014
*Third Quarter 2014 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Notes	Required Actions	Action Completed? (Y/N)	Action Completed Date
MW-48	10/13/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA	Slight soil deposition on pad. No change.			
MW-49-135 MW-49-275 MW-49-365	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-50-095 MW-50-200	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-51	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-52	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-53	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-54-085 MW-54-140	10/09/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-54-195	10/09/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-55-045 MW-55-120	10/09/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-56 D/S/M	10/09/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MW-57-050	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-57-070	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-57-185	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-58BR	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-58-065	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-60-125	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-60BR-245	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-61-110	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-59-100	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-62-110 MW-62-190	10/21/14	N *	N	NA	N	Y	NA	Y	N	Y	NA	N	Y	NA	* Static WL not measured in FLUTE wells			
MW-62-065	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-63-065	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-64-BR	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-65-160 MW-65-225	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-66-165 MW-66-230	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-66BR-270	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-67-185	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-67-225 MW-67-260	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-68BR	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-68-180 MW-68-290	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-69-195	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-70BR-225	10/21/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-70-105	10/21/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-71-035	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-72-080	10/28/14	Y	N	Y	N	Y	NA	Y	N *	Y	Y	N	Y	NA	Soil deposition on pad. No change.			
MW-72BR-200	10/28/14	Y	N	Y	N	Y	NA	Y	N *	Y	Y	N	Y	NA	Soil deposition on pad. No change.			

Table A-1
Well Inspection Log, Third Quarter 2014
*Third Quarter 2014 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Notes	Required Actions	Action Completed? (Y/N)	Action Completed Date
MW-73-080	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MW-74-240	10/28/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
MWP-08	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
MWP-10	10/29/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
OW-1D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-1M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-1S	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-2S	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-3S	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
OW-5D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Erosion around bottom of concrete pads			
OW-5M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Erosion around bottom of concrete pads			
OW-5S	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Erosion around bottom of concrete pads			
P2	10/21/14	Y	N	Y	N	Y*	NA	Y	N	Y	Y	N	Y	NA	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 the well is actually an MWP designation well.	Needs record search.		
PG&E-8	10/21/14	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	NA				
PGE-7	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Needs resurveyed.	Needs resurveyed.		
PT-1 3 WELLS	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA	Very slight erosion under pad. No change.			
PT-2 3 WELLS	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-3 3 WELLS	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-4 3 WELLS	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-5 3 WELLS	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-6 3 WELLS	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-7 S/D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-7M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-8 S/D	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-8M	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-9 S/D	10/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PT-9M	10/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PTI-1D	10/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				
PTI-1M	10/07/14	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Table A-1
Well Inspection Log, Third Quarter 2014
Third Quarter 2014 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

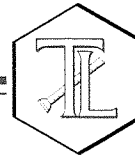
Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Notes	Required Actions	Action Completed? (Y/N)	Action Completed Date
PTI-1S	10/07/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
TW-01	10/29/14	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y	NA				
TW-04	10/13/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				
TW-05	10/29/14	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y	NA				

Notes:
* There is a note with more information on this parameter.
NA = Not applicable
PVC = polyvinyl chloride

Appendix B
Lab Reports, Third Quarter 2014
(Provided on CD-ROM only with hard copy submittal)

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

July 30, 2014

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

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-220, GROUNDWATER MONITORING
PROJECT, TLI NO.: 815009

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-220 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 July 1, 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 were analyzed and recorded in the raw data as SDG 14G0038 but are reported as SDG 815009 in all final report pages.

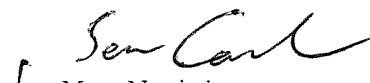
Samples for pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

Sample TW-03D-219 for Hexavalent Chromium was analyzed by method EPA 218.6 rather than SW 3500-Cr B as requested on the COC.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 428648.IM.CS.EX.AC

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

Laboratory No.: 815009

Date: July 30, 2014

Collected: July 3, 2014

Received: July 3, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 4500-H B	pH	Jennine Ta
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Jennine Ta
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

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

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

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project No.: 428648.IM.CS.EX.AC

P.O. No.: PGEIM11111001

Laboratory No.: 815009

Date Received: July 3, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815009-001	PE-01-220	E120.1	NONE	7/1/2014	10:00	EC	4420	umhos/cm	2.00
815009-001	PE-01-220	E200.7	LABFLT	7/1/2014	10:00	Calcium	106000	ug/L	50000
815009-001	PE-01-220	E200.7	LABFLT	7/1/2014	10:00	Iron	ND	ug/L	20.0
815009-001	PE-01-220	E200.7	LABFLT	7/1/2014	10:00	Magnesium	22700	ug/L	5000
815009-001	PE-01-220	E200.7	LABFLT	7/1/2014	10:00	Sodium	805000	ug/L	50000
815009-001	PE-01-220	E200.8	LABFLT	7/1/2014	10:00	Chromium	3.7	ug/L	1.0
815009-001	PE-01-220	E200.8	LABFLT	7/1/2014	10:00	Manganese	62.2	ug/L	1.0
815009-001	PE-01-220	E218.6	LABFLT	7/1/2014	10:00	Chromium, Hexavalent	3.6	ug/L	0.20
815009-001	PE-01-220	E300	NONE	7/1/2014	10:00	Chloride	1060	mg/L	50.0
815009-001	PE-01-220	E300	NONE	7/1/2014	10:00	Nitrate as N	ND	mg/L	0.500
815009-001	PE-01-220	E300	NONE	7/1/2014	10:00	Sulfate	379	mg/L	50.0
815009-001	PE-01-220	SM2320B	NONE	7/1/2014	10:00	Alkalinity	237	mg/L	5.00
815009-001	PE-01-220	SM2320B	NONE	7/1/2014	10:00	Alkalinity, Bicarbonate (As CaCO ₃)	237	mg/L	5.00
815009-001	PE-01-220	SM2320B	NONE	7/1/2014	10:00	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
815009-001	PE-01-220	SM2540C	NONE	7/1/2014	10:00	Total Dissolved Solids	2500	mg/L	125
815009-001	PE-01-220	SM4500HB	NONE	7/1/2014	10:00	pH	7.56 J	pH	4.00

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
815009-002	TW-03D-220	E120.1	NONE	7/1/2014	10:00	EC	8180	umhos/cm	2.00
815009-002	TW-03D-220	E200.7	LABFLT	7/1/2014	10:00	Calcium	198000	ug/L	50000
815009-002	TW-03D-220	E200.7	LABFLT	7/1/2014	10:00	Iron	ND	ug/L	20.0
815009-002	TW-03D-220	E200.7	LABFLT	7/1/2014	10:00	Magnesium	30000	ug/L	10000
815009-002	TW-03D-220	E200.7	LABFLT	7/1/2014	10:00	Sodium	1570000	ug/L	250000
815009-002	TW-03D-220	E200.8	LABFLT	7/1/2014	10:00	Chromium	736	ug/L	5.0
815009-002	TW-03D-220	E200.8	LABFLT	7/1/2014	10:00	Manganese	7.1	ug/L	1.0
815009-002	TW-03D-220	E218.6	LABFLT	7/1/2014	10:00	Chromium, Hexavalent	720	ug/L	10.0
815009-002	TW-03D-220	E300	NONE	7/1/2014	10:00	Chloride	2410	mg/L	50.0
815009-002	TW-03D-220	E300	NONE	7/1/2014	10:00	Nitrate as N	3.44	mg/L	0.500
815009-002	TW-03D-220	E300	NONE	7/1/2014	10:00	Sulfate	531	mg/L	50.0
815009-002	TW-03D-220	SM2320B	NONE	7/1/2014	10:00	Alkalinity	136	mg/L	5.00
815009-002	TW-03D-220	SM2320B	NONE	7/1/2014	10:00	Alkalinity, Bicarbonate (As CaCO ₃)	136	mg/L	5.00
815009-002	TW-03D-220	SM2320B	NONE	7/1/2014	10:00	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
815009-002	TW-03D-220	SM2540C	NONE	7/1/2014	10:00	Total Dissolved Solids	4970	mg/L	250
815009-002	TW-03D-220	SM4500HB	NONE	7/1/2014	10:00	PH	7.33 J	pH	4.00

ND: Non Detected (below reporting limit)

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

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

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

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

TRUESDAIL LABORATORIES, INC.

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www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 428648.IM.CS.EX.AC

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 815009

Page 1 of 16

Printed 7/30/2014

Samples Received on 7/1/2014 6:50:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-220	815009-001	07/01/2014 10:00	Water
TW-03D-220	815009-002	07/01/2014 10:00	Water

Anions By I.C. - EPA 300.0

Batch 1407191

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815009-001 Chloride	mg/L	07/02/2014 18:27	500	17.4	50.0	1060
Nitrate as Nitrogen	mg/L	07/02/2014 15:02	5.00	0.0415	0.500	ND
Sulfate	mg/L	07/02/2014 18:50	100	3.07	50.0	379
815009-002 Chloride	mg/L	07/02/2014 18:39	500	17.4	50.0	2410
Nitrate as Nitrogen	mg/L	07/02/2014 15:13	5.00	0.0415	0.500	3.44
Sulfate	mg/L	07/02/2014 19:02	100	3.07	50.0	531

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

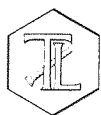
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.36	2.01	16.2	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.71	2.70	0.443	0 - 20

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	50.0	505	497	1.63	0 - 20

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011

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 2 of 16****Project Number: 428648.IM.CS.EX.AC****Printed 7/30/2014****Duplicate**

Lab ID = 815015-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	78.2	74.0	5.57	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.97	4.00	99.3	90 - 110
Fluoride	mg/L	1.00	4.15	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.05	4.00	101	90 - 110

Matrix Spike

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.8	22.0(20.0)	104	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.2	22.7(20.0)	102	85 - 115

Matrix Spike

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	50.0	1010	997(500)	103	85 - 115

Matrix Spike

Lab ID = 815015-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	177	174(100)	103	85 - 115

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.96	4.00	99.1	90 - 110
Fluoride	mg/L	1.00	4.18	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.96	3.00	98.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.04	3.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.94	3.00	98.0	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 4 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.97	3.00	99.2	90 - 110

Alkalinity by SM 2320B

Batch 1407087

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815009-001 Alkalinity as CaCO ₃	mg/L	07/03/2014	1.00	1.68	5.00	237
Bicarbonate (Calculated)	mg/L	07/03/2014	1.00	1.68	5.00	237
Carbonate (Calculated)	mg/L	07/03/2014	1.00	1.68	5.00	ND
815009-002 Alkalinity as CaCO ₃	mg/L	07/03/2014	1.00	1.68	5.00	136
Bicarbonate (Calculated)	mg/L	07/03/2014	1.00	1.68	5.00	136
Carbonate (Calculated)	mg/L	07/03/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate

Lab ID = 815015-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	102	98.0	4.00	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	99.0	100	99.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	95.0	100	95.0	90 - 110

Matrix Spike

Lab ID = 815015-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	194	198(100)	96.0	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 5 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

Specific Conductivity - EPA 120.1

Batch 1407050

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815009-001 Specific Conductivity	umhos/cm	07/03/2014	1.00	0.606	2.00	4420
815009-002 Specific Conductivity	umhos/cm	07/03/2014	1.00	0.606	2.00	8180

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815006-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	14300	14300	0.140	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	740	706	105	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	740	706	105	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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

Chrome VI by EPA 218.6

Batch 1407054

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815009-001 Chromium, Hexavalent	ug/L	07/02/2014 13:20	1.00	0.00630	0.20	3.6
815009-002 Chromium, Hexavalent	ug/L	07/02/2014 13:30	50.0	0.315	10.0	720

Method Blank

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

Duplicate

Lab ID = 815009-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.57	3.58	0.235	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.197	0.200	98.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.96	5.00	99.2	90 - 110

Matrix Spike

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.14	5.15(5.00)	99.8	90 - 110

Matrix Spike

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.19	1.19(1.00)	100	90 - 110

Matrix Spike

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1070	1190(625)	80.8	90 - 110

Matrix Spike

Lab ID = 815006-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.41	5.87(5.00)	90.8	90 - 110

Matrix Spike

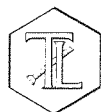
Lab ID = 815006-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.93	1.90(1.00)	102	90 - 110

Matrix Spike

Lab ID = 815009-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.55	8.58(5.00)	99.4	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 7 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

Matrix Spike

Lab ID = 815009-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1470	1470(750)	100	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	98.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

pH by SM 4500-H B

Batch 1407040

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815009-001 pH	pH	07/02/2014 16:18	1.00	0.0250	4.00	7.56 J
815009-002 pH	pH	07/02/2014 16:20	1.00	0.0250	4.00	7.33 J

Duplicate

Lab ID = 815014-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.32	7.40	1.09	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 8 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

Total Dissolved Solids by SM 2540 C

Batch 1407051

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815009-001 Total Dissolved Solids	mg/L	07/03/2014	1.00	1.76	125	2500
815009-002 Total Dissolved Solids	mg/L	07/03/2014	1.00	1.76	250	4970

Method Blank

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

Duplicate

Lab ID = 815012-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	696	750	7.47	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	511	500	102	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 9 of 16
Project Number: 428648.IM.CS.EX.AC
Printed 7/30/2014
Metals by EPA 200.8, Dissolved
Batch 071514B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815009-001 Chromium	ug/L	07/16/2014 00:20	2.00	0.142	1.0	3.7
Manganese	ug/L	07/16/2014 00:20	2.00	0.120	1.0	62.2
815009-002 Chromium	ug/L	07/16/2014 01:11	10.0	0.710	5.0	736
Manganese	ug/L	07/16/2014 01:05	2.00	0.120	1.0	7.1

Method Blank

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

Duplicate
Lab ID = 815009-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	3.68	3.68	0.0136	0 - 20
Manganese	ug/L	2.00	65.2	62.2	4.63	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.544	0.500	109	70 - 130
Manganese	ug/L	1.00	0.484	0.500	96.9	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.3	50.0	103	85 - 115
Manganese	ug/L	1.00	51.0	50.0	102	85 - 115

Matrix Spike
Lab ID = 815009-001

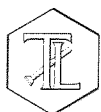
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.1	53.7(50.0)	94.9	75 - 125
Manganese	ug/L	2.00	119	112(50.0)	113	75 - 125

Matrix Spike Duplicate
Lab ID = 815009-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.6	53.7(50.0)	89.9	75 - 125
Manganese	ug/L	2.00	114	112(50.0)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.4	20.0	102	90 - 110
Manganese	ug/L	1.00	20.2	20.0	101	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 11 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

Serial Dilution

Lab ID = 815009-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	65.3	62.2	4.92	0 - 10

Serial Dilution

Lab ID = 815009-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	726	736	1.37	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 12 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

Metals by 200.7, Dissolved

Batch 071814A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815009-001 Calcium	ug/L	07/18/2014 13:00	100	1700	50000	106000
Iron	ug/L	07/18/2014 16:01	1.00	3.00	20.0	ND
Magnesium	ug/L	07/18/2014 14:33	5.00	2340	5000	22700
Sodium	ug/L	07/18/2014 13:00	100	5980	50000	805000
815009-002 Calcium	ug/L	07/18/2014 13:21	100	1700	50000	198000
Iron	ug/L	07/18/2014 15:37	1.00	3.00	20.0	ND
Magnesium	ug/L	07/18/2014 14:11	10.0	4680	10000	30000
Sodium	ug/L	07/18/2014 12:37	500	29900	250000	1570000

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 = 815009-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	198000	198000	0.202	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Sodium	ug/L	500	1560000	1570000	0.831	0 - 20
Magnesium	ug/L	10.0	29600	30000	1.51	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	2300	2000	115	85 - 115
Sodium	ug/L	1.00	2070	2000	103	85 - 115
Magnesium	ug/L	1.00	2050	2000	102	85 - 115

Matrix Spike

Lab ID = 815009-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	372000	398000(200000)	87.2	75 - 125
Iron	ug/L	1.00	1940	2000(2000)	96.8	75 - 125
Sodium	ug/L	500	2720000	2570000(1000000)	115	75 - 125
Magnesium	ug/L	10.0	45800	50000(20000)	79.2	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 13 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

Matrix Spike Duplicate

Lab ID = 815009-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2020	2000(2000)	101	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4860	5000	97.2	95 - 105
Iron	ug/L	1.00	5240	5000	105	95 - 105
Sodium	ug/L	1.00	4900	5000	97.9	95 - 105
Magnesium	ug/L	1.00	4960	5000	99.2	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4610	5000	92.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4750	5000	95.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5390	5000	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5260	5000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5480	5000	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5390	5000	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5490	5000	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4940	5000	98.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	5450	5000	109	90 - 110



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Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

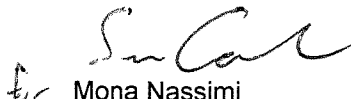
Page 16 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 7/30/2014

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services

**Total Dissolved Solids by SM 2540 C****Calculations**

Batch: **8/19/5749**
 Date Analyzed: **7/3/2014**

1407051

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	76.1726	76.1729	76.1727	0.0002	No	0.0001	1.0	25.0	ND	1
14F0420-01C	100	71.9505	71.9995	71.9995	0.0000	No	0.0490	490.0	25.0	490.0	1
14F0420-02B	100	66.8723	66.9252	66.9251	0.0001	No	0.0528	528.0	25.0	528.0	1
14G0016-08D	100	75.1457	75.2040	75.2039	0.0001	No	0.0582	582.0	25.0	582.0	1
915006-1 14G0026-01C	10	30.0515	30.0959	30.0959	0.0000	No	0.0444	4440.0	250.0	4440.0	1
-2 14G0026-02C	10	29.5359	29.5798	29.5796	0.0002	No	0.0437	4370.0	250.0	4370.0	1
-3 14G0026-03D	10	29.6285	29.7195	29.7194	0.0001	No	0.0909	9090.0	250.0	9090.0	1
915004-1 14G0038-01D	20	28.9287	28.9788	28.9788	0.0000	No	0.0501	2505.0	125.0	2505.0	1
-2 14G0038-02D	10	28.7600	28.8098	28.8097	0.0001	No	0.0497	4970.0	250.0	4970.0	1
14G0041-07A	100	72.0762	72.1169	72.1165	0.0004	No	0.0403	403.0	25.0	403.0	1
14F0420-01 Dup	100	62.6148	62.6637	62.6637	0.0000	No	0.0489	489.0	25.0	489.0	1
LCS	100	72.4748	72.5259	72.5259	0.0000	No	0.0511	511.0	25.0	511.0	1
14G0047-01B	100	75.2581	75.2838	75.2836	0.0002	No	0.0255	255.0	25.0	255.0	1
14G0058-01D	100	78.2386	78.2892	78.2891	0.0001	No	0.0505	505.0	25.0	505.0	1
14G0058-02D	100	69.1708	69.2243	69.2243	0.0000	No	0.0535	535.0	25.0	535.0	1
14G0061-01B	100	80.8525	80.9036	80.9035	0.0001	No	0.0510	510.0	25.0	510.0	1
14G0061-02B	100	77.0643	77.1153	77.1153	0.0000	No	0.0510	510.0	25.0	510.0	1
14G0061-03B	100	73.4309	73.4796	73.4792	0.0004	No	0.0483	483.0	25.0	483.0	1
14G0061-04B	100	68.7212	68.7685	68.7683	0.0002	No	0.0471	471.0	25.0	471.0	1
14G0083-17F	50	59.9005	59.9380	59.9380	0.0000	No	0.0375	750.0	50.0	750.0	1
14G0083-17 Dup	50	47.9454	47.9804	47.9802	0.0002	No	0.0348	696.0	50.0	696.0	1

Calculation as follows:

Filterable residue (TDS), mg/L =

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

Where:

A = weight of dish + residue in grams.
 B = weight of dish in grams.
 C = mL of sample filtered.

RL = reporting limit.
 ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	511.0	500	102.2%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14F0420-01	0.0490	0.0489	0.1%	≤5%	Yes
14G0083-17	0.0375	0.0348	3.7%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

1407051

Batch: ~~5445762~~

Date Analyzed: 7/3/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14F0420-01C	976	0.50	634.4	0.77
14F0420-02B	884	0.60	574.6	0.92
14G0016-08D	927	0.63	602.55	0.97
14G0026-01C	7520	0.59	4888	0.91
14G0026-02C	7380	0.59	4797	0.91
14G0026-03D	14300	0.64	9295	0.98
14G0038-01D	4420	0.57	2873	0.87
14G0038-02D	8170	0.61	5310.5	0.94
14G0041-07A	691	0.58	449.15	0.90
14F0420-01 Dup	976	0.50	634.4	0.77
LCS				
14G0047-01B	407	0.63	264.55	0.96
14G0058-01D	938	0.54	609.7	0.83
14G0058-02D	867	0.62	563.55	0.95
14G0061-01B	912	0.56	592.8	0.86
14G0061-02B	912	0.56	592.8	0.86
14G0061-03B	865	0.56	562.25	0.86
14G0061-04B	858	0.55	557.7	0.84
14G0083-17F	1261	0.59	819.65	0.92
14G0083-17 Dup	1261	0.55	819.65	0.85

[Handwritten signature]

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Alkalinity by SM 2320B

Analytical Batch:	1407087
Matrix:	WATER
Date of Analysis:	7/3/2014

[illegible]

Calculations as follows:

T or P =

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

Where:

T = Total Alkalinity, mg CaCO₃/L

P = Phenolphthalein Alkalinity, mg CaCO₃/L

A = mL standard acid used

N = normality of standard acid

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

as mg/L CaCO₃

Where: **B** = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	95	100	95.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
14G0041-	98	102	4.0%	≤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?
14G0041-01A	98	1	100	100	194	198.00	96%	75-125	Yes			
				0								

JENNINE

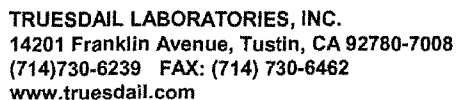
Analyst Printed Name

Analyst Signature

Maksim Gorbunov

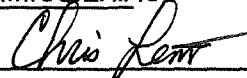
Reviewer Printed Name

Reviewer Signature



[IM3Plant-EW-220]

TURNAROUND TIME 10 Days
DATE 07/01/14 PAGE 1 OF 1

COMPANY				CH2M HILL /E2										COMMENTS		
PROJECT NAME				PG&E Topock IM3Plant-EW												
PHONE				530-229-3303					FAX 530-339-3303							
ADDRESS				155 Grand Ave Ste 1000 Oakland, CA 94612												
P.O. NUMBER				428648.IM.CS.EX.AC												
SAMPLERS (SIGNATURE)																
SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Cr, Mn (200.8) Lab filtered Cr(VI) (3500-Cr B) pH (150.0) EC (120.1) Cl, SO4, NO3 (300.0) TDS (160.1), Alk (SM2320B) Cr(VI) (218.6) Dis Ca, Mg, Na, Fe (200.7) Lab filtered										NUMBER OF CONTAINERS		
PE-01-220	07/01/14	10:00	Ground water	X		X	X	X	X						4	} pH = 6 (200.7)
TW-03D-220	07/01/14	10:00	Ground water	X	X	X	X		X						4	
ALERT !! Level III QC																
															8	TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL ☒ WARM ☐
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED YES ☐ NO ☐	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		

890

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
06/25/14	14F0377-01	9.5	N/A	N/A	N/A	NR
	-02					
	-03					
	-04					
	-05					
	-06					
✓	✓ -07	✓	✓	✓	✓	✓
6/26/14	14F0394-1	9.5	N/A	N/A	N/A	NR
	-2					
6/27/14	14F0395-01					
	-02					
	-03					
✓	✓ -04	✓	✓	✓	✓	✓
6/27/14	14F0404-1	9.5	N/A	N/A	N/A	NR
	-2					
	-3					
	-4					
	-5					
✓	✓ -6	✓	✓	✓	✓	✓
7/2/14	14G0026-1	7.0	2ml/100ml	9.5	8:00	NR
	-2					
	✓ -3					
	14G0038-1					
✓	✓ -2	✓	✓	✓	✓	✓

NR
7/11/14



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Metals

Turbidity/pH Check

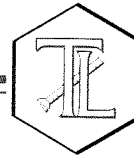
Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14G0169-2	>1	<2	7/11/14	ED	Y			
14G0170-6	↓	↓	↓	↓	↓			
14G0172-2	↓	↓	↓	↓	↓			
14G0173-2	↓	↓	↓	↓	↓			
14G0174-2	↓	↓	↓	↓	↓			
14G0175-1	↓	↓	↓	↓	↓			
14G0177-2	↓	↓	↓	↓	↓			
14G0026(1-3)	<1	72	7/14/14	ES	yes	9:08		pH < 2
14G0176	↓	↓	↓	↓	↓	↓		↓
14G0028(1-2)	↓	↓	↓	↓	↓	↓		Filtered then acidified
14G0215(1-3)	<1	<2	7/17/14	ES	yes			
14G0218	↓	↓	↓	↓	↓			
219	↓	↓	↓	↓	↓			
221-2	↓	↓	↓	↓	↓			
222-2	71	↓	↓	↓	↓			
223-2	↓	↓	↓	↓	↓			
224-1	↓	↓	↓	↓	↓			
225-2	↓	↓	↓	↓	↓			
226-2	↓	↓	↓	↓	↓			
232	<1	↓	↓	↓	↓			
234	71	↓	↓	↓	↓			
236-2	<1	↓	↓	↓	↓			
237-2	>1	↓	↓	↓	↓			
247(1-2)	↓	↓	↓	↓	↓			
252	<1	↓	↓	↓	↓			
14G0230(1-2)	<1	>2	7/18/14	ES	yes	10:00	7/21/14 10:00	pH < 2
(5-7.8)	↓	↓	↓	↓	↓	↓	↓	
14G0243(1-3)	↓	↓	↓	↓	↓	↓	↓	
14G0251(10-12)	↓	↓	↓	↓	↓	↓	↓	
14G0263	↓	↓	↓	↓	↓	↓	↓	
14G0298-5	<1	72	7/24/14	ES	no	10:00		
14G0312	<1	<2	7/27/14	ES	yes			
14G0316-1	>1	↓	↓	↓	↓			
14G0322-(1-3)	<1	72	↓	↓	no	10:00		
14G0288	↓	↓	↓	↓	yes			
14G0306-2	↓	↓	↓	↓	↓			
14G0307-2	↓	↓	↓	↓	↓			
14G0308-1	↓	↓	↓	↓	↓			
14G0309-2	↓	↓	↓	↓	↓			
14G0310-2	>1	↓	↓	↓	↓			
14G0320-2	↓	↓	↓	↓	↓			
14G0285	71	↓	↓	↓	↓			
14G0287-1	<1	↓	↓	↓	↓			
14G0293(1-2)	>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.

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Established 1931

September 2, 2014

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

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-221, GROUNDWATER MONITORING PROJECT, TLI NO.: 815024

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-221 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 August 5, 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 were analyzed and recorded in the raw data as SDG 14H0053 but are reported as SDG 815024 in all final report pages.

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.

Sample TW-03D-221 for Hexavalent Chromium was analyzed by method EPA 218.6 rather than SW 3500-Cr B as requested on the COC.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 428648.IM.CS.EX.AC

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

Laboratory No.: 815024

Date: September 2, 2014

Collected: August 5, 2014

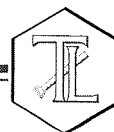
Received: August 5, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 4500-H B	pH	Jennine Ta
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Alex Luna
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

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

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

Attention: Shawn Duffy

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

Laboratory No.: 815024
Date Received: August 5, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815024-001	PE-01-221	E120.1	NONE	8/5/2014	14:45	EC	4320	umhos/cm	2.00
815024-001	PE-01-221	E200.7	LABFLT	8/5/2014	14:45	Calcium	112000	ug/L	50000
815024-001	PE-01-221	E200.7	LABFLT	8/5/2014	14:45	Iron	ND	ug/L	20.0
815024-001	PE-01-221	E200.7	LABFLT	8/5/2014	14:45	Magnesium	24400	ug/L	5000
815024-001	PE-01-221	E200.7	LABFLT	8/5/2014	14:45	Sodium	786000	ug/L	50000
815024-001	PE-01-221	E200.8	LABFLT	8/5/2014	14:45	Chromium	3.9	ug/L	1.0
815024-001	PE-01-221	E200.8	LABFLT	8/5/2014	14:45	Manganese	62.0	ug/L	1.0
815024-001	PE-01-221	E218.6	LABFLT	8/5/2014	14:45	Chromium, Hexavalent	3.7	ug/L	0.20
815024-001	PE-01-221	E300	NONE	8/5/2014	14:45	Chloride	1030	mg/L	100
815024-001	PE-01-221	E300	NONE	8/5/2014	14:45	Nitrate as N	ND	mg/L	0.500
815024-001	PE-01-221	E300	NONE	8/5/2014	14:45	Sulfate	385	mg/L	12.5
815024-001	PE-01-221	SM2320B	NONE	8/5/2014	14:45	Alkalinity	221	mg/L	5.00
815024-001	PE-01-221	SM2320B	NONE	8/5/2014	14:45	Alkalinity, Bicarbonate (As CaCO3)	221	mg/L	5.00
815024-001	PE-01-221	SM2320B	NONE	8/5/2014	14:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
815024-001	PE-01-221	SM2540C	NONE	8/5/2014	14:45	Total Dissolved Solids	2560	mg/L	125
815024-001	PE-01-221	SM4500HB	NONE	8/5/2014	14:45	PH	7.56 J	pH	4.00



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815024-002	TW-03D-221	E120.1	NONE	8/5/2014	14:45	EC	8020	umhos/cm	2.00
815024-002	TW-03D-221	E200.7	LABFLT	8/5/2014	14:45	Calcium	213000	ug/L	50000
815024-002	TW-03D-221	E200.7	LABFLT	8/5/2014	14:45	Iron	ND	ug/L	20.0
815024-002	TW-03D-221	E200.7	LABFLT	8/5/2014	14:45	Magnesium	30600	ug/L	5000
815024-002	TW-03D-221	E200.7	LABFLT	8/5/2014	14:45	Sodium	1620000	ug/L	250000
815024-002	TW-03D-221	E200.8	LABFLT	8/5/2014	14:45	Chromium	695	ug/L	5.0
815024-002	TW-03D-221	E200.8	LABFLT	8/5/2014	14:45	Manganese	7.5	ug/L	1.0
815024-002	TW-03D-221	E218.6	LABFLT	8/5/2014	14:45	Chromium, Hexavalent	704	ug/L	10.0
815024-002	TW-03D-221	E300	NONE	8/5/2014	14:45	Chloride	2370	mg/L	50.0
815024-002	TW-03D-221	E300	NONE	8/5/2014	14:45	Nitrate as N	3.42	mg/L	0.500
815024-002	TW-03D-221	E300	NONE	8/5/2014	14:45	Sulfate	536	mg/L	50.0
815024-002	TW-03D-221	SM2320B	NONE	8/5/2014	14:45	Alkalinity	154	mg/L	5.00
815024-002	TW-03D-221	SM2320B	NONE	8/5/2014	14:45	Alkalinity, Bicarbonate (As CaCO3)	154	mg/L	5.00
815024-002	TW-03D-221	SM2320B	NONE	8/5/2014	14:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
815024-002	TW-03D-221	SM2540C	NONE	8/5/2014	14:45	Total Dissolved Solids	4830	mg/L	250
815024-002	TW-03D-221	SM4500HB	NONE	8/5/2014	14:45	PH	7.38 J	pH	4.00

ND: Non Detected (below reporting limit)

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

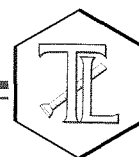
Results below 0.01 will have two (2) significant figures.

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

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

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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. 815024

Page 1 of 17

Printed 8/29/2014

Samples Received on 8/5/2014 7:15:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-221	815024-001	08/05/2014 14:45	Water
TW-03D-221	815024-002	08/05/2014 14:45	Water

Anions By I.C. - EPA 300.0

Batch 1408168

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 Chloride	mg/L	08/06/2014 13:39	1000	34.9	100	1030
Nitrate as Nitrogen	mg/L	08/06/2014 11:09	5.00	0.0954	0.500	ND
Sulfate	mg/L	08/06/2014 14:25	25.0	0.768	12.5	385
815024-002 Chloride	mg/L	08/06/2014 14:02	500	17.4	50.0	2370
Nitrate as Nitrogen	mg/L	08/06/2014 11:21	5.00	0.0954	0.500	3.42
Sulfate	mg/L	08/06/2014 12:18	100	3.07	50.0	536

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 = 815024-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	1000	1030	1030	0.338	0 - 20

Duplicate

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	524	536	2.21	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.

013



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

Duplicate

Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.33	2.38	1.95	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.63	2.66	0.982	0 - 20

Lab Control Sample

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	4.10	4.00	102	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	99.9	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.98	4.00	99.5	90 - 110

Matrix Spike

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	1000	3050	3030(2000)	101	85 - 115

Matrix Spike

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1560	1540(1000)	102	85 - 115

Matrix Spike

Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.6	22.4(20.0)	101	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.6	22.7(20.0)	99.9	85 - 115

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.95	4.00	98.8	90 - 110
Fluoride	mg/L	1.00	4.07	4.00	102	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	99.8	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.96	4.00	99.0	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

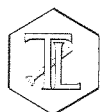
MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.02	3.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.92	3.00	97.2	90 - 110

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 4 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.92	3.00	97.5	90 - 110

Alkalinity by SM 2320B

Batch 1408166

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 Alkalinity as CaCO ₃	mg/L	08/11/2014	1.00	1.68	5.00	221
Bicarbonate (Calculated)	mg/L	08/11/2014	1.00	1.68	5.00	221
Carbonate (Calculated)	mg/L	08/11/2014	1.00	1.68	5.00	ND
815024-002 Alkalinity as CaCO ₃	mg/L	08/11/2014	1.00	1.68	5.00	154
Bicarbonate (Calculated)	mg/L	08/11/2014	1.00	1.68	5.00	154
Carbonate (Calculated)	mg/L	08/11/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate

Lab ID = 815031-021

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	98.0	96.0	2.06	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	99.0	100	99.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	99.0	100	99.0	90 - 110

Matrix Spike

Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	250	255(100)	95.0	75 - 125

Matrix Spike Duplicate

Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	249	255(100)	94.0	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 5 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

Specific Conductivity - EPA 120.1

Batch 1408050

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 Specific Conductivity	umhos/cm	08/07/2014	1.00	0.606	2.00	4320
815024-002 Specific Conductivity	umhos/cm	08/07/2014	1.00	0.606	2.00	8020

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815029-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	934	936	0.214	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	723	706	102	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	723	706	102	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


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 6 of 17
Project Number: 428648.IM.CS.EX.AC
Printed 8/29/2014
Chrome VI by EPA 218.6
Batch 1408052

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 Chromium, Hexavalent	ug/L	08/06/2014 11:32	1.00	0.00600	0.20	3.7
815024-002 Chromium, Hexavalent	ug/L	08/06/2014 12:01	50.0	0.300	10.0	704

Method Blank

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

Duplicate
Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.72	3.71	0.137	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.208	0.200	104	70 - 130

Lab Control Sample

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

Matrix Spike
Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.41	8.71(5.00)	93.9	90 - 110

Matrix Spike
Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1430	1080(375)	194	90 - 110

Matrix Spike
Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.02	5.16(5.00)	97.2	90 - 110

Matrix Spike
Lab ID = 815025-001

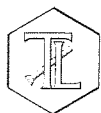
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.17	1.15(1.00)	102	90 - 110

Matrix Spike
Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1160	1170(625)	98.1	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.17	5.00	103	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 7 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.99	10.0	99.9	95 - 105

pH by SM 4500-H B

Batch 1408086

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 pH	pH	08/06/2014 12:50	1.00	0.0250	4.00	7.56
815024-002 pH	pH	08/06/2014 12:52	1.00	0.0250	4.00	7.38

Duplicate

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.42	7.38	0.540	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	7.10	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



Client: E2 Consulting Engineers, Inc.

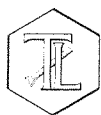
Project Name: PG&E Topock Project

Page 8 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

Total Dissolved Solids by SM 2540 C			Batch 1408065				
Parameter		Unit	Analyzed	DF	MDL	RL	Result
815024-001 Total Dissolved Solids		mg/L	08/06/2014	1.00	1.76	125	2560
815024-002 Total Dissolved Solids		mg/L	08/06/2014	1.00	1.76	250	4830
Method Blank							
Parameter	Unit	DF	Result				
Total Dissolved Solids	mg/L	1.00	ND				
Duplicate						Lab ID = 815025-002	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range	
Total Dissolved Solids	mg/L	1.00	4370	4300	1.61	0 - 110	
Duplicate						Lab ID = 815029-002	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range	
Total Dissolved Solids	mg/L	1.00	491	492	0.203	0 - 10	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Total Dissolved Solids	mg/L	1.00	495	500	99.0	90 - 110	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 9 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

Metals by EPA 200.8, Dissolved

Batch 082014B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 Chromium	ug/L	08/20/2014 20:29	1.00	0.0710	1.0	3.9
815024-002 Chromium	ug/L	08/20/2014 21:27	10.0	0.710	5.0	695

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	3.86	3.90	1.16	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.627	0.500	125	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	43.6	50.0	87.1	85 - 115

Matrix Spike

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.4	53.9(50.0)	89.0	75 - 125

Matrix Spike Duplicate

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	45.7	53.9(50.0)	83.6	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.3	20.0	91.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.0	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 10 of 17****Project Number: 428648.IM.CS.EX.AC****Printed 8/29/2014****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	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	19.4	20.0	97.0	80 - 120

Serial Dilution

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	751	695	7.70	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 11 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

Metals by EPA 200.8, Dissolved

Batch 082114A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 Manganese	ug/L	08/21/2014 17:28	2.00	0.120	1.0	62.0
815024-002 Manganese	ug/L	08/21/2014 18:13	1.00	0.0600	1.0	7.5

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	62.1	62.0	0.198	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.454	0.500	90.8	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	108	112(50.0)	92.5	75 - 125

Matrix Spike Duplicate

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	108	112(50.0)	92.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.9	20.0	94.3	90 - 110

MRCVS - Primary

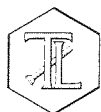
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.2	20.0	96.2	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 12 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

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	19.7	20.0	98.6	80 - 120

Interference Check Standard AB

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

Serial Dilution

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	61.1	62.0	1.39	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 13 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

Metals by 200.7, Dissolved

Batch 082114A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 Calcium	ug/L	08/21/2014 14:09	100	1700	50000	112000
Iron	ug/L	08/21/2014 15:36	1.00	3.00	20.0	ND
Magnesium	ug/L	08/21/2014 14:48	5.00	2340	5000	24400
815024-002 Calcium	ug/L	08/21/2014 13:49	100	1700	50000	213000
Iron	ug/L	08/21/2014 15:16	1.00	3.00	20.0	ND
Magnesium	ug/L	08/21/2014 14:27	5.00	2340	5000	30600

Method Blank

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

Duplicate

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	210000	213000	1.37	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Magnesium	ug/L	5.00	31600	30600	3.31	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2080	2000	104	85 - 115
Iron	ug/L	1.00	2130	2000	106	85 - 115
Magnesium	ug/L	1.00	2240	2000	112	85 - 115

Matrix Spike

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	422000	413000(200000)	104	75 - 125
Iron	ug/L	1.00	1750	2000(2000)	87.6	75 - 125
Magnesium	ug/L	5.00	38600	40600(10000)	79.8	75 - 125

Matrix Spike Duplicate

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1800	2000(2000)	89.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4910	5000	98.1	95 - 105
Iron	ug/L	1.00	5170	5000	103	95 - 105
Magnesium	ug/L	1.00	5020	5000	100	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC

Page 16 of 17
Printed 8/29/2014

Metals by 200.7, Dissolved

Batch 082214A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815024-001 Sodium	ug/L	08/22/2014 13:57	100	5980	50000	786000
815024-002 Sodium	ug/L	08/22/2014 13:35	500	29900	250000	1620000

Method Blank

Parameter	Unit	DF	Result
Sodium	ug/L	1.00	ND

Duplicate

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	ug/L	500	1530000	1620000	5.98	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2150	2000	108	85 - 115

Matrix Spike

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	ug/L	500	2580000	2620000(100000	96.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4920	5000	98.3	95 - 105

MRCVS - Primary

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1920	2000	96.2	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	1960	2000	97.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2000	2000	99.9	80 - 120



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 17 of 17

Project Number: 428648.IM.CS.EX.AC

Printed 8/29/2014

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

**Total Dissolved Solids by SM 2540 C****Calculations**Batch: 1408065
Date Analyzed: 8/6/2014

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	72.4114	72.4119	72.4119	0.0000	No	0.0005	5.0	25.0	ND	1
14H0013-01D	100	74.5062	74.5551	74.5551	0.0000	No	0.0489	489.0	25.0	489.0	1
14H0013-02D	100	77.7649	77.8141	77.8141	0.0000	No	0.0492	492.0	25.0	492.0	1
14H0053-01A	20	29.2564	29.3075	29.3075	0.0000	No	0.0511	2555.0	125.0	2555.0	1
14H0053-02A	10	31.2436	31.2923	31.2919	0.0004	No	0.0483	4830.0	250.0	4830.0	1
14H0054-01A	10	28.8161	28.8599	28.8599	0.0000	No	0.0438	4380.0	250.0	4380.0	1
14H0054-02A	10	28.9676	29.0106	29.0106	0.0000	No	0.0430	4300.0	250.0	4300.0	1
14H0065-01B	100	74.7231	74.7510	74.7509	0.0001	No	0.0278	278.0	25.0	278.0	1
14H0069-01C	100	75.2617	75.3123	75.3122	0.0001	No	0.0505	505.0	25.0	505.0	1
14H0069-02C	100	67.0255	67.0751	67.0751	0.0000	No	0.0496	496.0	25.0	496.0	1
14H0069-03C	100	76.2612	76.3133	76.3129	0.0004	No	0.0517	517.0	25.0	517.0	1
14H0013-02 Dup	100	74.3734	74.4225	74.4225	0.0000	No	0.0491	491.0	25.0	491.0	1
LCS	100	75.2695	75.3194	75.3190	0.0004	No	0.0495	495.0	25.0	495.0	1
14H0069-04C	100	70.3714	70.4239	70.4237	0.0002	No	0.0523	523.0	25.0	523.0	1
14H0075-07	100	76.1625	76.1992	76.1992	0.0000	No	0.0367	367.0	25.0	367.0	1
14H0076-01D	100	74.0234	74.0736	74.0736	0.0000	No	0.0502	502.0	25.0	502.0	1
14H0076-02D	100	76.0208	76.0692	76.0692	0.0000	No	0.0484	484.0	25.0	484.0	1
14H0077-01E	100	75.2735	75.3308	75.3308	0.0000	No	0.0573	573.0	25.0	573.0	1
14H0054-02 Dup	10	29.5560	29.5997	29.5997	0.0000	No	0.0437	4370.0	250.0	4370.0	1

Calculation as follows:

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

Where:

A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.

RL = reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	495.0	500	99.0%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14H0013-02	0.0492	0.0491	0.1%	≤5%	Yes
14H0054-02	0.0430	0.0437	0.8%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 1408065
Date Analyzed: 8/6/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14H0013-01D	934	0.52	607.1	0.81
14H0013-02D	892	0.55	579.8	0.85
14H0053-01A	4320	0.59	2808	0.91
14H0053-02A	8020	0.60	5213	0.93
14H0054-01A	7340	0.60	4771	0.92
14H0054-02A	7250	0.59	4712.5	0.91
14H0065-01B	471	0.59	306.15	0.91
14H0069-01C	939	0.54	610.35	0.83
14H0069-02C	939	0.53	610.35	0.81
14H0069-03C	942	0.55	612.3	0.84
14H0013-02 Dup	892	0.55	579.8	0.85
LCS				
14H0069-04C	941	0.56	611.65	0.86
14H0075-07	655	0.56	425.75	0.86
14H0076-01D	953	0.53	619.45	0.81
14H0076-02D	868	0.56	564.2	0.86
14H0077-01E	920	0.62	598	0.96
14H0054-02 Dup	7250	0.60	4712.5	0.93

Handwritten signature



Analytical Batch:	1408166
Matrix:	WATER
Date of Analysis:	8/11/2014

[illegible]

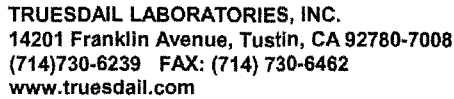
Reporting Limit, RL	Measured Value, ppm	Accept Limit	QC Within Control?
5 ppm	0	<5	Yes

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	99	100	99.0%	90-110	Yes

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
14H0101-	96	98	2.1%	≤20%	Yes

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?
14H0054-02	155	1	100	100	250	255.00	95%	75-125	Yes	0.2%	≤20%	Yes
	155	1	100	100	249	255.00	94%		Yes			

Reviewer Signature _____



[IM3Plant-EW-221]

TURNAROUND TIME 10 Days
DATE 08/05/14 PAGE 1 OF 1

[illegible]

Signature (Relinquished)	<i>Chris R.</i>	Printed Name	CHRIS LEM	Company/ Agency	CH2M HILL	Date/ Time	8-5-14 15:15
Signature (Received)	<i>Thanh Ngo</i>	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	8-5-14
Signature (Relinquished)	<i>Thanh Ngo</i>	Printed Name	THANH NGO	Company/ Agency		Date/ Time	8-5-14 19:15
Signature (Received)	<i>Ms. S</i>	Printed Name	Kurtis Gorbunov	Company/ Agency	Truesdail	Date/ Time	8/5/14 19:15
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time	
Signature (Received)		Printed Name		Company/ Agency		Date/ Time	

RECEIVED COOL ☒ WARM ☐ 3.9 °K

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:



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
14H0093(1-3)	<1	>2	8/7/14	ES	NO	2:00	8/8/14 10:00	pH <2
14H0102-01	>1	<2	8/11/14	ES	YES			
14H0110-01	>1	<2						
14H0111-02	↓							
14H0119-01	↓							
14H0120-01	<1							
14H0121-01	<1							
14H0122-01	<1							
14H0125-01	>1							
14H0130-01								
14H0131-01								
14H0132-01								
14H0133-01	<1	>2			NO	3:30 pm		
14H0136(1-2)	↓	↓		↓	YES			
14H0101(17-2)	<1	>2	8/11/14	ES	NO	3:30 pm		
14H0148-01	>1	<2	8/13/14	ES	YES			
14H0158-01								
14H0161-02								
14H0162-02								
14H0168-02								
14H0169-02								
14H0170-02								
14H0171-02	↓	↓		↓	↓			
14H0188(1-2)	>1	<2	8/15/14	ES	YES			
14H0213-01								
14H0214-01								
14H0215-01								
14H0216-01								
14H0217-01								
14H0218-02								
14H0227-01								
14H0093(1-3)	<1	>2	8/18/14	ES	NO	9:00	8/19/14 10:00	pH <2
14H0143-6								
14H0166(1-3)								
14H0167(1-2)								
14H0167(10-12)								
14H0054(1-2)	<1	>2	8/20/14	ES	YES	10:00		pH <2
14H0174-01								
14H0243-01								
14H0054-2						11:00		Filtered thru acid
14H0053(1-2)	↓	↓		↓	↓	↓		↓
14H0269-0	>1	>2	8/20/14	ES	YES	11:00		
14H0233-01	<1	<2						
14H0234-01	↓	↓		↓	↓	↓		

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.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

September 25, 2014

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

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-222, GROUNDWATER MONITORING
PROJECT, TLI NO.: 815038

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-222 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 September 2, 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 were analyzed and recorded in the raw data as SDG 14I0023 but are reported as SDG 815038 in all final report pages.

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.

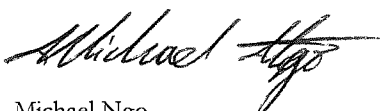
Sample TW-03D-222 for Hexavalent Chromium was analyzed by method EPA 218.6 rather than SW 3500-Cr B as requested on the COC.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 428648.IM.CS.EX.AC

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
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Laboratory No.: 815038

Date: September 25, 2014

Collected: September 2, 2014

Received: September 2, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 4500-H B	pH	Jennine Ta
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Jennine Ta
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

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

Attention: Shawn Duffy

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

Laboratory No.: 815038
Date Received: September 2, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815038-001	PE-01-222	E120.1	NONE	9/2/2014	13:30	EC	4260	umhos/cm	2.00
815038-001	PE-01-222	E200.7	LABFLT	9/2/2014	13:30	Calcium	104000	ug/L	50000
815038-001	PE-01-222	E200.7	LABFLT	9/2/2014	13:30	Iron	ND	ug/L	20.0
815038-001	PE-01-222	E200.7	LABFLT	9/2/2014	13:30	Magnesium	21000	ug/L	2000
815038-001	PE-01-222	E200.7	LABFLT	9/2/2014	13:30	Sodium	848000	ug/L	50000
815038-001	PE-01-222	E200.8	LABFLT	9/2/2014	13:30	Chromium	4.0	ug/L	1.0
815038-001	PE-01-222	E200.8	LABFLT	9/2/2014	13:30	Manganese	61.6	ug/L	1.0
815038-001	PE-01-222	E218.6	LABFLT	9/2/2014	13:30	Chromium, Hexavalent	3.8	ug/L	0.20
815038-001	PE-01-222	E300	NONE	9/2/2014	13:30	Chloride	1140	mg/L	50.0
815038-001	PE-01-222	E300	NONE	9/2/2014	13:30	Nitrate as N	ND	mg/L	0.500
815038-001	PE-01-222	E300	NONE	9/2/2014	13:30	Sulfate	387	mg/L	25.0
815038-001	PE-01-222	SM2320B	NONE	9/2/2014	13:30	Alkalinity	215	mg/L	5.00
815038-001	PE-01-222	SM2320B	NONE	9/2/2014	13:30	Alkalinity, Bicarbonate (As CaCO3)	215	mg/L	5.00
815038-001	PE-01-222	SM2320B	NONE	9/2/2014	13:30	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
815038-001	PE-01-222	SM2540C	NONE	9/2/2014	13:30	Total Dissolved Solids	2610	mg/L	125
815038-001	PE-01-222	SM4500HB	NONE	9/2/2014	13:30	PH	7.53 J	pH	4.00

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815038-002	TW-03D-222	E120.1	NONE	9/2/2014	13:30	EC	8070	umhos/cm	2.00
815038-002	TW-03D-222	E200.7	LABFLT	9/2/2014	13:30	Calcium	211000	ug/L	50000
815038-002	TW-03D-222	E200.7	LABFLT	9/2/2014	13:30	Iron	ND	ug/L	20.0
815038-002	TW-03D-222	E200.7	LABFLT	9/2/2014	13:30	Magnesium	28300	ug/L	10000
815038-002	TW-03D-222	E200.7	LABFLT	9/2/2014	13:30	Sodium	1640000	ug/L	250000
815038-002	TW-03D-222	E200.8	LABFLT	9/2/2014	13:30	Chromium	729	ug/L	5.0
815038-002	TW-03D-222	E200.8	LABFLT	9/2/2014	13:30	Manganese	7.1	ug/L	1.0
815038-002	TW-03D-222	E218.6	LABFLT	9/2/2014	13:30	Chromium, Hexavalent	703	ug/L	10.0
815038-002	TW-03D-222	E300	NONE	9/2/2014	13:30	Chloride	2360	mg/L	50.0
815038-002	TW-03D-222	E300	NONE	9/2/2014	13:30	Nitrate as N	3.26	mg/L	0.500
815038-002	TW-03D-222	E300	NONE	9/2/2014	13:30	Sulfate	525	mg/L	12.5
815038-002	TW-03D-222	SM2320B	NONE	9/2/2014	13:30	Alkalinity	134	mg/L	5.00
815038-002	TW-03D-222	SM2320B	NONE	9/2/2014	13:30	Alkalinity, Bicarbonate (As CaCO3)	134	mg/L	5.00
815038-002	TW-03D-222	SM2320B	NONE	9/2/2014	13:30	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
815038-002	TW-03D-222	SM2540C	NONE	9/2/2014	13:30	Total Dissolved Solids	5150	mg/L	250
815038-002	TW-03D-222	SM4500HB	NONE	9/2/2014	13:30	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:

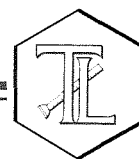
Results below 0.01 will have two (2) significant figures.

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

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

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www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 428648.IM.CS.EX.AC

P.O. Number: PGEIM1111100

Release Number:

Laboratory No. 815038

Page 1 of 15

Printed 9/25/2014

Samples Received on 9/2/2014 7:25:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-222	815038-001	09/02/2014 13:30	Water
TW-03D-222	815038-002	09/02/2014 13:30	Water

Anions By I.C. - EPA 300.0

Batch 1409089

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 Chloride	mg/L	09/03/2014 13:46	500	17.4	50.0	1140
Nitrate as Nitrogen	mg/L	09/03/2014 11:06	5.00	0.0415	0.500	ND
Sulfate	mg/L	09/03/2014 12:15	50.0	1.54	25.0	387
815038-002 Chloride	mg/L	09/03/2014 14:20	500	17.4	50.0	2360
Nitrate as Nitrogen	mg/L	09/03/2014 11:18	5.00	0.0415	0.500	3.26
Sulfate	mg/L	09/03/2014 13:12	25.0	0.768	12.5	525

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 = 815038-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	500	1020	1140	11.0	0 - 20
Sulfate	mg/L	50.0	384	387	0.722	0 - 20

Duplicate

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.16	2.23	3.28	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.69	2.74	1.88	0 - 20

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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 15

Project Number: 428648.IM.CS.EX.AC

Printed 9/25/2014

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.94	4.00	98.4	90 - 110
Fluoride	mg/L	1.00	4.09	4.00	102	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

Matrix Spike

Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	500	3110	3140(2000)	98.6	85 - 115
Sulfate	mg/L	50.0	880	887(500)	98.7	85 - 115

Matrix Spike

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.6	22.2(20.0)	102	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.2	22.7(20.0)	102	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.97	4.00	99.2	90 - 110
Fluoride	mg/L	1.00	4.10	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.01	3.00	100	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	3.00	3.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.07	3.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.13	3.00	104	90 - 110

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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 4 of 15

Project Number: 428648.IM.CS.EX.AC

Printed 9/25/2014

Alkalinity by SM 2320B

Batch 1409068

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 Alkalinity as CaCO ₃	mg/L	09/04/2014	1.00	1.68	5.00	215
Bicarbonate (Calculated)	mg/L	09/04/2014	1.00	1.68	5.00	215
Carbonate (Calculated)	mg/L	09/04/2014	1.00	1.68	5.00	ND
815038-002 Alkalinity as CaCO ₃	mg/L	09/04/2014	1.00	1.68	5.00	134
Bicarbonate (Calculated)	mg/L	09/04/2014	1.00	1.68	5.00	134
Carbonate (Calculated)	mg/L	09/04/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate

Lab ID = 815050-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	121	120	0.830	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 5 of 15

Project Number: 428648.IM.CS.EX.AC

Printed 9/25/2014

Specific Conductivity - EPA 120.1

Batch 1409041

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 Specific Conductivity	umhos/cm	09/04/2014	1.00	0.606	2.00	4260
815038-002 Specific Conductivity	umhos/cm	09/04/2014	1.00	0.606	2.00	8070

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815046-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	859	854	0.584	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	717	706	102	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	717	706	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	997	1000	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	997	1000	99.7	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 15

Project Number: 428648.IM.CS.EX.AC

Printed 9/25/2014

Chrome VI by EPA 218.6

Batch 1409026

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 Chromium, Hexavalent	ug/L	09/03/2014 12:07	1.00	0.00600	0.20	3.8
815038-002 Chromium, Hexavalent	ug/L	09/03/2014 12:48	50.0	0.300	10.0	703

Method Blank

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

Duplicate

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	702	703	0.123	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.09	5.00	102	90 - 110

Matrix Spike

Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.45	8.80(5.00)	93.1	90 - 110

Matrix Spike

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1430	1450(750)	96.7	90 - 110

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.99	5.13(5.00)	97.3	90 - 110

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.13	1.13(1.00)	99.6	90 - 110

Matrix Spike

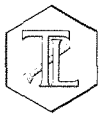
Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1180	1190(625)	98.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.12	5.00	102	90 - 110

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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 7 of 15

Project Number: 428648.IM.CS.EX.AC

Printed 9/25/2014

MRCVS - Primary

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

MRCVS - Primary

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

pH by SM 4500-H B

Batch 1409029

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 pH	pH	09/03/2014 10:47	1.00	0.0250	4.00	7.53 J
815038-002 pH	pH	09/03/2014 10:49	1.00	0.0250	4.00	7.41 J

Duplicate

Lab ID = 815049-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.44	7.40	0.539	0 - 20

Lab Control Sample

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

MRCVS - Primary

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

Total Dissolved Solids by SM 2540 C

Batch 1408374

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 Total Dissolved Solids	mg/L	09/03/2014	1.00	1.76	125	2610
815038-002 Total Dissolved Solids	mg/L	09/03/2014	1.00	1.76	250	5150

Method Blank

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

Duplicate

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4540	4520	0.442	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	511	500	102	90 - 110

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Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 8 of 15
Project Number: 428648.IM.CS.EX.AC
Printed 9/25/2014
Metals by EPA 200.8, Dissolved

Batch 090814B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 Chromium	ug/L	09/08/2014 17:20	2.00	0.142	1.0	4.0
Manganese	ug/L	09/08/2014 17:20	2.00	0.120	1.0	61.6
815038-002 Chromium	ug/L	09/08/2014 18:12	10.0	0.710	5.0	729
Manganese	ug/L	09/08/2014 18:05	2.00	0.120	1.0	7.1

Method Blank

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

Duplicate

Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	3.76	4.02	6.60	0 - 20
Manganese	ug/L	2.00	60.4	61.6	1.97	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.527	0.500	105	70 - 130
Manganese	ug/L	1.00	0.509	0.500	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.5	50.0	97.0	85 - 115
Manganese	ug/L	1.00	47.1	50.0	94.2	85 - 115

Matrix Spike

Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.9	54.0(50.0)	95.8	75 - 125
Manganese	ug/L	2.00	110	112(50.0)	97.3	75 - 125

Matrix Spike Duplicate

Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.7	54.0(50.0)	89.4	75 - 125
Manganese	ug/L	2.00	105	112(50.0)	87.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	103	90 - 110
Manganese	ug/L	1.00	20.0	20.0	100	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 10 of 15

Project Number: 428648.IM.CS.EX.AC

Printed 9/25/2014

Serial Dilution

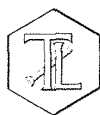
Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	62.5	61.6	1.49	0 - 10

Serial Dilution

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	722	729	1.01	0 - 10


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 11 of 15
Project Number: 428648.IM.CS.EX.AC
Printed 9/25/2014
Metals by 200.7, Dissolved

Batch 090914B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 Calcium	ug/L	09/09/2014 15:45	100	1700	50000	104000
Iron	ug/L	09/09/2014 17:02	1.00	3.00	20.0	ND
Magnesium	ug/L	09/09/2014 16:11	2.00	0.936	2000	21000
815038-002 Calcium	ug/L	09/09/2014 15:12	100	1700	50000	211000
Iron	ug/L	09/09/2014 16:41	1.00	3.00	20.0	ND
Magnesium	ug/L	09/09/2014 15:50	10.0	4.68	10000	28300

Method Blank

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

Duplicate

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	213000	211000	0.755	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Magnesium	ug/L	10.0	29000	28300	2.41	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2040	2000	102	85 - 115
Iron	ug/L	1.00	2110	2000	105	85 - 115
Magnesium	ug/L	1.00	2040	2000	102	85 - 115

Matrix Spike

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	409000	411000(200000)	98.8	75 - 125
Iron	ug/L	1.00	1660	2000(2000)	83.0	75 - 125
Magnesium	ug/L	10.0	46000	48300(20000)	88.6	75 - 125

Matrix Spike Duplicate

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1650	2000(2000)	82.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4810	5000	96.1	95 - 105
Iron	ug/L	1.00	5070	5000	101	95 - 105
Magnesium	ug/L	1.00	4960	5000	99.2	95 - 105

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Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 14 of 15

Project Number: 428648.IM.CS.EX.AC

Printed 9/25/2014

Metals by 200.7, Dissolved

Batch 091214A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815038-001 Sodium	ug/L	09/12/2014 14:24	100	5980	50000	848000
815038-002 Sodium	ug/L	09/12/2014 14:01	500	29900	250000	1640000

Method Blank

Parameter	Unit	DF	Result
Sodium	ug/L	1.00	ND

Duplicate

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	ug/L	500	1660000	1640000	1.03	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2100	2000	105	85 - 115

Matrix Spike

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	ug/L	500	2660000	2640000(100000C	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	5140	5000	103	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	5240	5000	105	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2140	2000	107	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2010	2000	100	80 - 120

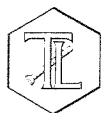
Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2150	2000	108	80 - 120

Interference Check Standard AB

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

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Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 15 of 15

Project Number: 428648.IM.CS.EX.AC

Printed 9/25/2014

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


to, Mona Nassimi
Manager, Analytical Services

**Total Dissolved Solids by SM 2540 C****Calculations**Batch: 1408374
Date Analyzed: 9/3/2014

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	51.4354	51.4354	51.4354	0.0000	No	0.0000	0.0	25.0	ND	1
14H0392-01D	100	76.7800	76.8315	76.8315	0.0000	No	0.0515	515.0	25.0	515.0	1
14H0392-02	100	78.2840	78.3351	78.3349	0.0002	No	0.0509	509.0	25.0	509.0	1
14H0395-01B	100	77.4755	77.5250	77.5247	0.0003	No	0.0492	492.0	25.0	492.0	1
14H0395-02	100	75.7363	75.7865	75.7864	0.0001	No	0.0501	501.0	25.0	501.0	1
14H0395-03	100	76.5244	76.5730	76.5728	0.0002	No	0.0484	484.0	25.0	484.0	1
14H0395-04	100	79.1455	79.1951	79.1950	0.0001	No	0.0495	495.0	25.0	495.0	1
14H0399-01G	100	72.7521	72.7948	72.7945	0.0003	No	0.0424	424.0	25.0	424.0	1
14I0016-14D	100	74.6970	74.7565	74.7564	0.0001	No	0.0594	594.0	25.0	594.0	1
14I0023-01B	20	28.7553	28.8076	28.8075	0.0001	No	0.0522	2610.0	125.0	2610.0	1
14I0023-02	10	28.5927	28.6443	28.6442	0.0001	No	0.0515	5150.0	250.0	5150.0	1
14H0399-01G Du	100	66.7811	66.8245	66.8243	0.0002	No	0.0432	432.0	25.0	432.0	1
LCS	100	66.6903	66.7415	66.7414	0.0001	No	0.0511	511.0	25.0	511.0	1
14I0024-01C	10	29.3556	29.4007	29.4004	0.0003	No	0.0448	4480.0	250.0	4480.0	1
14I0024-02E	10	29.3294	29.3746	29.3746	0.0000	No	0.0452	4520.0	250.0	4520.0	1
14I0040-07A	100	68.5296	68.5912	68.5912	0.0000	No	0.0616	616.0	25.0	616.0	1
14I0050-01D	100	67.0188	67.0666	67.0664	0.0002	No	0.0476	476.0	25.0	476.0	1
14I0050-02	100	75.2667	75.3153	75.3153	0.0000	No	0.0486	486.0	25.0	486.0	1
14I0055-01C	100	68.1039	68.1535	68.1535	0.0000	No	0.0496	496.0	25.0	496.0	1
14I0055-02	100	74.0194	74.0696	74.0696	0.0000	No	0.0502	502.0	25.0	502.0	1
14I0055-03	100	75.7399	75.7878	75.7875	0.0003	No	0.0476	476.0	25.0	476.0	1
14I0055-04	100	79.4926	79.5410	79.5409	0.0001	No	0.0483	483.0	25.0	483.0	1
14I0024-02 Dup	10	29.4776	29.5233	29.5230	0.0003	No	0.0454	4540.0	250.0	4540.0	1

Calculation as follows:

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

Where:

A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.

RL = reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	511.0	500	102.2%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14H0399-01G	0.0424	0.0432	0.9%	≤5%	Yes
14I0024-02	0.0452	0.0454	0.2%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

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: 1408374
Date Analyzed: 9/3/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14H0392-01D	952	0.54	618.8	0.83
14H0392-02	843	0.60	547.95	0.93
14H0395-01B	873	0.56	567.45	0.87
14H0395-02	867	0.58	563.55	0.89
14H0395-03	867	0.56	563.55	0.86
14H0395-04	846	0.59	549.9	0.90
14H0399-01G	674	0.63	438.1	0.97
14I0016-14D	920	0.65	598	0.99
14I0023-01B	4260	0.61	2769	0.94
14I0023-02	8070	0.64	5245.5	0.98
14H0399-01G Dup	674	0.64	438.1	0.99
LCS				
14I0024-01C	7250	0.62	4712.5	0.95
14I0024-02E	7260	0.62	4719	0.96
14I0040-07A	828	0.74	538.2	1.14
14I0050-01D	880	0.54	572	0.83
14I0050-02	824	0.59	535.6	0.91
14I0055-01C	897	0.55	583.05	0.85
14I0055-02	890	0.56	578.5	0.87
14I0055-03	851	0.56	553.15	0.86
14I0055-04	854	0.57	555.1	0.87
14I0024-02 Dup	7260	0.63	4719	0.96





Analytical Batch:	1409068
Matrix:	WATER
Date of Analysis:	9/4/2014

[illegible]

T or P =

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

Where:

T = Total Alkalinity, mg CaCO₃/L

P = Phenolphthalein Alkalinity, mg CaCO₃/L

A = mL standard acid used

N = normality of standard acid

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

as mg/L CaCO₃

Where: **B** = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	110	100	110.0%	90-110	Yes
LCSD	100	100	100.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
1410040-01A	120	121	0.8%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
				0								
				0								

Jennine T. ~~ALEX~~

Analyst Printed Name

Analyst Signature

Maksim Gorbunov

Reviewer Printed Name _____

Reviewer Signature _____

CHAIN OF CUSTODY RECORD

TURNAROUND TIME 10 Days
DATE 09/02/14 PAGE 1 OF 1

[illegible]

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL ☒ WARM ☐
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED	YES ☐ NO ☒
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		

067



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
14H0375-01	<1	72	9/3/14	ES	Yes	1:00		
14H0376-01	↓	↓	↓	↓	↓	↓		
TOTAL 14I0024 (01-02)	↓	↓	↓	↓	↓	↓		
14I0023 (01-02)	↓	↓	↓	↓	↓	↓		Filtered then acidify
Digested 14I0024-02	↓	↓	↓	↓	↓	↓		↓
14I0085-(70-12)	<1	>2	9/5/14	rm	No	11:20	9/9/14 @ 10:00	pH <2
14I0088-(61-04)	<1	>2	↓	↓	↓	↓	↓	↓
14I0089-(17-24)	<1	>2	↓	↓	↓	↓	↓	↓
14I0040-(04-08)	<1	>2	9/5/14	rm	No	2:10 pm		
14I0039-02	>1	<2	↓	↓	yes	N/A		
14I0041-01	↓	<2	↓	↓	↓	↓		
14I0043-02	↓	↓	↓	↓	↓	↓		
14I0044-02	↓	↓	↓	↓	↓	↓		
14I0045-02	↓	↓	↓	↓	↓	↓		
14I0046-02	↓	↓	↓	↓	↓	↓		
14I0050-(01-02)	↓	↓	↓	↓	↓	↓		
14I0052-02	↓	↓	↓	↓	↓	↓		
14I0059-01	↓	↓	↓	↓	↓	↓		
14I0075-02	↓	↓	↓	↓	↓	↓		
14I0083-04	↓	↓	↓	↓	↓	↓		
14I0090-01	↓	↓	↓	↓	↓	↓		
14I0091-01	↓	↓	↓	↓	↓	↓		
14I0072-01	>1	<2	9/9/14	rm	yes	N/A		
14I0093-01	>1	<2	↓	↓	↓	↓		
14I0114-01	↓	↓	↓	↓	↓	↓		
14I0117-(01-02)	↓	↓	↓	↓	↓	↓		
14I0123-06	<1	>2	↓	↓	No	↓	rm 9/10/14	
14I0126-01	>1	↓	↓	↓	↓	↓	rm 9/10/14	
14I0127-02	↓	<2	↓	↓	yes	↓		
14I0128-02	↓	↓	↓	↓	↓	↓		
14I0129-02	↓	↓	↓	↓	↓	↓		
14I0130-01	↓	↓	↓	↓	↓	↓		
14I0123-06	<1	>2	9/10/14	rm	No	11:25		
14I0126-01	>1	>2	↓	↓	yes	11:30		
14I0095-01	>1	<2	↓	↓	yes	↓		
14I0134-01	>1	<2	↓	↓	↓	↓		
14I0137-01	>1	rm 9/10/14 <2 >2	↓	↓	↓	11:40 Dig		
14I0145-02	>1	<2	↓	↓	↓	↓		
14I0147-02	>1	<2	↓	↓	↓	↓		
14I0148-02	>1	<2	↓	↓	↓	↓		
14I0149-02	>1	<2	↓	↓	↓	↓		
14I0140 (1-2)	<1	72	9/10/14	ES	No	1:00		
14I0144 (1-4)	↓	↓	↓	↓	↓	↓		
14I0152 (1-3)	↓	↓	↓	↓	↓	↓		

Notes:

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

October 30, 2014

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

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-223, GROUNDWATER MONITORING PROJECT, TLI NO.: 815065

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-223 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 October 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 were analyzed and recorded in the raw data as SDG 14J0097 but are reported as SDG 815065 in all final report pages.

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.

Sample TW-03D-223 for Hexavalent Chromium was analyzed by method EPA 218.6 rather than SW 3500-Cr B as requested on the COC.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 428648.IM.CS.EX.AC

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

Laboratory No.: 815065

Date: October 30, 2014

Collected: October 7, 2014

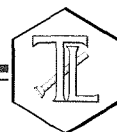
Received: October 7, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 4500-H B	pH	Jennine Ta
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Jennine Ta
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

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

Attention: Shawn Duffy

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

Laboratory No.: 815065
Date Received: October 7, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815065-001	PE-01-223	E120.1	NONE	10/7/2014	8:00	EC	4160	umhos/cm	2.0
815065-001	PE-01-223	E200.7	LABFLT	10/7/2014	8:00	Calcium	110000	ug/L	50000
815065-001	PE-01-223	E200.7	LABFLT	10/7/2014	8:00	Iron	28.5	ug/L	20.0
815065-001	PE-01-223	E200.7	LABFLT	10/7/2014	8:00	Magnesium	23500	ug/L	5000
815065-001	PE-01-223	E200.7	LABFLT	10/7/2014	8:00	Sodium	772000	ug/L	50000
815065-001	PE-01-223	E200.8	LABFLT	10/7/2014	8:00	Chromium	4.2	ug/L	1.0
815065-001	PE-01-223	E200.8	LABFLT	10/7/2014	8:00	Manganese	61.7	ug/L	0.50
815065-001	PE-01-223	E218.6	LABFLT	10/7/2014	8:00	Chromium, Hexavalent	3.7	ug/L	0.20
815065-001	PE-01-223	E300	NONE	10/7/2014	8:00	Chloride	962	mg/L	50.0
815065-001	PE-01-223	E300	NONE	10/7/2014	8:00	Nitrate as N	ND	mg/L	0.500
815065-001	PE-01-223	E300	NONE	10/7/2014	8:00	Sulfate	391	mg/L	12.5
815065-001	PE-01-223	SM2320B	NONE	10/7/2014	8:00	Alkalinity	216	mg/L	5.00
815065-001	PE-01-223	SM2320B	NONE	10/7/2014	8:00	Alkalinity, Bicarbonate (As CaCO3)	216	mg/L	5.00
815065-001	PE-01-223	SM2320B	NONE	10/7/2014	8:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
815065-001	PE-01-223	SM2540C	NONE	10/7/2014	8:00	Total Dissolved Solids	2580	mg/L	125
815065-001	PE-01-223	SM4500HB	NONE	10/7/2014	8:00	PH	7.58 J	pH	4.00



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815065-002	TW-03D-223	E120.1	NONE	10/7/2014	8:00	EC	7910	umhos/cm	2.00
815065-002	TW-03D-223	E200.7	LABFLT	10/7/2014	8:00	Calcium	215000	ug/L	50000
815065-002	TW-03D-223	E200.7	LABFLT	10/7/2014	8:00	Iron	ND	ug/L	20.0
815065-002	TW-03D-223	E200.7	LABFLT	10/7/2014	8:00	Magnesium	33000	ug/L	10000
815065-002	TW-03D-223	E200.7	LABFLT	10/7/2014	8:00	Sodium	1510000	ug/L	250000
815065-002	TW-03D-223	E200.8	LABFLT	10/7/2014	8:00	Chromium	733	ug/L	5.0
815065-002	TW-03D-223	E200.8	LABFLT	10/7/2014	8:00	Manganese	8.6	ug/L	0.50
815065-002	TW-03D-223	E218.6	LABFLT	10/7/2014	8:00	Chromium, Hexavalent	720	ug/L	10.0
815065-002	TW-03D-223	E300	NONE	10/7/2014	8:00	Chloride	2340	mg/L	50.0
815065-002	TW-03D-223	E300	NONE	10/7/2014	8:00	Nitrate as N	3.29	mg/L	0.500
815065-002	TW-03D-223	E300	NONE	10/7/2014	8:00	Sulfate	540	mg/L	12.5
815065-002	TW-03D-223	SM2320B	NONE	10/7/2014	8:00	Alkalinity	136	mg/L	5.00
815065-002	TW-03D-223	SM2320B	NONE	10/7/2014	8:00	Alkalinity, Bicarbonate (As CaCO ₃)	136	mg/L	5.00
815065-002	TW-03D-223	SM2320B	NONE	10/7/2014	8:00	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
815065-002	TW-03D-223	SM2540C	NONE	10/7/2014	8:00	Total Dissolved Solids	5000	mg/L	250
815065-002	TW-03D-223	SM4500HB	NONE	10/7/2014	8:00	PH	7.42 J	pH	4.00

ND: Non Detected (below reporting limit)

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

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

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

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

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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: PGEIM1111100

Release Number:

Laboratory No. 815065

Page 1 of 16

Printed 10/30/2014

Samples Received on 10/7/2014 6:35:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-223	815065-001	10/07/2014 08:00	Water
TW-03D-223	815065-002	10/07/2014 08:00	Water

Anions By I.C. - EPA 300.0

Batch 1410162

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 Chloride	mg/L	10/08/2014 15:01	500	17.4	50.0	962
Nitrate as Nitrogen	mg/L	10/08/2014 11:47	5.00	0.0415	0.500	ND
Sulfate	mg/L	10/08/2014 15:58	25.0	0.768	12.5	391
815065-002 Chloride	mg/L	10/08/2014 15:12	500	17.4	50.0	2340
Nitrate as Nitrogen	mg/L	10/08/2014 11:58	5.00	0.0415	0.500	3.29
Sulfate	mg/L	10/08/2014 14:09	25.0	0.768	12.5	540

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 = 815060-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	1.79	1.80	0.334	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.73	2.70	1.14	0 - 20

Duplicate

Lab ID = 815067-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	52.7	56.7	7.27	0 - 20
Sulfate	mg/L	25.0	64.1	65.7	2.40	0 - 20

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



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Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 10/30/2014

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.83	4.00	95.8	90 - 110
Fluoride	mg/L	1.00	4.05	4.00	101	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	99.9	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.94	4.00	98.6	90 - 110

Matrix Spike

Lab ID = 815060-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.0	21.8(20.0)	106	85 - 115
Nitrate as Nitrogen	mg/L	5.00	24.1	22.7(20.0)	107	85 - 115

Matrix Spike

Lab ID = 815067-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	160	157(100)	103	85 - 115
Sulfate	mg/L	25.0	170	166(100)	104	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.90	4.00	97.6	90 - 110
Fluoride	mg/L	1.00	4.04	4.00	101	90 - 110
Sulfate	mg/L	1.00	19.8	20.0	99.3	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.93	4.00	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.78	3.00	92.7	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.84	3.00	94.8	90 - 110

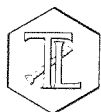
MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.14	3.00	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	2.99	3.00	99.7	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 4 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 10/30/2014

Alkalinity by SM 2320B

Batch: 1410260

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 Alkalinity as CaCO ₃	mg/L	10/15/2014	1.00	1.68	5.00	216
Bicarbonate (Calculated)	mg/L	10/15/2014	1.00	1.68	5.00	216
Carbonate (Calculated)	mg/L	10/15/2014	1.00	1.68	5.00	ND
815065-002 Alkalinity as CaCO ₃	mg/L	10/15/2014	1.00	1.68	5.00	136
Bicarbonate (Calculated)	mg/L	10/15/2014	1.00	1.68	5.00	136
Carbonate (Calculated)	mg/L	10/15/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate

Lab ID = 815069-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	86.0	85.0	1.17	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

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

Matrix Spike

Lab ID = 815070-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	211	220(100)	91.0	75 - 125

Matrix Spike Duplicate

Lab ID = 815070-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	215	220(100)	95.0	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 5 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 10/30/2014

Specific Conductivity - EPA 120.1

Batch 1410051

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 Specific Conductivity	umhos/cm	10/10/2014	1.00	0.606	2.00	4160
815065-002 Specific Conductivity	umhos/cm	10/10/2014	1.00	0.606	2.00	7910

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815060-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	25800	25600	0.778	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	743	706	105	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	743	706	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1050	1000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1050	1000	105	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 10/30/2014

Chrome VI by EPA 218.6

Batch 1410121

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 Chromium, Hexavalent	ug/L	10/08/2014 13:23	1.00	0.00600	0.20	3.7
815065-002 Chromium, Hexavalent	ug/L	10/08/2014 13:34	50.0	0.300	10.0	720

Method Blank

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

Duplicate

Lab ID = 815065-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.63	3.67	1.15	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.192	0.200	96.2	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 815060-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.98	5.11(5.00)	97.5	90 - 110

Matrix Spike

Lab ID = 815060-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.15	1.11(1.00)	104	90 - 110

Matrix Spike

Lab ID = 815060-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1160	1210(625)	92.0	90 - 110

Matrix Spike

Lab ID = 815060-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.31	5.58(5.00)	94.5	90 - 110

Matrix Spike

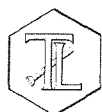
Lab ID = 815060-003

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 = 815065-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.50	8.67(5.00)	96.5	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 7 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 10/30/2014

Matrix Spike

Lab ID = 815065-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1460	1470(750)	98.1	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.12	5.00	102	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

pH by SM 4500-H B

Batch 1410125

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 pH	pH	10/08/2014 07:58	1.00	0.0250	4.00	7.58
815065-002 pH	pH	10/08/2014 07:59	1.00	0.0250	4.00	7.42

Duplicate

Lab ID = 815065-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.49	7.42	0.939	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	6.99	7.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.10	7.00	101	90 - 110

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017

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 8 of 16****Project Number: 428648.IM.CS.EX.AC****Printed 10/30/2014****Total Dissolved Solids by SM 2540 C**

Batch 1410135

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 Total Dissolved Solids	mg/L	10/10/2014	1.00	1.76	125	2580
815065-002 Total Dissolved Solids	mg/L	10/10/2014	1.00	1.76	250	5000

Method Blank

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

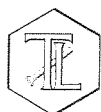
Duplicate

Lab ID = 815060-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	19100	19100	0.105	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	481	500	96.2	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 9 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 10/30/2014

Metals by EPA 200.8, Dissolved

Batch 102914A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 Chromium	ug/L	10/29/2014 18:01	2.00	0.142	1.0	4.2
Manganese	ug/L	10/29/2014 18:01	2.00	0.120	0.50	61.7
815065-002 Chromium	ug/L	10/29/2014 18:40	10.0	0.710	5.0	733
Manganese	ug/L	10/29/2014 18:33	2.00	0.120	0.50	8.6

Method Blank

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

Duplicate

Lab ID = 815065-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	4.61	4.24	8.32	0 - 20
Manganese	ug/L	2.00	64.3	61.7	4.09	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.642	0.500	128	70 - 130
Manganese	ug/L	1.00	0.173	0.200	86.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.4	50.0	96.9	85 - 115
Manganese	ug/L	1.00	49.0	50.0	98.0	85 - 115

Matrix Spike

Lab ID = 815065-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.9	54.2(50.0)	91.2	75 - 125
Manganese	ug/L	2.00	111	112(50.0)	97.8	75 - 125

Matrix Spike Duplicate

Lab ID = 815065-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.4	54.2(50.0)	92.4	75 - 125
Manganese	ug/L	2.00	112	112(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101	90 - 110
Manganese	ug/L	1.00	20.3	20.0	102	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 11 of 16****Project Number: 428648.IM.CS.EX.AC****Printed 10/30/2014****Interference Check Standard AB**

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.4	20.0	96.9	80 - 120

Serial Dilution

Lab ID = 815065-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	64.9	61.7	5.09	0 - 10

Serial Dilution

Lab ID = 815065-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	739	733	0.832	0 - 10


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 12 of 16
Project Number: 428648.IM.CS.EX.AC
Printed 10/30/2014
Metals by 200.7, Dissolved

Batch 100914A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 Calcium	ug/L	10/09/2014 15:27	100	1700	50000	110000
Magnesium	ug/L	10/09/2014 16:45	5.00	2340	5000	23500
Sodium	ug/L	10/09/2014 15:27	100	5980	50000	772000
815065-002 Calcium	ug/L	10/09/2014 15:32	100	1700	50000	215000
Magnesium	ug/L	10/09/2014 16:24	10.0	4680	10000	33000
Sodium	ug/L	10/09/2014 15:12	500	29900	250000	1510000

Method Blank

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

Duplicate

Lab ID = 815065-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	221000	215000	2.62	0 - 20
Sodium	ug/L	500	1520000	1510000	0.923	0 - 20
Magnesium	ug/L	10.0	31600	33000	4.18	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2150	2000	108	85 - 115
Sodium	ug/L	1.00	1890	2000	94.4	85 - 115
Magnesium	ug/L	1.00	2150	2000	107	85 - 115

Matrix Spike

Lab ID = 815065-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	411000	415000(200000)	97.8	75 - 125
Sodium	ug/L	500	2550000	2510000(1000000)	104	75 - 125
Magnesium	ug/L	10.0	50100	53000(20000)	85.4	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5010	5000	100	95 - 105
Sodium	ug/L	1.00	4820	5000	96.4	95 - 105
Magnesium	ug/L	1.00	5150	5000	103	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4980	5000	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 15 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 10/30/2014

Metals by 200.7, Dissolved

Batch: 101014A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815065-001 Iron	ug/L	10/10/2014 15:47	1.00	3.00	20.0	28.5
815065-002 Iron	ug/L	10/10/2014 15:26	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 815065-002

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	2190	2000	109	85 - 115

Matrix Spike

Lab ID = 815065-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2010	2000(2000)	100	75 - 125

Matrix Spike Duplicate

Lab ID = 815065-002

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

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5040	5000	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5430	5000	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5260	5000	105	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	2180	2000	109	80 - 120



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 16 of 16

Project Number: 428648.IM.CS.EX.AC

Printed 10/30/2014

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2250	2000	113	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2110	2000	106	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

**Total Dissolved Solids by SM 2540 C****Calculations**

Batch: 1410135

Date Analyzed: 10/10/2014

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	71.9650	71.9657	71.9657	0.0000	No	0.0007	7.0	25.0	ND	1
14J0003-02E	100	76.1572	76.1755	76.1751	0.0004	No	0.0179	179.0	25.0	179.0	1
14J0003-04F	100	75.2572	75.2895	75.2894	0.0001	No	0.0322	322.0	25.0	322.0	1
14J0068-01D	100	74.7209	74.7759	74.7759	0.0000	No	0.0550	550.0	25.0	550.0	1
14J0068-02	100	67.9580	68.0111	68.0111	0.0000	No	0.0531	531.0	25.0	531.0	1
14J0096-09D	100	68.7156	68.7723	68.7723	0.0000	No	0.0567	567.0	25.0	567.0	1
14J0097-01B	20	29.3260	29.3776	29.3775	0.0001	No	0.0515	2575.0	125.0	2575.0	1
14J0097-02A	10	28.5916	28.6420	28.6416	0.0004	No	0.0500	5000.0	250.0	5000.0	1
14J0098-01D	10	30.5006	30.5450	30.5450	0.0000	No	0.0444	4440.0	250.0	4440.0	1
14J0098-02	10	30.3628	30.4083	30.4080	0.0003	No	0.0452	4520.0	250.0	4520.0	1
14J0098-03	5	29.6292	29.7246	29.7246	0.0000	No	0.0954	19080.0	500.0	19080.0	1
14J0098-03 Dup	5	28.7842	28.8798	28.8796	0.0002	No	0.0954	19080.0	500.0	19080.0	1
LCS	100	66.7491	66.7972	66.7972	0.0000	No	0.0481	481.0	25.0	481.0	1
14J0124-01C	100	74.6291	74.6813	74.6811	0.0002	No	0.0520	520.0	25.0	520.0	1
14J0124-02	100	78.7826	78.8357	78.8353	0.0004	No	0.0527	527.0	25.0	527.0	1
14J0124-03	100	75.3990	75.4510	75.4510	0.0000	No	0.0520	520.0	25.0	520.0	1
14J0124-04	100	77.4874	77.5413	77.5410	0.0003	No	0.0536	536.0	25.0	536.0	1
14J0128-01D	100	74.5820	74.6387	74.6386	0.0001	No	0.0566	566.0	25.0	566.0	1
14J0128-02	100	71.3090	71.3672	71.3668	0.0004	No	0.0578	578.0	25.0	578.0	1
14J0134-01D	100	78.3535	78.3857	78.3857	0.0000	No	0.0322	322.0	25.0	322.0	1
14J0152-01A	100	78.2325	78.2471	78.2468	0.0003	No	0.0143	143.0	25.0	143.0	1
14J0160-01C	100	74.8656	74.9252	74.9250	0.0002	No	0.0594	594.0	25.0	594.0	1
14J0134-01 Dup	100	71.2867	71.3203	71.3203	0.0000	No	0.0336	336.0	25.0	336.0	1

Calculation as follows:

Filterable residue (TDS), mg/L =

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

Where:

A = weight of dish + residue in grams.
 B = weight of dish in grams.
 C = mL of sample filtered.

RL = reporting limit.
 ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	481.0	500	96.2%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14J0098-03	0.0954	0.0954	0.0%	≤5%	Yes
14J0134-01	0.0322	0.0336	2.1%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

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: 1410135
Date Analyzed: 10/10/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14J0003-02E	313	0.57	203.45	0.88
14J0003-04F	526	0.61	341.9	0.94
14J0068-01D	989	0.56	642.85	0.86
14J0068-02	911	0.58	592.15	0.90
14J0096-09D	940	0.60	611	0.93
14J0097-01B	4160	0.62	2704	0.95
14J0097-02A	7910	0.63	5141.5	0.97
14J0098-01D	7190	0.62	4673.5	0.95
14J0098-02	7150	0.63	4647.5	0.97
14J0098-03	25600	0.75	16640	1.15
14J0098-03 Dup	25600	0.75	16640	1.15
LCS				
14J0124-01C	883	0.59	573.95	0.91
14J0124-02	883	0.60	573.95	0.92
14J0124-03	883	0.59	573.95	0.91
14J0124-04	885	0.61	575.25	0.93
14J0128-01D	974	0.58	633.1	0.89
14J0128-02	924	0.63	600.6	0.96
14J0134-01D	528	0.61	343.2	0.94
14J0152-01A	209	0.68	135.85	1.05
14J0160-01C	1002	0.59	651.3	0.91
14J0134-01 Dup	528	0.64	343.2	0.98





Analytical Batch:	1410260
Matrix:	WATER
Date of Analysis:	10/15/2014

[illegible]

Calculations as follows:

T or P =

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

Where:

T = Total Alkalinity, mg CaCO₃/L

P = Phenolphthalein Alkalinity, mg CaCO₃/L

A = mL standard acid used

N = normality of standard acid

$$\text{Low Alkalinity: as mg/L CaCO}_3 = \frac{(2 \times B - C) \times N \times 50000}{\text{mL sample}}$$

Where: B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

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

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
14J0134-01	85	86	1.2%	≤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?
14J0144-01	120	1	100	100	211	220.00	91%	75-125	Yes	0.9%	≤20%	Yes
	120	1	100	100	215	220.00	95%		Yes			

Jennine

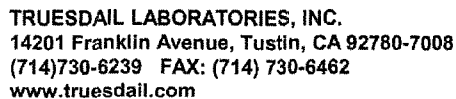
Analyst Printed Name

Analyst Signature

Maksim Gorbunov

Reviewer Printed Name

Reviewer Signature _____



[IM3Plant-EW-223]

TURNAROUND TIME 10 Days
DATE 10/07/14 PAGE 1 OF 1

[illegible]

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL ☒ WARM ☐
<i>[Signature]</i>	CHRIS LEMR	CH2MHU	10-7-14 14:00		4.2°C/F
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED	YES ☐ NO ☐
<i>[Signature]</i>	THANK NEO	TRUESDAIL	10-7-14 14:00		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:	
<i>[Signature]</i>	THANK NEO		10-7-14 1535		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		
<i>[Signature]</i>	Alexander Wood	TCU	10/7/14 1835		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time		
<i>[Signature]</i>					
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		
<i>[Signature]</i>					

0690



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
14J0081-02	<1	<2	10/7/14	ES	yes			
14J0083-06	↓	↓	↓	↓	↓			
14J0086-02	↓	↓	↓	↓	↓			
14J0087-02	↓	↓	↓	↓	↓			
14J0088-02	↓	↓	↓	↓	↓			
14J0089-01-04	↓	↓	↓	↓	↓			-2,4 TH >1
14J0090-02	↓	↓	↓	↓	↓			
14J0003 (01-02-04)	<1	>2	10/8/14	TM	No	10:05		
14J0104-01	<1	>2	↓	↓	↓	↓		
14J0097 (01-02)	<1	>2	10/8/14	TM	yes			
14J0098 (01-02-04)	<1	>2	↓	↓	yes	10:10		
14J0116-01	>1	<2	10/8/14	TM	yes			
14J0099 (01-02)	<1	>2	10/8/14	ES	yes	1:00		Filtration acidify
~~14J0120 (01-11-12)~~	~~>1~~	~~<2~~	~~TM~~					
~~14J0128 (01-02)~~			10/9/14					
14J0120 (01-11-12)	<1	>2	10/9/14	TM	No	14:20		
14J0128 (01-02)	>1	<2	↓	↓	yes			
14J0129-02	↓	↓	↓	↓	↓			
14J0130-02	↓	↓	↓	↓	↓			
14J0131-06	↓	↓	↓	↓	↓			
14J0134-01	<1	>2	↓	↓	NO	10/10/14 14:20		
14J0145 (01-02)	<1	>2	10/10/14	ES	YES-NO	5:00		
14J0126 (01-02)	>1	<2	↓	↓	yes			
14J0129-02	↓	↓	↓	↓	↓			
14J0130-02	↓	↓	↓	↓	↓			
14J0131-02	↓	↓	↓	↓	↓			
14J0132 (01-02)	>1	>2	↓	↓	↓			
14J0141-01	<1	↓	↓	↓	NO			
14J0142-01	↓	<2	↓	↓	yes			
14J0149-02	>1	↓	↓	↓	↓			
14J0150-01	<1	↓	↓	↓	↓			
151-02	↓	↓	↓	↓	↓			
152-01	↓	↓	↓	↓	↓			
153-02	↓	↓	↓	↓	↓			
154-01	↓	↓	↓	↓	↓			
14J0176-2	>1	>2	10/12/14	ES	yes			
14J0177 (01-02)	>1	<2	10/14/14	TM	yes			
14J0184-01	↓	↓	↓	↓	↓			
14J0185-01	↓	↓	↓	↓	↓			
14J0189-06	<1	>2	10/15/14	↓	NO	11:00		
14J0192-02	>1	<2	10/15/14	TM	yes			
14J0194-02	↓	↓	↓	↓	↓			
14J0196-02	↓	↓	↓	↓	↓			
14J0203-02	↓	↓	↓	↓	↓			

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.

July 31, 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.: N012961

RE: PG&E Topock, 423575.MP.02.RM

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on July 16, 2014 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,



Jose Tenorio Jr.
Laboratory Director

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ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

3151 W. Post Road, Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691
www.assetlaboratories.com

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.RM
Lab Order: N012961

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 except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for SM 4500-NO3F:

Matrix Spike Duplicate (MSD) on QC sample N012961-028E-MSD is outside recovery criteria possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 31-Jul-14

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.RM
Lab Order: N012961
Contract No: 2014-RMP-197

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012961-001A	C-BNS-D-197	Water	7/15/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-001B	C-BNS-D-197	Water	7/15/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-001C	C-BNS-D-197	Water	7/15/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-001D	C-BNS-D-197	Water	7/15/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-001E	C-BNS-D-197	Water	7/15/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-002A	C-I-3-D-197	Water	7/15/2014 9:22:00 AM	7/16/2014	7/31/2014
N012961-002B	C-I-3-D-197	Water	7/15/2014 9:22:00 AM	7/16/2014	7/31/2014
N012961-002C	C-I-3-D-197	Water	7/15/2014 9:22:00 AM	7/16/2014	7/31/2014
N012961-002D	C-I-3-D-197	Water	7/15/2014 9:22:00 AM	7/16/2014	7/31/2014
N012961-002E	C-I-3-D-197	Water	7/15/2014 9:22:00 AM	7/16/2014	7/31/2014
N012961-003A	C-I-3-S-197	Water	7/15/2014 9:40:00 AM	7/16/2014	7/31/2014
N012961-003B	C-I-3-S-197	Water	7/15/2014 9:40:00 AM	7/16/2014	7/31/2014
N012961-003C	C-I-3-S-197	Water	7/15/2014 9:40:00 AM	7/16/2014	7/31/2014
N012961-003D	C-I-3-S-197	Water	7/15/2014 9:40:00 AM	7/16/2014	7/31/2014
N012961-003E	C-I-3-S-197	Water	7/15/2014 9:40:00 AM	7/16/2014	7/31/2014
N012961-004A	C-MAR-S-197	Water	7/15/2014 12:26:00 PM	7/16/2014	7/31/2014
N012961-004B	C-MAR-S-197	Water	7/15/2014 12:26:00 PM	7/16/2014	7/31/2014
N012961-004C	C-MAR-S-197	Water	7/15/2014 12:26:00 PM	7/16/2014	7/31/2014
N012961-004D	C-MAR-S-197	Water	7/15/2014 12:26:00 PM	7/16/2014	7/31/2014
N012961-004E	C-MAR-S-197	Water	7/15/2014 12:26:00 PM	7/16/2014	7/31/2014
N012961-005A	C-MW-80-197	Water	7/15/2014 8:24:00 AM	7/16/2014	7/31/2014
N012961-006A	C-MW-81-197	Water	7/15/2014 9:10:00 AM	7/16/2014	7/31/2014
N012961-007A	C-R22A-D-197	Water	7/15/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-007B	C-R22A-D-197	Water	7/15/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-007C	C-R22A-D-197	Water	7/15/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-007D	C-R22A-D-197	Water	7/15/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-007E	C-R22A-D-197	Water	7/15/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-008A	C-R22A-S-197	Water	7/15/2014 10:56:00 AM	7/16/2014	7/31/2014
N012961-008B	C-R22A-S-197	Water	7/15/2014 10:56:00 AM	7/16/2014	7/31/2014



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Page 1 of 5

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.RM
Lab Order: N012961
Contract No: 2014-RMP-197

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012961-008C	C-R22A-S-197	Water	7/15/2014 10:56:00 AM	7/16/2014	7/31/2014
N012961-008D	C-R22A-S-197	Water	7/15/2014 10:56:00 AM	7/16/2014	7/31/2014
N012961-008E	C-R22A-S-197	Water	7/15/2014 10:56:00 AM	7/16/2014	7/31/2014
N012961-009A	C-R27-D-197	Water	7/15/2014 11:36:00 AM	7/16/2014	7/31/2014
N012961-009B	C-R27-D-197	Water	7/15/2014 11:36:00 AM	7/16/2014	7/31/2014
N012961-009C	C-R27-D-197	Water	7/15/2014 11:36:00 AM	7/16/2014	7/31/2014
N012961-009D	C-R27-D-197	Water	7/15/2014 11:36:00 AM	7/16/2014	7/31/2014
N012961-009E	C-R27-D-197	Water	7/15/2014 11:36:00 AM	7/16/2014	7/31/2014
N012961-010A	C-R27-S-197	Water	7/15/2014 11:48:00 AM	7/16/2014	7/31/2014
N012961-010B	C-R27-S-197	Water	7/15/2014 11:48:00 AM	7/16/2014	7/31/2014
N012961-010C	C-R27-S-197	Water	7/15/2014 11:48:00 AM	7/16/2014	7/31/2014
N012961-010D	C-R27-S-197	Water	7/15/2014 11:48:00 AM	7/16/2014	7/31/2014
N012961-010E	C-R27-S-197	Water	7/15/2014 11:48:00 AM	7/16/2014	7/31/2014
N012961-011A	C-TAZ-D-197	Water	7/15/2014 8:34:00 AM	7/16/2014	7/31/2014
N012961-011B	C-TAZ-D-197	Water	7/15/2014 8:34:00 AM	7/16/2014	7/31/2014
N012961-011C	C-TAZ-D-197	Water	7/15/2014 8:34:00 AM	7/16/2014	7/31/2014
N012961-011D	C-TAZ-D-197	Water	7/15/2014 8:34:00 AM	7/16/2014	7/31/2014
N012961-011E	C-TAZ-D-197	Water	7/15/2014 8:34:00 AM	7/16/2014	7/31/2014
N012961-012A	C-TAZ-S-197	Water	7/15/2014 8:54:00 AM	7/16/2014	7/31/2014
N012961-012B	C-TAZ-S-197	Water	7/15/2014 8:54:00 AM	7/16/2014	7/31/2014
N012961-012C	C-TAZ-S-197	Water	7/15/2014 8:54:00 AM	7/16/2014	7/31/2014
N012961-012D	C-TAZ-S-197	Water	7/15/2014 8:54:00 AM	7/16/2014	7/31/2014
N012961-012E	C-TAZ-S-197	Water	7/15/2014 8:54:00 AM	7/16/2014	7/31/2014
N012961-013A	R63-197	Water	7/15/2014 10:20:00 AM	7/16/2014	7/31/2014
N012961-013B	R63-197	Water	7/15/2014 10:20:00 AM	7/16/2014	7/31/2014
N012961-013C	R63-197	Water	7/15/2014 10:20:00 AM	7/16/2014	7/31/2014
N012961-013D	R63-197	Water	7/15/2014 10:20:00 AM	7/16/2014	7/31/2014
N012961-013E	R63-197	Water	7/15/2014 10:20:00 AM	7/16/2014	7/31/2014
N012961-014A	RMP-AB1-197	Water	7/15/2014 12:35:00 PM	7/16/2014	7/31/2014
N012961-015A	C-CON-D-197	Water	7/16/2014 9:12:00 AM	7/16/2014	7/31/2014



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Page 2 of 5

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.RM
Lab Order: N012961
Contract No: 2014-RMP-197

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012961-015B	C-CON-D-197	Water	7/16/2014 9:12:00 AM	7/16/2014	7/31/2014
N012961-015C	C-CON-D-197	Water	7/16/2014 9:12:00 AM	7/16/2014	7/31/2014
N012961-015D	C-CON-D-197	Water	7/16/2014 9:12:00 AM	7/16/2014	7/31/2014
N012961-015E	C-CON-D-197	Water	7/16/2014 9:12:00 AM	7/16/2014	7/31/2014
N012961-016A	C-CON-S-197	Water	7/16/2014 9:30:00 AM	7/16/2014	7/31/2014
N012961-016B	C-CON-S-197	Water	7/16/2014 9:30:00 AM	7/16/2014	7/31/2014
N012961-016C	C-CON-S-197	Water	7/16/2014 9:30:00 AM	7/16/2014	7/31/2014
N012961-016D	C-CON-S-197	Water	7/16/2014 9:30:00 AM	7/16/2014	7/31/2014
N012961-016E	C-CON-S-197	Water	7/16/2014 9:30:00 AM	7/16/2014	7/31/2014
N012961-017A	C-MW-82-197	Water	7/16/2014 8:10:00 AM	7/16/2014	7/31/2014
N012961-018A	C-MW-83-197	Water	7/16/2014 8:42:00 AM	7/16/2014	7/31/2014
N012961-019A	C-NR1-D-197	Water	7/16/2014 9:50:00 AM	7/16/2014	7/31/2014
N012961-019B	C-NR1-D-197	Water	7/16/2014 9:50:00 AM	7/16/2014	7/31/2014
N012961-019C	C-NR1-D-197	Water	7/16/2014 9:50:00 AM	7/16/2014	7/31/2014
N012961-019D	C-NR1-D-197	Water	7/16/2014 9:50:00 AM	7/16/2014	7/31/2014
N012961-019E	C-NR1-D-197	Water	7/16/2014 9:50:00 AM	7/16/2014	7/31/2014
N012961-020A	C-NR1-S-197	Water	7/16/2014 10:00:00 AM	7/16/2014	7/31/2014
N012961-020B	C-NR1-S-197	Water	7/16/2014 10:00:00 AM	7/16/2014	7/31/2014
N012961-020C	C-NR1-S-197	Water	7/16/2014 10:00:00 AM	7/16/2014	7/31/2014
N012961-020D	C-NR1-S-197	Water	7/16/2014 10:00:00 AM	7/16/2014	7/31/2014
N012961-020E	C-NR1-S-197	Water	7/16/2014 10:00:00 AM	7/16/2014	7/31/2014
N012961-021A	C-NR3-D-197	Water	7/16/2014 10:30:00 AM	7/16/2014	7/31/2014
N012961-021B	C-NR3-D-197	Water	7/16/2014 10:30:00 AM	7/16/2014	7/31/2014
N012961-021C	C-NR3-D-197	Water	7/16/2014 10:30:00 AM	7/16/2014	7/31/2014
N012961-021D	C-NR3-D-197	Water	7/16/2014 10:30:00 AM	7/16/2014	7/31/2014
N012961-021E	C-NR3-D-197	Water	7/16/2014 10:30:00 AM	7/16/2014	7/31/2014
N012961-022A	C-NR3-S-197	Water	7/16/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-022B	C-NR3-S-197	Water	7/16/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-022C	C-NR3-S-197	Water	7/16/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-022D	C-NR3-S-197	Water	7/16/2014 10:40:00 AM	7/16/2014	7/31/2014



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Page 3 of 5

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.RM
Lab Order: N012961
Contract No: 2014-RMP-197

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012961-022E	C-NR3-S-197	Water	7/16/2014 10:40:00 AM	7/16/2014	7/31/2014
N012961-023A	C-NR4-D-197	Water	7/16/2014 11:00:00 AM	7/16/2014	7/31/2014
N012961-023B	C-NR4-D-197	Water	7/16/2014 11:00:00 AM	7/16/2014	7/31/2014
N012961-023C	C-NR4-D-197	Water	7/16/2014 11:00:00 AM	7/16/2014	7/31/2014
N012961-023D	C-NR4-D-197	Water	7/16/2014 11:00:00 AM	7/16/2014	7/31/2014
N012961-023E	C-NR4-D-197	Water	7/16/2014 11:00:00 AM	7/16/2014	7/31/2014
N012961-024A	C-NR4-S-197	Water	7/16/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-024B	C-NR4-S-197	Water	7/16/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-024C	C-NR4-S-197	Water	7/16/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-024D	C-NR4-S-197	Water	7/16/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-024E	C-NR4-S-197	Water	7/16/2014 11:14:00 AM	7/16/2014	7/31/2014
N012961-025A	R-19-197	Water	7/16/2014 8:48:00 AM	7/16/2014	7/31/2014
N012961-025B	R-19-197	Water	7/16/2014 8:48:00 AM	7/16/2014	7/31/2014
N012961-025C	R-19-197	Water	7/16/2014 8:48:00 AM	7/16/2014	7/31/2014
N012961-025D	R-19-197	Water	7/16/2014 8:48:00 AM	7/16/2014	7/31/2014
N012961-025E	R-19-197	Water	7/16/2014 8:48:00 AM	7/16/2014	7/31/2014
N012961-026A	R-28-197	Water	7/16/2014 8:36:00 AM	7/16/2014	7/31/2014
N012961-026B	R-28-197	Water	7/16/2014 8:36:00 AM	7/16/2014	7/31/2014
N012961-026C	R-28-197	Water	7/16/2014 8:36:00 AM	7/16/2014	7/31/2014
N012961-026D	R-28-197	Water	7/16/2014 8:36:00 AM	7/16/2014	7/31/2014
N012961-026E	R-28-197	Water	7/16/2014 8:36:00 AM	7/16/2014	7/31/2014
N012961-027A	RMP-AB2-197	Water	7/16/2014 11:20:00 AM	7/16/2014	7/31/2014
N012961-028A	RRB-197	Water	7/16/2014 8:16:00 AM	7/16/2014	7/31/2014
N012961-028B	RRB-197	Water	7/16/2014 8:16:00 AM	7/16/2014	7/31/2014
N012961-028C	RRB-197	Water	7/16/2014 8:16:00 AM	7/16/2014	7/31/2014
N012961-028D	RRB-197	Water	7/16/2014 8:16:00 AM	7/16/2014	7/31/2014
N012961-028E	RRB-197	Water	7/16/2014 8:16:00 AM	7/16/2014	7/31/2014
N012961-029A	SW1-197	Water	7/16/2014 6:40:00 AM	7/16/2014	7/31/2014
N012961-029B	SW1-197	Water	7/16/2014 6:40:00 AM	7/16/2014	7/31/2014
N012961-029C	SW1-197	Water	7/16/2014 6:40:00 AM	7/16/2014	7/31/2014



CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.RM
Lab Order: N012961
Contract No: 2014-RMP-197

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012961-030A	SW2-197	Water	7/16/2014 6:58:00 AM	7/16/2014	7/31/2014
N012961-030B	SW2-197	Water	7/16/2014 6:58:00 AM	7/16/2014	7/31/2014
N012961-030C	SW2-197	Water	7/16/2014 6:58:00 AM	7/16/2014	7/31/2014



ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-BNS-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	930	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	920	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT: CH2M HILL

Client Sample ID: C-I-3-S-197

Lab Order: N012961

Collection Date: 7/15/2014 9:40:00 AM

Project: PG&E Topock, 423575.MP.02.RM

Matrix: WATER

Lab ID: N012961-003

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B

QC Batch: R94180

PrepDate

Analyst: LCC

Specific Conductance

920

0.10

0.10

umhos/cm

1

7/17/2014

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out

E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MAR-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 12:26:00 PM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	990	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC
Specific Conductance	920	0.10	0.10
		umhos/cm	1
			7/17/2014

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		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	920	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC
Specific Conductance	920	0.10	0.10
		umhos/cm	1
			7/17/2014

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		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	920	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:34:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	920	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	910	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R63-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	900	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT: CH2M HILL

Client Sample ID: C-CON-D-197

Lab Order: N012961

Collection Date: 7/16/2014 9:12:00 AM

Project: PG&E Topock, 423575.MP.02.RM

Matrix: WATER

Lab ID: N012961-015

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B

QC Batch: R94180

PrepDate

Analyst: LCC

Specific Conductance

900

0.10

0.10

umhos/cm

1

7/17/2014

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out

E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	900	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC
Specific Conductance	900	0.10	0.10
		umhos/cm	1
			7/17/2014

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		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	900	0.10	0.10	umhos/cm	1	7/17/2014

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		

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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	900	0.10	0.10	umhos/cm	1	7/17/2014

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		

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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	910	0.10	0.10	umhos/cm	1	7/17/2014

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		

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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	910	0.10	0.10	umhos/cm	1	7/17/2014

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		

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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	920	0.10	0.10	umhos/cm	1	7/17/2014

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		

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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-19-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC
Specific Conductance	920	0.10	0.10
		umhos/cm	1
			7/17/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-28-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC
Specific Conductance	910	0.10	0.10
		umhos/cm	1
			7/17/2014

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		



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RRB-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:16:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	920	0.10	0.10	umhos/cm	1	7/17/2014

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		

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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	SW1-197
Lab Order:	N012961	Collection Date:	7/16/2014 6:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-029		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	910	0.10	0.10	umhos/cm	1	7/17/2014

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		

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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	SW2-197
Lab Order:	N012961	Collection Date:	7/16/2014 6:58:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-030		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_140717B	QC Batch: R94180	PrepDate	Analyst: LCC			
Specific Conductance	920	0.10	0.10	umhos/cm	1	7/17/2014

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		

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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N012961-012D-DUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	94180
Client ID:	ZZZZZZ	Batch ID:	R94180	TestNo:	EPA 120.1			Analysis Date:	7/17/2014	SeqNo:	1807556
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		911.000		0.10						913.0	0.219 10

Sample ID	N012961-025D-DUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	94180
Client ID:	ZZZZZZ	Batch ID:	R94180	TestNo:	EPA 120.1			Analysis Date:	7/17/2014	SeqNo:	1807567
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		921.000		0.10						919.0	0.217 10

Sample ID	N012961-030C-DUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	94180
Client ID:	ZZZZZZ	Batch ID:	R94180	TestNo:	EPA 120.1			Analysis Date:	7/17/2014	SeqNo:	1807572
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		926.000		0.10						922.0	0.433 10

Qualifiers:

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

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

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-BNS-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MAR-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 12:26:00 PM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	7.8	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.3	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:34:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.3	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.3	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R63-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.1	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT: CH2M HILL

Client Sample ID: C-CON-D-197

Lab Order: N012961

Collection Date: 7/16/2014 9:12:00 AM

Project: PG&E Topock, 423575.MP.02.RM

Matrix: WATER

Lab ID: N012961-015

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH**SM4500-H+B**

RunID: WETCHEM_140717A

QC Batch: R94179

PrepDate

Analyst: LCC

pH	8.2	0.10	0.10	H	pH Units	1	7/17/2014
Temp. at time of pH Analysis	25	0.10	0.10	H	pH Units	1	7/17/2014

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out

E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.3	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.3	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.3	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.3	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-19-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.3	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-28-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.2	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RRB-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:16:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	8.0	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	SW1-197
Lab Order:	N012961	Collection Date:	7/16/2014 6:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-029		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	7.8	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	SW2-197
Lab Order:	N012961	Collection Date:	7/16/2014 6:58:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-030		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

PH
SM4500-H+B

RunID: WETCHEM_140717A	QC Batch: R94179	PrepDate	Analyst: LCC
pH	7.8	0.10	0.10
Temp. at time of pH Analysis	25	0.10	0.10

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



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID	N012961-001D-DUP	SampType:	DUP	TestCode:	150.1_4500H	Units:	pH Units	Prep Date:		RunNo:	94179
Client ID:	ZZZZZZ	Batch ID:	R94179	TestNo:	SM4500-H+B			Analysis Date:	7/17/2014	SeqNo:	1807520
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.230	0.10						8.190	0.487	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID	N012961-025D-DUP	SampType:	DUP	TestCode:	150.1_4500H	Units:	pH Units	Prep Date:		RunNo:	94179
Client ID:	ZZZZZZ	Batch ID:	R94179	TestNo:	SM4500-H+B			Analysis Date:	7/17/2014	SeqNo:	1807540
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.230	0.10						8.280	0.606	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID	N012961-030C-DUP	SampType:	DUP	TestCode:	150.1_4500H	Units:	pH Units	Prep Date:		RunNo:	94179
Client ID:	ZZZZZZ	Batch ID:	R94179	TestNo:	SM4500-H+B			Analysis Date:	7/17/2014	SeqNo:	1807545
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.800	0.10						7.800	0	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

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

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

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-BNS-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MAR-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 12:26:00 PM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	150	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:34:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717C	QC Batch: 46083	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:25 AM

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



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CLIENT:	CH2M HILL	Client Sample ID:	R63-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:12:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT: CH2M HILL
Lab Order: N012961
Project: PG&E Topock, 423575.MP.02.RM
Lab ID: N012961-019

Client Sample ID: C-NR1-D-197
Collection Date: 7/16/2014 9:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084			PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-19-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT: CH2M HILL
Lab Order: N012961
Project: PG&E Topock, 423575.MP.02.RM
Lab ID: N012961-026

Client Sample ID: R-28-197
Collection Date: 7/16/2014 8:36:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084			PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	7/17/2014 08:26 AM

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RRB-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:16:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

TOTAL NON-FILTERABLE RESIDUE
SM2540D

RunID: WETCHEM_140717D	QC Batch: 46084	PrepDate	7/17/2014	Analyst: LCC
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L
			1	7/17/2014 08:26 AM

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



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT**TestCode: 160.2_2540D_W**

Sample ID	MB-46083	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	7/17/2014	RunNo:	94181		
Client ID:	PBW	Batch ID:	46083	TestNo:	SM2540D			Analysis Date:	7/17/2014	SeqNo:	1807573		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter		ND		10									

Sample ID	LCS-46083	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	7/17/2014	RunNo:	94181		
Client ID:	LCSW	Batch ID:	46083	TestNo:	SM2540D			Analysis Date:	7/17/2014	SeqNo:	1807574		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter		937.000		10	1000	0	93.7	80	120				

Sample ID	N012961-001D-DUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	7/17/2014	RunNo:	94181		
Client ID:	ZZZZZZ	Batch ID:	46083	TestNo:	SM2540D			Analysis Date:	7/17/2014	SeqNo:	1807576		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter		ND		10						0	0	5	

Qualifiers:

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

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

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



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	MB-46084	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	7/17/2014	RunNo:	94182			
Client ID:	PBW	Batch ID:	46084	TestNo:	SM2540D			Analysis Date:	7/17/2014	SeqNo:	1807586			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filter) ND 10

Sample ID	LCS-46084	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	7/17/2014	RunNo:	94182			
Client ID:	LCSW	Batch ID:	46084	TestNo:	SM2540D			Analysis Date:	7/17/2014	SeqNo:	1807587			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filter) 947.000 10 1000 0 94.7 80 120

Sample ID	N012961-013D-DUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	7/17/2014	RunNo:	94182			
Client ID:	ZZZZZZ	Batch ID:	46084	TestNo:	SM2540D			Analysis Date:	7/17/2014	SeqNo:	1807589			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filter) ND 10 0 0 5

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-BNS-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 12:57 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 07:42 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 01:27 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 06:42 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 01:57 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 07:53 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MAR-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 12:26:00 PM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 02:37 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 08:04 PM

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



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CLIENT:	CH2M HILL	Client Sample ID:	C-MW-80-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:24:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 02:57 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MW-81-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:10:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 03:17 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 03:37 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 08:15 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 03:57 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 08:26 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 04:37 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 08:48 PM

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



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CLIENT:	CH2M HILL	Client Sample ID:	C-R27-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 04:57 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 08:59 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:34:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 05:17 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 09:10 PM

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



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Print Date: 31-Jul-14

CLIENT: CH2M HILL
Lab Order: N012961
Project: PG&E Topock, 423575.MP.02.RM
Lab ID: N012961-012

Client Sample ID: C-TAZ-S-197
Collection Date: 7/15/2014 8:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: IC6_140721A	QC Batch: R94245	PrepDate					
Hexavalent Chromium	ND	0.016	0.20		µg/L	1	Analyst: QBM 7/21/2014 05:36 PM
DISSOLVED METALS BY ICP-MS							
EPA 3010A							
EPA 6020							
RunID: ICP7_140722B	QC Batch: 46089	PrepDate					
Chromium	ND	0.030	1.0		µg/L	1	Analyst: CEI 7/22/2014 09:21 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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R63-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 05:56 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 09:32 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RMP-AB1-197
Lab Order:	N012961	Collection Date:	7/15/2014 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 06:41 PM

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT: CH2M HILL
Lab Order: N012961
Project: PG&E Topock, 423575.MP.02.RM
Lab ID: N012961-015

Client Sample ID: C-CON-D-197
Collection Date: 7/16/2014 9:12:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245				PrepDate		Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20		µg/L	1	7/21/2014 07:02 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089				PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0		µg/L	1	7/22/2014 10:12 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 07:22 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 10:23 PM

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



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CLIENT:	CH2M HILL	Client Sample ID:	C-MW-82-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:10:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 07:42 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MW-83-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:42:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC**EPA 218.6**

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM			
Hexavalent Chromium	ND	0.016	0.20	µg/L	1	7/21/2014 08:02 PM

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

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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 09:21 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 10:34 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140721A	QC Batch: R94245	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/21/2014 09:01 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 10:45 PM

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



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CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 11:37 AM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 10:56 PM

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



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CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 12:07 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 11:18 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 12:37 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 11:29 PM

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



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CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 02:05 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 11:40 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-19-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 02:25 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/22/2014 11:51 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-28-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 04:45 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46090	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/23/2014 12:25 AM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RMP-AB2-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:20:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-027		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 03:05 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RRB-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:16:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 03:25 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140724A	QC Batch: 46156	PrepDate	7/24/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/24/2014 04:20 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	SW1-197
Lab Order:	N012961	Collection Date:	7/16/2014 6:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-029		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 04:55 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140724A	QC Batch: 46156	PrepDate	7/24/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/24/2014 04:48 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	SW2-197
Lab Order:	N012961	Collection Date:	7/16/2014 6:58:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-030		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_140722A	QC Batch: R94254	PrepDate	Analyst: QBM
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			7/22/2014 04:25 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46090	PrepDate	7/18/2014	Analyst: CEI
Chromium	ND	0.030	1.0	
			µg/L	1
				7/23/2014 12:58 AM

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



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CLIENT: CH2M HILL
 Work Order: N012961
 Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WPGE

Sample ID	MB-R94245	SampType:	MBLK	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	PBW	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811225			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium ND 0.20

Sample ID	LCS-R94245	SampType:	LCS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	LCSW	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811226			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.017 0.20 5.000 0 100 90 110

Sample ID	N012961-001A-DUP	SampType:	DUP	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811228			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 0.082 0.20 0.06860 0 20

Sample ID	N012961-001A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811229			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.058 0.20 1.000 0.06860 99.0 90 110

Sample ID	N012961-002A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245		
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811231		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.093 0.20 1.000 0.07350 102 90 110

Qualifiers:

B Analyte detected in the associated Method Blank
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 E Value above quantitation range
 R RPD outside accepted recovery limits
 Calculations are based on raw values
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference



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Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WPGE

Sample ID	N012961-002A-MSD	SampType:	MSD	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245		
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811232		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.133	0.20	1.000	0.07350	106	90	110	1.093	3.62	20

Sample ID	N012961-003A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245		
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811234		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.025	0.20	1.000	0.07260	95.2	90	110

Sample ID	N012961-004A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245		
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811238		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.112	0.20	1.000	0.06430	105	90	110

Sample ID	N012961-007A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245		
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811244		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.094	0.20	1.000	0.08070	101	90	110

Sample ID	N012961-008A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94245		
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811246		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.058	0.20	1.000	0.07140	98.7	90	110

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WPGE

Sample ID	N012961-009A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94245					
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6	Analysis Date: 7/21/2014	SeqNo: 1811250						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.078	0.20	1.000	0.07260	101	90	110				

Sample ID	N012961-010A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:				RunNo: 94245			
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6		Analysis Date: 7/21/2014				SeqNo: 1811252			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Hexavalent Chromium	1.114	0.20	1.000	0.08400	103	90	110				

Sample ID	N012961-011A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:				RunNo: 94245			
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6		Analysis Date: 7/21/2014				SeqNo: 1811254			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Hexavalent Chromium	1.079	0.20	1.000	0.08040	99.8	90	110				

Sample ID	N012961-012A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94245					
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6	Analysis Date: 7/21/2014	SeqNo: 1811256						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.095	0.20	1.000	0.07760	102	90	110				

Sample ID	N012961-013A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94245					
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6	Analysis Date: 7/21/2014	SeqNo: 1811258						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.121	0.20	1.000	0.08360	104	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WPGE

Sample ID	N012961-015A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94245					
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6	Analysis Date: 7/21/2014	SeqNo: 1811264						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.099	0.20	1.000	0.06850	103	90	110				

Sample ID	N012961-016A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:				RunNo: 94245			
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6		Analysis Date: 7/21/2014				SeqNo: 1811266			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Hexavalent Chromium	1.100	0.20	1.000	0.07670	102	90	110				

Sample ID	N012961-019A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:				RunNo: 94245			
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6		Analysis Date: 7/21/2014				SeqNo: 1811273			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Hexavalent Chromium	1.122	0.20	1.000	0.07210	105	90	110				

Sample ID	N012961-020A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94245					
Client ID:	ZZZZZZ	Batch ID: R94245	TestNo: EPA 218.6	Analysis Date: 7/21/2014	SeqNo: 1811275						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.117	0.20	1.000	0.08520	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WPGE

Sample ID	MB-R94254	SampType:	MBLK	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94254			
Client ID:	PBW	Batch ID:	R94254	TestNo:	EPA 218.6			Analysis Date:	7/22/2014	SeqNo:	1811635			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium ND 0.20

Sample ID	LCS-R94254	SampType:	LCS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94254			
Client ID:	LCSW	Batch ID:	R94254	TestNo:	EPA 218.6			Analysis Date:	7/22/2014	SeqNo:	1811636			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.104 0.20 5.000 0 102 90 110

Sample ID	N012961-021A-DUP	SampType:	DUP	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94254			
Client ID:	ZZZZZZ	Batch ID:	R94254	TestNo:	EPA 218.6			Analysis Date:	7/22/2014	SeqNo:	1811638			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 0.082 0.20 0.07680 0 20

Sample ID	N012961-021A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94254					
Client ID: ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811639							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.110 0.20 1.000 0.07680 103 90 110

Sample ID	N012961-022A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94254			
Client ID:	ZZZZZZ	Batch ID:	R94254	TestNo:	EPA 218.6			Analysis Date:	7/22/2014	SeqNo:	1811641			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.080 0.20 1.000 0.06580 101 90 110

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WPGE

Sample ID	N012961-022A-MSD	SampType: MSD	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94254					
Client ID:	ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811642						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.092	0.20	1.000	0.06580	103	90	110	1.080	1.06	20

Sample ID	N012961-023A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:				RunNo: 94254			
Client ID:	ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6		Analysis Date: 7/22/2014				SeqNo: 1811644			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Hexavalent Chromium	1.129	0.20	1.000	0.08050	105	90	110

Sample ID	N012961-024A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94254					
Client ID:	ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811648						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.092	0.20	1.000	0.08560	101	90	110

Sample ID	N012961-025A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:				RunNo: 94254		
Client ID:	ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014				SeqNo: 1811650			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.126	0.20	1.000	0.08080	105	90	110

Sample ID	N012961-026A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:	RunNo: 94254					
Client ID:	ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811651						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.132	0.20	1.000	0.07790	105	90	110

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WPGE

Sample ID	N012961-028A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94254			
Client ID:	ZZZZZZ	Batch ID:	R94254	TestNo:	EPA 218.6			Analysis Date:	7/22/2014	SeqNo:	1811655			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.097	0.20	1.000	0.07090	103	90	110

Sample ID	N012961-029A-MS	SampType:	MS	TestCode:	218.6R_WPG	Units:	µg/L	Prep Date:		RunNo:	94254			
Client ID:	ZZZZZZ	Batch ID:	R94254	TestNo:	EPA 218.6			Analysis Date:	7/22/2014	SeqNo:	1811658			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.118	0.20	1.000	0.06980	105	90	110

Sample ID	N012961-030A-MS	SampType: MS	TestCode: 218.6R_WPG	Units: µg/L	Prep Date:				RunNo: 94254			
Client ID: ZZZZZZ		Batch ID: R94254	TestNo: EPA 218.6		Analysis Date: 7/22/2014				SeqNo: 1811660			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.128	0.20	1.000	0.07210	106	90	110

Qualifiers:

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

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

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



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WUPGE

Sample ID	MB-R94245	SampType:	MBLK	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	PBW	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811285			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium ND 0.20

Sample ID	LCS-R94245	SampType:	LCS	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	LCSW	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811286			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.017 0.20 5.000 0 100 90 110

Sample ID	N012961-001A-DUP	SampType:	DUP	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811288			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 0.082 0.20 0.06860 0 20

Sample ID	N012961-002A-MS	SampType:	MS	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811291			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.093 0.20 1.000 0.07350 102 90 110

Sample ID	N012961-002A-MSD	SampType:	MSD	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245			
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811292			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.133 0.20 1.000 0.07350 106 90 110 1.093 3.62 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WUPGE

Sample ID	N012961-005A-MS	SampType:	MS	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811300
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium	1.019	0.20	1.000	0	102	90	110

Sample ID	N012961-006A-MS	SampType:	MS	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811302
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110

Sample ID	N012961-014A-MS	SampType:	MS	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811322
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium	1.054	0.20	1.000	0	105	90	110

Sample ID	N012961-017A-MS	SampType:	MS	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811328
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium	1.066	0.20	1.000	0	107	90	110

Sample ID	N012961-018A-MS	SampType:	MS	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94245
Client ID:	ZZZZZZ	Batch ID:	R94245	TestNo:	EPA 218.6			Analysis Date:	7/21/2014	SeqNo:	1811330
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium	1.083	0.20	1.000	0	108	90	110

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WUPGE

Sample ID MB-R94254	SampType: MBLK	TestCode: 218.6R_WUP	Units: µg/L	Prep Date:	RunNo: 94254
Client ID: PBW	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811693	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium ND 0.20

Sample ID LCS-R94254	SampType: LCS	TestCode: 218.6R_WUP	Units: µg/L	Prep Date:	RunNo: 94254
Client ID: LCSW	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811694	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium 5.104 0.20 5.000 0 102 90 110

Sample ID N012961-021A-DUP	SampType: DUP	TestCode: 218.6R_WUP	Units: µg/L	Prep Date:	RunNo: 94254
Client ID: ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811696	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium 0.082 0.20 0.07680 0 20

Sample ID N012961-022A-MS	SampType: MS	TestCode: 218.6R_WUP	Units: µg/L	Prep Date:	RunNo: 94254
Client ID: ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811699	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium 1.080 0.20 1.000 0.06580 101 90 110

Sample ID N012961-022A-MSD	SampType: MSD	TestCode: 218.6R_WUP	Units: µg/L	Prep Date:	RunNo: 94254
Client ID: ZZZZZZ	Batch ID: R94254	TestNo: EPA 218.6	Analysis Date: 7/22/2014	SeqNo: 1811700	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium 1.092 0.20 1.000 0.06580 103 90 110 1.080 1.06 20

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6R_WUPGE

Sample ID	N012961-027A-MS	SampType:	MS	TestCode:	218.6R_WUP	Units:	µg/L	Prep Date:		RunNo:	94254
Client ID:	ZZZZZZ	Batch ID:	R94254	TestNo:	EPA 218.6			Analysis Date:	7/22/2014	SeqNo:	1811711
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium		1.052		0.20	1.000	0	105	90	110		

Qualifiers:

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

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

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



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Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-46089	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	PBW	Batch ID:	46089	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/22/2014	SeqNo:	1811808			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID	LCS-46089	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	LCSW	Batch ID:	46089	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/22/2014	SeqNo:	1811809			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.405 1.0 10.00 0 94.0 85 115

Sample ID	N012961-002C-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	ZZZZZZ	Batch ID:	46089	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/22/2014	SeqNo:	1811815			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.308 1.0 10.00 0.09250 92.2 75 125

Sample ID	N012961-002C-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	ZZZZZZ	Batch ID:	46089	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/22/2014	SeqNo:	1811817			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.331 1.0 10.00 0.09250 92.4 75 125 9.308 0.250 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-46090	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	PBW	Batch ID:	46090	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/23/2014	SeqNo:	1811868			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID	LCS-46090	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	LCSW	Batch ID:	46090	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/23/2014	SeqNo:	1811871			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.532 1.0 10.00 0 95.3 85 115

Sample ID	N012966-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	ZZZZZZ	Batch ID:	46090	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/23/2014	SeqNo:	1811887			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 15.641 1.0 10.00 6.430 92.1 75 125

Sample ID	N012966-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	ZZZZZZ	Batch ID:	46090	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/23/2014	SeqNo:	1811889			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 15.507 1.0 10.00 6.430 90.8 75 125 15.64 0.860 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-46156	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330			
Client ID:	PBW	Batch ID:	46156	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2014	SeqNo:	1814494			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID	LCS-46156	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330			
Client ID:	LCSW	Batch ID:	46156	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2014	SeqNo:	1814495			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 10.255 1.0 10.00 0 103 85 115

Sample ID	N012961-028C-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330			
Client ID:	ZZZZZZ	Batch ID:	46156	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2014	SeqNo:	1814499			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.874 1.0 10.00 0.06483 98.1 75 125

Sample ID	N012961-028C-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330			
Client ID:	ZZZZZZ	Batch ID:	46156	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2014	SeqNo:	1814500			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.824 1.0 10.00 0.06483 97.6 75 125 9.874 0.514 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-BNS-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.35 0.022	0.050 mg/L	1 7/29/2014

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		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.38 0.022	0.050 mg/L	1 7/29/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	1.2	0.022	0.050
		mg/L	1
			7/29/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MAR-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 12:26:00 PM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.29	0.022	0.050
			mg/L
			1
			7/29/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.36 0.022	0.050 mg/L	1 7/29/2014

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		



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID:	WETCHEM3_140729A	QC Batch:	R94350	PrepDate		Analyst:	PS
	Nitrate/Nitrite as N	0.39	0.022	0.050	mg/L	1	7/29/2014

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		



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.73	0.022	0.050
			mg/L
			1
			7/29/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.38 0.022	0.050 mg/L	1 7/30/2014

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		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:34:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.42	0.022	0.050
		mg/L	1
			7/29/2014

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		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.35 0.022	0.050 mg/L	1 7/29/2014

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		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R63-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.32 0.022	0.050 mg/L	1 7/29/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:12:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.42 0.022 0.050	mg/L	1 7/29/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140729A	QC Batch: R94350	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.43 0.022 0.050	mg/L	1 7/29/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.38 0.022	0.050 mg/L	1 7/30/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.38 0.022	0.050 mg/L	1 7/30/2014

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		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION**SM4500-NO3F**

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.35 0.022 0.050	mg/L	1 7/30/2014

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		

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.38 0.022	0.050 mg/L	1 7/30/2014

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		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION**SM4500-NO3F**

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.39 0.022 0.050	mg/L	1 7/30/2014

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		

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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.46	0.022	0.050
		mg/L	1
			7/30/2014

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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-19-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.41 0.022	0.050 mg/L	1 7/30/2014

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		



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-28-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION**SM4500-NO3F**

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.37 0.022 0.050	mg/L	1 7/30/2014

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		

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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RRB-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:16:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM3_140730A	QC Batch: R94352	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.35 0.022	0.050 mg/L	1 7/30/2014

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		



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CLIENT: CH2M HILL
 Work Order: N012961
 Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R94350	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94350		
Client ID:	PBW	Batch ID:	R94350	TestNo:	SM4500-NO3			Analysis Date:	7/29/2014	SeqNo:	1815679		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N ND 0.050

Sample ID	LCS-R94350	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94350			
Client ID:	LCSW	Batch ID:	R94350	TestNo:	SM4500-NO3			Analysis Date:	7/29/2014	SeqNo:	1815680			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 1.120 0.050 1.000 0 112 85 115

Sample ID	N012961-016E-DUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94350		
Client ID:	ZZZZZZ	Batch ID:	R94350	TestNo:	SM4500-NO3			Analysis Date:	7/29/2014	SeqNo:	1815735		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.394 0.050 0.4289 8.46 20

Sample ID	N012961-016E-MS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94350			
Client ID:	ZZZZZZ	Batch ID:	R94350	TestNo:	SM4500-NO3			Analysis Date:	7/29/2014	SeqNo:	1815875			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 1.420 0.050 1.000 0.4289 99.1 85 115

Sample ID	N012961-016E-MSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94350			
Client ID:	ZZZZZZ	Batch ID:	R94350	TestNo:	SM4500-NO3			Analysis Date:	7/29/2014	SeqNo:	1815876			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 1.293 0.050 1.000 0.4289 86.4 85 115 1.420 9.41 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R94352	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94352			
Client ID:	PBW	Batch ID:	R94352	TestNo:	SM4500-NO3			Analysis Date:	7/30/2014	SeqNo:	1815714			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N ND 0.050

Sample ID	LCS-R94352	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94352			
Client ID:	LCSW	Batch ID:	R94352	TestNo:	SM4500-NO3			Analysis Date:	7/30/2014	SeqNo:	1815715			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.971 0.050 1.000 0 97.1 85 115

Sample ID	N012961-028E-MS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94352			
Client ID:	ZZZZZZ	Batch ID:	R94352	TestNo:	SM4500-NO3			Analysis Date:	7/30/2014	SeqNo:	1815727			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 1.287 0.050 1.000 0.3453 94.1 85 115

Sample ID	N012961-028E-MSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94352			
Client ID:	ZZZZZZ	Batch ID:	R94352	TestNo:	SM4500-NO3			Analysis Date:	7/30/2014	SeqNo:	1815728			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 1.496 0.050 1.000 0.3453 115 85 115 1.286 15.1 20 S

Sample ID	N012961-028E-DUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	94352			
Client ID:	ZZZZZZ	Batch ID:	R94352	TestNo:	SM4500-NO3			Analysis Date:	7/30/2014	SeqNo:	1815736			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.330 0.050 0.3453 4.56 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-BNS-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.031	0.0013	0.020	mg/L	1	7/18/2014 11:56 AM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 04:16 PM

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.061	0.0013	0.020	mg/L	1	7/18/2014 11:34 AM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 03:19 PM

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.036	0.0013	0.020	mg/L	1	7/18/2014 12:00 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 04:20 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MAR-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 12:26:00 PM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	4.0	0.0013	0.020	mg/L	1	7/18/2014 12:04 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 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		



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.037	0.0013	0.020	mg/L	1	7/18/2014 12:17 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 04:29 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.031	0.0013	0.020	mg/L	1	7/18/2014 12:22 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 04:33 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.039	0.0013	0.020	mg/L	1	7/18/2014 12:26 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 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		



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CLIENT:	CH2M HILL	Client Sample ID:	C-R27-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.022	0.0013	0.020	mg/L	1	7/18/2014 12:30 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 04:42 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:34:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.036	0.0013	0.020	mg/L	1	7/18/2014 12:35 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 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		



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014		Analyst: CEI
Iron	0.033	0.0013	0.020	mg/L	1		7/18/2014 12:39 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014		Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1		7/18/2014 04:51 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R63-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.39	0.0013	0.020	mg/L	1	7/18/2014 12:44 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 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		



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:12:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.048	0.0013	0.020	mg/L	1	7/18/2014 12:48 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 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		



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.022	0.0013	0.020	mg/L	1	7/18/2014 12:52 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 05:13 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.041	0.0013	0.020	mg/L	1	7/18/2014 12:57 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 05:48 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014		Analyst: CEI
Iron	0.033	0.0013	0.020	mg/L	1		7/18/2014 01:11 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014		Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1		7/18/2014 06:01 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.037	0.0013	0.020	mg/L	1	7/18/2014 01:15 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 05:26 PM

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 01:20 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 05:31 PM

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093		PrepDate	7/18/2014	Analyst: CEI
Iron	0.029	0.0013	0.020	mg/L	7/18/2014 01:24 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095		PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	7/18/2014 05:35 PM

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093		PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	7/18/2014 01:28 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095		PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	7/18/2014 05:39 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		



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-19-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46093			PrepDate	7/18/2014	Analyst: CEI
Iron	0.066	0.0013	0.020	mg/L	1	7/18/2014 01:33 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46095			PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	1	7/18/2014 05:44 PM

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-28-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46094			PrepDate	7/18/2014	Analyst: CEI
Iron	0.045	0.0013	0.020	mg/L	1	7/18/2014 01:46 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46094			PrepDate	7/18/2014	Analyst: CEI
Iron	0.041	0.0013	0.020	mg/L	1	7/18/2014 02:20 PM

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RRB-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:16:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46094		PrepDate	7/18/2014	Analyst: CEI
Iron	0.11	0.0013	0.020	mg/L	7/18/2014 02:16 PM

DISSOLVED METALS BY ICP
EPA 3010A
EPA 6010B

RunID: ICP2_140718A	QC Batch: 46094		PrepDate	7/18/2014	Analyst: CEI
Iron	ND	0.0013	0.020	mg/L	7/18/2014 02:25 PM

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



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CLIENT: CH2M HILL
 Work Order: N012961
 Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010W_HINK

Sample ID	MB-46093	SampType:	MBLK	TestCode:	6010W_HINK	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	PBW	Batch ID:	46093	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809733			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.002		0.020										

Sample ID	LCS-46093	SampType:	LCS	TestCode:	6010W_HINK	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	LCSW	Batch ID:	46093	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809734			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.101		0.020	0.1000	0		101	85	115				

Sample ID	N012961-002B-MS	SampType:	MS	TestCode:	6010W_HINK	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	ZZZZZZ	Batch ID:	46093	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809738			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.155		0.020	0.1000	0.06054		94.3	75	125				

Sample ID	N012961-002B-MSD	SampType:	MSD	TestCode:	6010W_HINK	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	ZZZZZZ	Batch ID:	46093	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809739			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.157		0.020	0.1000	0.06054		96.3	75	125	0.1548	1.31	20	

Qualifiers:

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

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

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



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010W_HINK

Sample ID	MB-46094	SampType:	MBLK	TestCode:	6010W_HINK	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	PBW	Batch ID:	46094	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809763			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 0.020

Sample ID	LCS-46094	SampType:	LCS	TestCode:	6010W_HINK	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	LCSW	Batch ID:	46094	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809764			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.099 0.020 0.1000 0 98.7 85 115

Sample ID	N012961-026B-MS	SampType:	MS	TestCode:	6010W_HINK	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	ZZZZZZ	Batch ID:	46094	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809770			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.146 0.020 0.1000 0.04536 101 75 125

Sample ID	N012961-026B-MSD	SampType:	MSD	TestCode:	6010W_HINK	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	ZZZZZZ	Batch ID:	46094	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809771			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.137 0.020 0.1000 0.04536 91.5 75 125 0.1463 6.69 20

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010WD_HINK

Sample ID	MB-46094	SampType:	MBLK	TestCode:	6010WD_HIN	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	PBW	Batch ID:	46094	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809959			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 0.020

Sample ID	LCS-46094	SampType:	LCS	TestCode:	6010WD_HIN	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	LCSW	Batch ID:	46094	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809960			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.099 0.020 0.1000 0 98.7 85 115

Sample ID	N012961-026B-MS	SampType:	MS	TestCode:	6010WD_HIN	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	ZZZZZZ	Batch ID:	46094	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809966			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.146 0.020 0.1000 0.04536 101 75 125

Sample ID	N012961-026B-MSD	SampType:	MSD	TestCode:	6010WD_HIN	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	ZZZZZZ	Batch ID:	46094	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809967			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.137 0.020 0.1000 0.04536 91.5 75 125 0.1463 6.69 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
 Work Order: N012961
 Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010WD_HINK

Sample ID	MB-46095	SampType:	MBLK	TestCode:	6010WD_HIN	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	PBW	Batch ID:	46095	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809980			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 0.020

Sample ID	LCS-46095	SampType:	LCS	TestCode:	6010WD_HIN	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	LCSW	Batch ID:	46095	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809981			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.096 0.020 0.1000 0 95.6 85 115

Sample ID	N012961-002C-MS	SampType:	MS	TestCode:	6010WD_HIN	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	ZZZZZZ	Batch ID:	46095	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809985			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.096 0.020 0.1000 0.005517 90.8 75 125

Sample ID	N012961-002C-MSD	SampType:	MSD	TestCode:	6010WD_HIN	Units:	mg/L	Prep Date:	7/18/2014	RunNo:	94215			
Client ID:	ZZZZZZ	Batch ID:	46095	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/18/2014	SeqNo:	1809986			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 0.093 0.020 0.1000 0.005517 87.2 75 125 0.09628 3.80 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-BNS-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.1	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS

Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L
Barium	110	0.15	5.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	3.9	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-I-3-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 9:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.0	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-MAR-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 12:26:00 PM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L
Barium	120	0.030	1.0	µg/L
Manganese	81	0.026	0.50	µg/L
Molybdenum	3.9	0.15	0.50	µg/L
Selenium	1.1	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	3.9	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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


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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R22A-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:56:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L
Barium	100	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	3.9	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.0	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.1	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-D-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:34:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.0	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-TAZ-S-197
Lab Order:	N012961	Collection Date:	7/15/2014 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.0	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R63-197
Lab Order:	N012961	Collection Date:	7/15/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.5	0.027	0.10	µg/L
Barium	120	0.030	1.0	µg/L
Manganese	6.7	0.026	0.50	µg/L
Molybdenum	4.4	0.15	0.50	µg/L
Selenium	1.5	0.069	0.50	µg/L

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:12:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089			PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L	1	7/22/2014 10:12 PM
Barium	110	0.030	1.0	µg/L	1	7/22/2014 10:12 PM
Manganese	ND	0.026	0.50	µg/L	1	7/22/2014 10:12 PM
Molybdenum	4.1	0.15	0.50	µg/L	1	7/22/2014 10:12 PM
Selenium	1.3	0.069	0.50	µg/L	1	7/22/2014 10:12 PM

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-CON-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.0	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.5	0.027	0.10	µg/L
Barium	120	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.3	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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


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CLIENT:	CH2M HILL	Client Sample ID:	C-NR1-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.5	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.2	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:30:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	3.9	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR3-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 10:40:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.0	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-D-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.2	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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


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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	C-NR4-S-197
Lab Order:	N012961	Collection Date:	7/16/2014 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L
Barium	100	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	3.9	0.15	0.50	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS
Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-19-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:48:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46089	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.3	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.0	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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


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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	R-28-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:36:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140722B	QC Batch: 46090	PrepDate	7/18/2014	Analyst: CEI
Arsenic	2.4	0.027	0.10	µg/L
Barium	110	0.030	1.0	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	4.0	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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


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Print Date: 31-Jul-14

CLIENT:	CH2M HILL	Client Sample ID:	RRB-197
Lab Order:	N012961	Collection Date:	7/16/2014 8:16:00 AM
Project:	PG&E Topock, 423575.MP.02.RM	Matrix:	WATER
Lab ID:	N012961-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140724A	QC Batch: 46156	PrepDate	7/24/2014	Analyst: CEI
Arsenic	2.5	0.027	0.10	µg/L
Barium	130	0.15	5.0	µg/L
Manganese	4.2	0.026	0.50	µg/L
Molybdenum	3.9	0.15	0.50	µg/L
Selenium	1.4	0.069	0.50	µg/L

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



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-46089	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252
Client ID:	PBW	Batch ID:	46089	TestNo:	EPA 6020 EPA 3010A			Analysis Date:	7/22/2014	SeqNo:	1811527
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-46089	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252
Client ID:	LCSW	Batch ID:	46089	TestNo:	EPA 6020 EPA 3010A			Analysis Date:	7/22/2014	SeqNo:	1811528
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	9.650	0.10	10.00	0	96.5	85	115				
Barium	99.238	1.0	100.0	0	99.2	85	115				
Manganese	94.081	0.50	100.0	0	94.1	85	115				
Molybdenum	9.541	0.50	10.00	0	95.4	85	115				
Selenium	9.457	0.50	10.00	0	94.6	85	115				

Sample ID	N012961-002C-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252
Client ID:	ZZZZZZ	Batch ID:	46089	TestNo:	EPA 6020 EPA 3010A			Analysis Date:	7/22/2014	SeqNo:	1811534
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.978	0.10	10.00	2.314	96.6	75	125				
Manganese	89.401	0.50	100.0	0	89.4	75	125				
Molybdenum	14.405	0.50	10.00	3.920	105	75	125				
Selenium	10.742	0.50	10.00	1.381	93.6	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N012961-002C-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	ZZZZZZ	Batch ID:	46089	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/22/2014	SeqNo:	1811535			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	227.458	5.0	100.0	115.0	112	75	125							

Sample ID	N012961-002C-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	ZZZZZZ	Batch ID:	46089	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/22/2014	SeqNo:	1811536			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	12.117	0.10	10.00	2.314	98.0	75	125	11.98	1.16	20
Manganese	89.449	0.50	100.0	0	89.4	75	125	89.40	0.0540	20
Molybdenum	14.277	0.50	10.00	3.920	104	75	125	14.41	0.893	20
Selenium	10.981	0.50	10.00	1.381	96.0	75	125	10.74	2.20	20

Sample ID	N012961-002C-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252			
Client ID:	ZZZZZZ	Batch ID:	46089	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/22/2014	SeqNo:	1811539			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	229.097	5.0	100.0	115.0	114	75	125	227.5	0.718	20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-46090	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252
Client ID:	PBW	Batch ID:	46090	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/23/2014	SeqNo:	1811587
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-46090	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252
Client ID:	LCSW	Batch ID:	46090	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/23/2014	SeqNo:	1811590
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.542	0.10	10.00	0	95.4	85	115				
Barium	99.096	1.0	100.0	0	99.1	85	115				
Manganese	96.084	0.50	100.0	0	96.1	85	115				
Molybdenum	9.572	0.50	10.00	0	95.7	85	115				
Selenium	9.588	0.50	10.00	0	95.9	85	115				

Sample ID	N012966-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252
Client ID:	ZZZZZZ	Batch ID:	46090	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/23/2014	SeqNo:	1811606
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.904	0.10	10.00	1.033	98.7	75	125				
Barium	138.566	1.0	100.0	44.89	93.7	75	125				
Manganese	89.373	0.50	100.0	0	89.4	75	125				
Molybdenum	11.849	0.50	10.00	0.9934	109	75	125				
Selenium	10.470	0.50	10.00	0.7626	97.1	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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3151 W. Post Road, Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691
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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N012966-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/18/2014	RunNo:	94252
Client ID:	ZZZZZZ	Batch ID:	46090	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/23/2014	SeqNo:	1811608
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.680	0.10	10.00	1.033	96.5	75	125	10.90	2.07	20	
Barium	137.709	1.0	100.0	44.89	92.8	75	125	138.6	0.621	20	
Manganese	86.776	0.50	100.0	0	86.8	75	125	89.37	2.95	20	
Molybdenum	11.405	0.50	10.00	0.9934	104	75	125	11.85	3.81	20	
Selenium	9.829	0.50	10.00	0.7626	90.7	75	125	10.47	6.31	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-46156	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330
Client ID:	PBW	Batch ID:	46156	TestNo:	EPA 6020 EPA 3010A	Analysis Date:	7/24/2014	SeqNo:	1814409		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.027	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-46156	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330
Client ID:	LCSW	Batch ID:	46156	TestNo:	EPA 6020 EPA 3010A	Analysis Date:	7/24/2014	SeqNo:	1814410		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.448	0.10	10.00	0	104	85	115				
Barium	104.878	1.0	100.0	0	105	85	115				
Manganese	101.397	0.50	100.0	0	101	85	115				
Molybdenum	9.788	0.50	10.00	0	97.9	85	115				
Selenium	11.041	0.50	10.00	0	110	85	115				

Sample ID	N012961-028C-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330
Client ID:	ZZZZZZ	Batch ID:	46156	TestNo:	EPA 6020 EPA 3010A	Analysis Date:	7/24/2014	SeqNo:	1814414		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.465	0.10	10.00	2.523	109	75	125				
Manganese	101.622	0.50	100.0	4.228	97.4	75	125				
Molybdenum	15.200	0.50	10.00	3.929	113	75	125				
Selenium	11.470	0.50	10.00	1.368	101	75	125				

Sample ID	N012961-028C-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330
Client ID:	ZZZZZZ	Batch ID:	46156	TestNo:	EPA 6020 EPA 3010A	Analysis Date:	7/24/2014	SeqNo:	1814415		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N012961-028C-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94330
Client ID:	ZZZZZZ	Batch ID:	46156	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	7/24/2014	SeqNo:	1814415
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.490	0.10	10.00	2.523	110	75	125	13.47	0.187	20	
Manganese	100.881	0.50	100.0	4.228	96.7	75	125	101.6	0.731	20	
Molybdenum	15.219	0.50	10.00	3.929	113	75	125	15.20	0.125	20	
Selenium	11.371	0.50	10.00	1.368	100	75	125	11.47	0.866	20	

Sample ID	N012961-028C-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94357
Client ID:	ZZZZZZ	Batch ID:	46156	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	7/30/2014	SeqNo:	1815925
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	235.598	5.0	100.0	129.1	107	75	125				

Sample ID	N012961-028C-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	7/24/2014	RunNo:	94357
Client ID:	ZZZZZZ	Batch ID:	46156	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	7/30/2014	SeqNo:	1815926
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	228.369	5.0	100.0	129.1	99.3	75	125	235.6	3.12	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



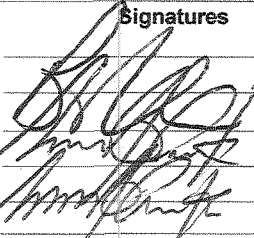
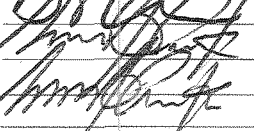
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Project Name PG&E Topock Location Topock Project Number 423575.MP.02.RM Project Manager Jay Piper Sample Manager Shawn Duffy Task Order Project 2014-RMP-197 Turnaround Time 10 Days Shipping Date: 7/8/2014 COC Number: RMP-197				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3X500 ml Poly	3X500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	* Where provided w/3 Cr6 + diss metals bottles, please analyze 1 + hold 2	Number of Containers	COMMENTS
DATE	TIME	Matrix	Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C				
			Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA				
			Holding Time:	28	28	180	180	180	7	7	7	28				
				Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020A)dis Field Filtered As, Mn, Fe, Se, Mo, Ba	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	PH (SM4500HB)	TSS (SM2540)	Nitrate/Nitrite (SM4500NO3) Nitrate				
C-BNS-D-197	7/15/2014	11:14	Water	X		X	X	X	X	X	X	X		9		
C-I-3-D-197	7/15/2014	9:22	Water	X		X	X	X	X	X	X	X		9		
C-I-3-S-197	7/15/2014	9:40	Water	X		X	X	X	X	X	X	X		9		
C-MAR-S-197	7/15/2014	12:26	Water	X		X	X	X	X	X	X	X		9		
C-MW-80-197	7/15/2014	8:24	Water		X									1		
C-MW-81-197	7/15/2014	9:10	Water		X									1		
C-R22A-D-197	7/15/2014	10:40	Water	X		X	X	X	X	X	X	X		9		
C-R22A-S-197	7/15/2014	10:56	Water	X		X	X	X	X	X	X	X		9		
C-R27-D-197	7/15/2014	11:36	Water	X		X	X	X	X	X	X	X		9		
C-R27-S-197	7/15/2014	11:48	Water	X		X	X	X	X	X	X	X		9		
C-TAZ-D-197	7/15/2014	8:34	Water	X		X	X	X	X	X	X	X		9		
C-TAZ-S-197	7/15/2014	8:54	Water	X		X	X	X	X	X	X	X		9		
R63-197	7/15/2014	10:20	Water	X		X	X	X	X	X	X	X		9		
RMP-AB1-197	7/15/2014	12:35	Water		X									1		

Signatures		Date/Time	Shipping Details		ATTN:	Special Instructions:
Approved by		7-16-14	Method of Shipment:	FedEx ICE 1R#2		
Sampled by			On Ice: ☒ yes ☐ no	3.0°C, 2.7°C, 5.1°C		
Relinquished by		7/16/14 @ 1600	Airbill No:	3.5°C 1.6°C 4.0°C		
Received by		7/16/14 @ 1926	Lab Name:	ADVANCED TECHNOLOGY LABORATO		
Relinquished by			Lab Phone:	(702) 307-2659		
Received by						

Project Name PG&E Topock Location Topock Project Number 423575.MP 02.RM Project Manager Jay Piper Sample Manager Shawn Duffy Task Order Project 2014-RMP-197 Turnaround Time 10 Days Shipping Date: 7/8/2014 COC Number: RMP-197	Container: 3X250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28	250 Poly (NH4)2S O4/NH4O H, 4°C NA 28	500 ml Poly HNO3, 4°C NA 180	3X500 ml Poly HNO3, 4°C Field 180	3X500 ml Poly HNO3, 4°C Field 180	1 Liter Poly 4°C NA 7	1 Liter Poly 4°C NA 7	1 Liter Poly 4°C NA 7	125 ml Poly H2SO4, pH<2, 4°C NA 28	*Where provided with 3 Cr6 + diss. metals bottles, please analyze 1 + hold 2	Number of Containers	COMMENTS		
	DATE	TIME	Matrix	Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020A)dis Field Filtered As,Mn,Fe,Se,Mo,Ba	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	PH (SM4500HB)	TSS (SM2540)	Nitrate/Nitrite (SM4500NO3)		
C-CON-D-197	7/16/2014	9:12	Water	X		X	X	X	X	X	X	X	NO12961-15	9
C-CON-S-197	7/16/2014	9:30	Water	X		X	X	X	X	X	X	X	-16	9
C-MW-82-197	7/16/2014	8:10	Water		X								-17	1
C-MW-83-197	7/16/2014	8:42	Water		X								-18	1
C-NR1-D-197	7/16/2014	9:50	Water	X		X	X	X	X	X	X	X	-19	9
C-NR1-S-197	7/16/2014	10:00	Water	X		X	X	X	X	X	X	X	-20	9
C-NR3-D-197	7/16/2014	10:30	Water	X		X	X	X	X	X	X	X	-21	9
C-NR3-S-197	7/16/2014	10:40	Water	X		X	X	X	X	X	X	X	-22	9
C-NR4-D-197	7/16/2014	11:00	Water	X		X	X	X	X	X	X	X	-23	9
C-NR4-S-197	7/16/2014	11:14	Water	X		X	X	X	X	X	X	X	-24	9
R-19-197	7/16/2014	8:48	Water	X		X	X	X	X	X	X	X	-25	9
R-28-197	7/16/2014	8:36	Water	X		X	X	X	X	X	X	X	-26	9
RMP-AB2-197	7/16/2014	11:20	Water		X								-27	1
RRB-197	7/16/2014	8:16	Water	X		X	X	X	X	X	X	X	-28	9

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures   	Date/Time 7-16-14 7/16/14 @ 1600 7/16/14 @ 1826	Shipping Details Method of Shipment: FedEx 105 112#2 On Ice: yes/no 3.0°C, 27°C, 5.1°C Airbill No: 3.5°C, 1.0°C, 4.0°C Lab Name: ADVANCED TECHNOLOGY LABORATORY Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: July 15-16, 2014 Report Copy to Shawn Duffy (530) 229-3303

Project Name PG&E Topock Location Topock Project Number 423575.MP.02.RM Project Manager Jay Piper Sample Manager Shawn Duffy Task Order Project 2014-RMP-197 Turnaround Time 10 Days Shipping Date: 7/8/2014 COC Number: RMP-197	Container: Preservatives: Filtered: Holding Time:	3X250 ml Poly	250 Poly	500 ml Poly	3X500 ml Poly	3X500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	*Where provided w/multiple Cr6 or diss.metals bottles please analyze <u>one</u> + hold 2	Number of Containers	COMMENTS	
		(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C				
		Field	NA	NA	Field	Field	NA	NA	NA	NA				
		28	28	180	180	180	7	7	7	28				
		Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020A)dis Field Filtered As,Mn,Fe,Se,Mo,Ba	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	PH (SM4500HB)	TSS (SM2540)	Nitrate/Nitrite (SM4500NO3) Nitrate				
	DATE	TIME	Matrix											
SW1-197	7/16/2014	6:40	Water	X			X	X	X			N012961-29	5	
SW2-197	7/16/2014	6:58	Water	X			X	X	X			↓ -30	5	
TOTAL NUMBER OF CONTAINERS											214			

Signatures Date/Time		Shipping Details		ATTN: Sample Custody and Marlon	Special Instructions: July 15-16, 2014 Report Copy to Shawn Duffy (530) 229-3303
Approved by Sampled by Relinquished by Received by Relinquished by Received by	7-16-14 7/16/14 10:08 7/16/14 18:26	Method of Shipment: FedEx 100 12#2 On Ice: <u>yes</u> no 3.0°C, 2.7°C, 5.1°C Airbill No: 3.5°C, 1.6°C, 4.0°C Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659			

ASSET Laboratories

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: 7/16/2014

Workorder: N012961

Rep sample Temp (Deg C): 3.6/2.7/5.1/3.5/1.6/4.0

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 shipping 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: Sample for pH analysis is past holding time upon receipt.

Checklist Completed B

For: MBC 7/17/2014

Reviewed By: gog 07/21/14

SAMPLE CALCULATION

METHOD: SM 2540D

TEST NAME: Total Non-Filterable Residue

MATRIX: Water

FORMULA:

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

$$\text{TSS, mg/L} = \frac{(A-B) * 1000000}{C}$$

Where:

A = weight in g of dish + residue after drying

B = weight of dish in g

C = volume of sample used in mL

For **N012961-001D**, TSS concentration in mg/L is calculated as follows:

$$\begin{aligned}\text{TSS, mg/L} &= \frac{(1.4270 - 1.4270) * 1000000}{100} \\ &= 0 \text{ mg/L}\end{aligned}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND


7/18/2014

SAMPLE CALCULATION

METHOD: SM 2540D

TEST NAME: Total Non-Filterable Residue

MATRIX: Water

FORMULA:

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

$$\text{TSS, mg/L} = \frac{(A-B) * 1000000}{C}$$

Where:

A = weight in g of dish + residue after drying

B = weight of dish in g

C = volume of sample used in mL

For **N012961-013D**, TSS concentration in mg/L is calculated as follows:

$$\begin{aligned}\text{TSS, mg/L} &= \frac{(1.4331 - 1.4323) * 1000000}{100} \\ &= 8 \text{ mg/L}\end{aligned}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND


7/18/2014

TOTAL SUSPENDED SOLIDS, TSS

$$\text{TSS, mg/L} = (A-B) \times 1000000 / C$$

WHERE:

A = weight in grams of dish + residue after drying

B = weight of dish in grams

C = volume of sample used in mL

Date: 7/17/2014	vol of sample	Wi	Wf	TSS, mg/L
MB-46083	100	1.4353	1.4353	0
LCS-46083	100	1.4317	1.5254	937
N012961-001D	100	1.427	1.427	0
N012961-001D-DUP	100	1.4321	1.4321	0
N012961-002D	100	1.4401	1.4405	4
N012961-003D	100	1.4325	1.4325	0
N012961-004D	100	1.4211	1.4359	148
N012961-007D	100	1.4305	1.4307	2
N012961-008D	100	1.4221	1.4224	3
N012961-009D	100	1.4339	1.434	1
N012961-010D	100	1.4299	1.4299	0
N012961-011D	100	1.426	1.4265	5
N012961-012D	100	1.4438	1.4438	0


7/18/2014

TOTAL SUSPENDED SOLIDS, TSS

$$\text{TSS, mg/L} = (A-B) \times 1000000 / C$$

WHERE:

A = weight in grams of dish + residue after drying

B = weight of dish in grams

C = volume of sample used in mL

Date: 7/17/2014	vol of sample	Wi	Wf	TSS, mg/L
MB-46084	100	1.4442	1.4442	0
LCS-46084	100	1.4394	1.5341	947
N012961-013D	100	1.4323	1.4331	8
N012961-013D-DUP	100	1.4511	1.4517	6
N012961-015D	100	1.4268	1.4271	3
N013961-016D	100	1.4382	1.4385	3
N013961-019D	100	1.4272	1.4273	1
N013961-020D	100	1.4444	1.4444	0
N013961-021D	100	1.4246	1.4248	2
N013961-022D	100	1.424	1.4243	3
N013961-023D	100	1.4364	1.4366	2
N013961-024D	100	1.4174	1.4174	0
N013961-025D	100	1.4319	1.4323	4
N013961-026D	100	1.4274	1.4275	1
N013961-028D	100	1.4343	1.4347	4


7/18/2014

Sample Calculation

METHOD: EPA 218.6R
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in $\mu\text{g/L}$, in the original sample as follows:

$$\text{Cr}^{+6}, \mu\text{g/L} = A * \text{DF}$$

where:

A = $\mu\text{g/L}$, IC Cr^{+6} calculated concentration
DF = dilution factor

For **N012961-001A** concentration in $\mu\text{g/L}$ is calculated as follows:

$$\begin{aligned}\text{Cr}^{+6}, \mu\text{g/L} &= 0.0686 * 1 \\ &= 0.0686\end{aligned}$$

Since PQL is $0.20 \mu\text{g/L}$,

$$\text{Cr}^{+6}, \text{mg/L} = \text{ND}$$



7/30/2014

Sample Calculation

METHOD: EPA 218.6R
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in $\mu\text{g/L}$, in the original sample as follows:

$$\text{Cr}^{+6}, \mu\text{g/L} = A * \text{DF}$$

where:

A = $\mu\text{g/L}$, IC Cr^{+6} calculated concentration
DF = dilution factor

For **N012961-005A** concentration in $\mu\text{g/L}$ is calculated as follows:

$$\begin{aligned}\text{Cr}^{+6}, \mu\text{g/L} &= 0.000000 * 1 \\ &= 0.000000\end{aligned}$$

Since PQL is $0.20 \mu\text{g/L}$,

$$\text{Cr}^{+6}, \mu\text{g/L} = \text{ND}$$



7/30/2014

SAMPLE CALCULATION

METHOD: 4500NO3F_W

TEST NAME: NITRATE/NITRITE-N BY CADMIUM REDUCTION

MATRIX: WATER

FORMULA:

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

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

Where:

A= mg/L,

DF= dilution factor

For **N012961-019E**, concentration in mg/L is calculated as follows:

$$\text{Nitrate/Nitrite, mg/L} = 0.3803 * 1$$

$$= 0.3803 \text{ mg/L}$$

Reporting result in two significant figures,

as N

$$\text{Nitrate/Nitrite} = 0.38 \text{ mg/L}$$

Sample Calculation

METHOD: EPA 6010

TEST NAME: Heavy Metals by ICP

MATRIX: Groundwater

FORMULA:

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

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

where:

A = mg/L, calculated concentration

DF = dilution factor

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

For Sample **N012961-026C**, the concentration in mg/L is calculated as follows:

$$\begin{aligned}\text{Iron, mg/L} &= 0.041158744 * 1 * (25/25) \\ &= 0.041158744\end{aligned}$$

Reporting results in two significant figures,

$$\text{Iron, mg/L} = 0.041$$



7/30/2014

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N012961
Test Method: EPA 6010
Analysis Date: 7/18/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46094

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments: _____ Analyzed By: Mary Claire Ignacio

Dilution test is not applicable for Fe. The calculated value is <25X the RL. PS @2X passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N012961-026B-DT 5X	Iron	mg/L	0.050697205	NA	0.045356051	11.78%	10

Note: NA - Not Applicable

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N012961
Test Method: EPA 6010
Analysis Date: 7/18/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46095

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments: Analyzed By: Mary Claire Ignacio

Dilution test is not applicable for Fe. The calculated value is <25X the RL. PS @2X passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N012961-002C-DT 5X	Iron	mg/L	0.007631025	NA	0.005516518	38.33%	10

Note: NA - Not Applicable

CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT**TestCode: 6010WD_HINK**

Sample ID: N012961-026B-PS	SampType: PS	TestCode: 6010WD_HIN	Units: mg/L	Prep Date:	RunNo: 94215						
Client ID: ZZZZZ	Batch ID: 46094	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 7/18/2014	SeqNo: 1809965						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.678	0.040	5.000	0.04536	92.6	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: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010WD_HINK

Sample ID: N012961-002C-PS	SampType: PS	TestCode: 6010WD_HIN	Units: mg/L	Prep Date:	RunNo: 94215						
Client ID: ZZZZZZ	Batch ID: 46095	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 7/18/2014	SeqNo: 1809984						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.670	0.040	5.000	0	93.4	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 6010

TEST NAME: Heavy Metals by ICP

MATRIX: Groundwater

FORMULA:

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

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

where:

A = mg/L, calculated concentration

DF = dilution factor

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

For Sample **N012961-001B**, the concentration in mg/L is calculated as follows:

$$\begin{aligned} \text{Iron, mg/L} &= 0.030521256 * 1 * (25/25) \\ &= 0.030521256 \end{aligned}$$

Reporting results in two significant figures,

$$\text{Iron, mg/L} = 0.031$$



7/30/2014

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N012961
Test Method: EPA 6010
Analysis Date: 7/18/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46093

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments: _____ Analyzed By: Mary Claire Ignacio

Dilution test is not applicable for Fe. The calculated value is <25X the RL. PS @2X passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N012961-002B-DT 5X	Iron	mg/L	0.073377955	NA	0.06054035	21.21%	10

Note: NA - Not Applicable

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N012961
Test Method: EPA 6010
Analysis Date: 7/18/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46094

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments: _____ Analyzed By: Mary Claire Ignacio

Dilution test is not applicable for Fe. The calculated value is <25X the RL. PS @2X passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N012961-026B-DT 5X	Iron	mg/L	0.050697205	NA	0.045356051	11.78%	10

Note: NA - Not Applicable

CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT**TestCode: 6010W_HINK**

Sample ID: N012961-002B-PS	SampType: PS	TestCode: 6010W_HINK	Units: mg/L	Prep Date:	RunNo: 94215						
Client ID: ZZZZZ	Batch ID: 46093	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 7/18/2014	SeqNo: 1809737						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.708	0.040	5.000	0.06054	92.9	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: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010W_HINK

Sample ID: N012961-026B-PS	SampType: PS	TestCode: 6010W_HINK	Units: mg/L	Prep Date:	RunNo: 94215						
Client ID: ZZZZZZ	Batch ID: 46094	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 7/18/2014	SeqNo: 1809769						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.678	0.040	5.000	0.04536	92.6	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

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

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

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

where:

A = ug/L, calculated concentration

DF = dilution factor

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

For Sample **N012961-028C**, the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Arsenic, ug/L} &= 2.5227703745 * 1 * (25/25) \\ &= 2.5227703745\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 2.5$$

 7/31/2014

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N012961
Test Method: EPA 6020
Analysis Date: 7/22/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46089

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

Comments: Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr, As, Mn, Mo & Se. The calculated values are <25X RL. PS @ 2x passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N012961-002C-DT 5X	Chromium	µg/L	0	NA	0.092503835	100.00%	10
N012961-002C-DT 25X	Arsenic	µg/L	2.261946514	NA	2.314352925	2.26%	10
N012961-002C-DT 5X	Barium	µg/L	123.6545897	PASS	114.9774933	7.55%	10
N012961-002C-DT 5X	Manganese	µg/L	0	NA	0		10
N012961-002C-DT 5X	Molybdenum	µg/L	3.856475848	NA	3.91965525	1.61%	10
N012961-002C-DT 5X	Selenium	µg/L	1.416720139	NA	1.381049861	2.58%	10

Note: NA - Not applicable

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N012961
Test Method: EPA 6020
Analysis Date: 7/22/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46090

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

Comments: Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr, As, Mn, Mo & Se. The calculated values are <25X RL. PS @ 2x passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N012966-001B-DT 5X	Chromium	µg/L	6.722508022	NA	6.430497269	4.54%	10
N012966-001B-DT 5X	Arsenic	µg/L	0.963020557	NA	1.033363928	6.81%	10
N012966-001B-DT 5X	Barium	µg/L	45.88434352	PASS	44.88711512	2.22%	10
N012966-001B-DT 5X	Manganese	µg/L	0	NA	0		10
N012966-001B-DT 5X	Molybdenum	µg/L	0.976432685	NA	0.993417857	1.71%	10
N012966-001B-DT 5X	Selenium	µg/L	0.67958744	NA	0.762616405	10.89%	10

Note: NA - Not applicable

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N012961
Test Method: EPA 6020
Analysis Date: 7/24/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46156

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

Comments: Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr, As, Mn, Mo & Se. The calculated values are <25X RL. PS @ 2x passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N012961-028C-DT 5X	Chromium	µg/L	0	NA	0.064825394	100.00%	10
N012961-028C-DT 5X	Arsenic	µg/L	2.485496972	NA	2.522770375	1.48%	10
N012961-028C-DT 25X	Barium	µg/L	133.2460159	PASS	129.0644022	3.24%	10
N012961-028C-DT 5X	Manganese	µg/L	4.029882261	NA	4.227637571	4.68%	10
N012961-028C-DT 5X	Molybdenum	µg/L	4.134843437	NA	3.928631017	5.25%	10
N012961-028C-DT 5X	Selenium	µg/L	1.367674701	NA	1.368279992	0.04%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

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

Sample ID: N012961-002C-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 94252						
Client ID: ZZZZZZ	Batch ID: 46089	TestNo: EPA 6020	EPA 3010A	Analysis Date: 7/22/2014	SeqNo: 1811532						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.512	0.20	20.00	2.314	91.0	80	120				
Manganese	173.661	1.0	200.0	0	86.8	80	120				
Molybdenum	23.644	1.0	20.00	3.920	98.6	80	120				
Selenium	19.485	1.0	20.00	1.381	90.5	80	120				

Sample ID: N012961-002C-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 94252						
Client ID: ZZZZZ	Batch ID: 46089	TestNo: EPA 6020	EPA 3010A	Analysis Date: 7/22/2014	SeqNo: 1811533						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	578.517	5.0	500.0	115.0	92.7	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

CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N012966-001B-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 94252						
Client ID: ZZZZZZ	Batch ID: 46090	TestNo: EPA 6020	EPA 3010A	Analysis Date: 7/23/2014	SeqNo: 1811604						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.577	0.20	20.00	1.033	92.7	80	120				
Barium	230.483	2.0	200.0	44.89	92.8	80	120				
Manganese	174.409	1.0	200.0	0	87.2	80	120				
Molybdenum	20.983	1.0	20.00	0.9934	99.9	80	120				
Selenium	18.822	1.0	20.00	0.7626	90.3	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N012961-028C-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 94330						
Client ID: ZZZZZ	Batch ID: 46156	TestNo: EPA 6020	EPA 3010A	Analysis Date: 7/24/2014	SeqNo: 1814413						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.813	0.20	20.00	2.523	111	80	120				
Manganese	204.994	1.0	200.0	4.228	100	80	120				
Molybdenum	26.514	1.0	20.00	3.929	113	80	120				
Selenium	22.176	1.0	20.00	1.368	104	80	120				

Sample ID: N012961-028C-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 94330						
Client ID: ZZZZZ	Batch ID: 46156	TestNo: EPA 6020	EPA 3010A	Analysis Date: 7/24/2014	SeqNo: 1814418						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	612.324	5.0	500.0	129.1	96.7	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

CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: N012961-002C-PS	SampType: PS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date:	RunNo: 94252						
Client ID: ZZZZZZ	Batch ID: 46089	TestNo: EPA 6020	EPA 3010A	Analysis Date: 7/22/2014	SeqNo: 1811813						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	17.699	2.0	20.00	0.09250	88.0	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: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: N012966-001B-PS	SampType: PS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date:	RunNo: 94252						
Client ID: ZZZZZZ	Batch ID: 46090	TestNo: EPA 6020	EPA 3010A	Analysis Date: 7/23/2014	SeqNo: 1811885						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	24.707	2.0	20.00	6.430	91.4	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL
Work Order: N012961
Project: PG&E Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: N012961-028C-PS	SampType: PS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date:	RunNo: 94330						
Client ID: ZZZZZZ	Batch ID: 46156	TestNo: EPA 6020	EPA 3010A	Analysis Date: 7/24/2014	SeqNo: 1814498						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.895	2.0	20.00	0.06483	99.2	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

October 09, 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.: N013456

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 25, 2014 by ASSET Laboratories .
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.



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N013456

CASE NARRATIVE**SAMPLE RECEIVING/GENERAL COMMENTS:**

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Molybdenum on QC sample N013456-015B-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium on QC samples N013515-001B-MS and N013515-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on samples N013456-001, N013456-003, N013456-005, N013456-008, N013456-009, N013456-011, N013456-014 and N013456-015 due to failed Internal Standard when samples were analyzed at no dilution.



ASSET Laboratories

Date: 09-Oct-14

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N013456
Contract No: 2014-GMP-199-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N013456-001A	MW-38S-199	Water	9/22/2014 1:58:00 PM	9/25/2014	10/9/2014
N013456-001B	MW-38S-199	Water	9/22/2014 1:58:00 PM	9/25/2014	10/9/2014
N013456-001C	MW-38S-199	Water	9/22/2014 1:58:00 PM	9/25/2014	10/9/2014
N013456-002A	MW-63-065-199	Water	9/22/2014 10:24:00 AM	9/25/2014	10/9/2014
N013456-002B	MW-63-065-199	Water	9/22/2014 10:24:00 AM	9/25/2014	10/9/2014
N013456-002C	MW-63-065-199	Water	9/22/2014 10:24:00 AM	9/25/2014	10/9/2014
N013456-003A	MW-72-080-199	Water	9/22/2014 12:32:00 PM	9/25/2014	10/9/2014
N013456-003B	MW-72-080-199	Water	9/22/2014 12:32:00 PM	9/25/2014	10/9/2014
N013456-003C	MW-72-080-199	Water	9/22/2014 12:32:00 PM	9/25/2014	10/9/2014
N013456-004A	MW-73-080-199	Water	9/23/2014 7:34:00 AM	9/25/2014	10/9/2014
N013456-004B	MW-73-080-199	Water	9/23/2014 7:34:00 AM	9/25/2014	10/9/2014
N013456-004C	MW-73-080-199	Water	9/23/2014 7:34:00 AM	9/25/2014	10/9/2014
N013456-005A	MW-120-199	Water	9/23/2014 8:00:00 AM	9/25/2014	10/9/2014
N013456-005B	MW-120-199	Water	9/23/2014 8:00:00 AM	9/25/2014	10/9/2014
N013456-005C	MW-120-199	Water	9/23/2014 8:00:00 AM	9/25/2014	10/9/2014
N013456-006A	MW-200-199	Water	9/23/2014 6:41:00 AM	9/25/2014	10/9/2014
N013456-007A	MW-201-199	Water	9/23/2014 6:40:00 AM	9/25/2014	10/9/2014
N013456-008A	MW-44-115-199	Water	9/23/2014 12:25:00 PM	9/25/2014	10/9/2014
N013456-008B	MW-44-115-199	Water	9/23/2014 12:25:00 PM	9/25/2014	10/9/2014
N013456-008C	MW-44-115-199	Water	9/23/2014 12:25:00 PM	9/25/2014	10/9/2014
N013456-009A	MW-46-175-199	Water	9/23/2014 10:12:00 AM	9/25/2014	10/9/2014
N013456-009B	MW-46-175-199	Water	9/23/2014 10:12:00 AM	9/25/2014	10/9/2014
N013456-009C	MW-46-175-199	Water	9/23/2014 10:12:00 AM	9/25/2014	10/9/2014
N013456-010A	MW-62-065-199	Water	9/23/2014 2:28:00 PM	9/25/2014	10/9/2014
N013456-010B	MW-62-065-199	Water	9/23/2014 2:28:00 PM	9/25/2014	10/9/2014
N013456-010C	MW-62-065-199	Water	9/23/2014 2:28:00 PM	9/25/2014	10/9/2014
N013456-011A	MW-62-110-199	Water	9/23/2014 2:10:00 PM	9/25/2014	10/9/2014
N013456-011B	MW-62-110-199	Water	9/23/2014 2:10:00 PM	9/25/2014	10/9/2014
N013456-011C	MW-62-110-199	Water	9/23/2014 2:10:00 PM	9/25/2014	10/9/2014



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Page 1 of 2

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N013456
Contract No: 2014-GMP-199-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N013456-012A	MW-202-199	Water	9/24/2014 6:40:00 AM	9/25/2014	10/9/2014
N013456-013A	MW-203-199	Water	9/25/2014 6:50:00 AM	9/25/2014	10/9/2014
N013456-014A	MW-58BR-199	Water	9/24/2014 2:50:00 PM	9/25/2014	10/9/2014
N013456-014B	MW-58BR-199	Water	9/24/2014 2:50:00 PM	9/25/2014	10/9/2014
N013456-014C	MW-58BR-199	Water	9/24/2014 2:50:00 PM	9/25/2014	10/9/2014
N013456-015A	MW-72BR-200-199	Water	9/24/2014 1:08:00 PM	9/25/2014	10/9/2014
N013456-015B	MW-72BR-200-199	Water	9/24/2014 1:08:00 PM	9/25/2014	10/9/2014
N013456-015C	MW-72BR-200-199	Water	9/24/2014 1:08:00 PM	9/25/2014	10/9/2014



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-001

Client Sample ID: MW-38S-199
Collection Date: 9/22/2014 1:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.016	0.20		µg/L	1	9/26/2014 11:16 AM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608				PrepDate	9/30/2014	Analyst: CEI
Chromium	ND	0.030	1.0		µg/L	1	9/30/2014 05:18 PM

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



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Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-63-065-199
Lab Order:	N013456	Collection Date:	9/22/2014 10:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053	PrepDate	Analyst: RB
Hexavalent Chromium	1.6 0.016	0.20 µg/L	1 9/26/2014 11:27 AM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_141006A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Chromium	1.4 0.030	1.0 µg/L	1	10/6/2014 02:23 PM

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



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Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-72-080-199
Lab Order:	N013456	Collection Date:	9/22/2014 12:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053	PrepDate	Analyst: RB
Hexavalent Chromium	140	0.32	4.0
			µg/L
			20
			9/26/2014 03:44 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Chromium	120	0.15	5.0	
			µg/L	
			5	
				9/30/2014 05:35 PM

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



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-004

Client Sample ID: MW-73-080-199
Collection Date: 9/23/2014 7:34:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053				PrepDate		Analyst: RB
Hexavalent Chromium	27	0.080	1.0		µg/L	5	9/26/2014 04:24 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608				PrepDate	9/30/2014	Analyst: CEI
Chromium	23	0.030	1.0		µg/L	1	9/30/2014 05:51 PM

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



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CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-005

Client Sample ID: MW-120-199
Collection Date: 9/23/2014 8:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053				PrepDate		Analyst: RB
Hexavalent Chromium	37	0.080	1.0		µg/L	5	9/26/2014 04:43 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608				PrepDate	9/30/2014	Analyst: CEI
Chromium	31	0.030	1.0		µg/L	1	9/30/2014 06:13 PM

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



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Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-200-199
Lab Order:	N013456	Collection Date:	9/23/2014 6:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053	PrepDate	Analyst: RB
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			9/26/2014 11:36 AM

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



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-201-199
Lab Order:	N013456	Collection Date:	9/23/2014 6:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053	PrepDate	Analyst: RB
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			9/26/2014 11:46 AM

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



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Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-44-115-199
Lab Order:	N013456	Collection Date:	9/23/2014 12:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053	PrepDate	Analyst: RB
Hexavalent Chromium	37 0.080	1.0	µg/L
			5 9/26/2014 01:24 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Chromium	32 0.030	1.0	µg/L	1 9/30/2014 06:24 PM

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



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Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-46-175-199
Lab Order:	N013456	Collection Date:	9/23/2014 10:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053	PrepDate	Analyst: RB
Hexavalent Chromium	14 0.032	0.40	µg/L 2 9/26/2014 01:33 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_141006A	QC Batch: 46650	PrepDate	10/6/2014	Analyst: CEI
Chromium	13 0.030	1.0	µg/L 1	10/6/2014 03:23 PM

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



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Print Date: 09-Oct-14

CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-010

Client Sample ID: MW-62-065-199
Collection Date: 9/23/2014 2:28:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM
SM 3500-CR B

RunID: WETCHEM2_140926B	QC Batch: R95037				PrepDate		Analyst: PS
Chromium, Hexavalent	540	2.8	20		µg/L	2	9/26/2014

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608				PrepDate	9/30/2014	Analyst: CEI
Chromium	500	0.15	5.0		µg/L	5	9/30/2014 06:30 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



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Print Date: 09-Oct-14

CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-011

Client Sample ID: MW-62-110-199
Collection Date: 9/23/2014 2:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM
SM 3500-CR B

RunID: WETCHEM2_140926B	QC Batch: R95037				PrepDate		Analyst: PS
Chromium, Hexavalent	1000	2.8	20		µg/L	2	9/26/2014

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_141006A	QC Batch: 46608				PrepDate	9/30/2014	Analyst: CEI
Chromium	1000	0.30	10		µg/L	10	10/6/2014 02:29 PM

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



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Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-202-199
Lab Order:	N013456	Collection Date:	9/24/2014 6:40:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053	PrepDate	Analyst: RB
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			9/26/2014 05:11 PM

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



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Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-203-199
Lab Order:	N013456	Collection Date:	9/25/2014 6:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053	PrepDate	Analyst: RB
Hexavalent Chromium	ND	0.016	0.20
		µg/L	1
			9/26/2014 12:24 PM

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



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-014

Client Sample ID: MW-58BR-199
Collection Date: 9/24/2014 2:50:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053				PrepDate		Analyst: RB
Hexavalent Chromium	2.1	0.016	0.20		µg/L	1	9/26/2014 06:27 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608				PrepDate	9/30/2014	Analyst: CEI
Chromium	2.2	0.030	1.0		µg/L	1	9/30/2014 07:19 PM

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



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-015

Client Sample ID: MW-72BR-200-199
Collection Date: 9/24/2014 1:08:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_140926A	QC Batch: R95053				PrepDate		Analyst: RB
Hexavalent Chromium	5.4	0.080	1.0		µg/L	5	9/26/2014 06:46 PM

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608				PrepDate	9/30/2014	Analyst: CEI
Chromium	4.5	0.030	1.0		µg/L	1	9/30/2014 04:39 PM

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



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CLIENT: CH2M HILL
Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R95053	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	PBW	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841571		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		ND		0.20									

Sample ID	LCS-R95053	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	LCSW	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841572		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		5.008		0.20	5.000	0	100	90	110				

Sample ID	N013409-001A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841574		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1121.130		20	500.0	614.0	101	90	110				

Sample ID	N013456-002A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841584		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		2.647		0.20	1.000	1.552	109	90	110				

Sample ID	N013456-006A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841587		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1.078		0.20	1.000	0.07070	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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 Work Order: N013456
 Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N013456-007A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841588
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 1.105 0.20 1.000 0.07390 103 90 110

Sample ID	N013456-012A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841589
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 1.116 0.20 1.000 0.08280 103 90 110

Sample ID	N013456-013A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841590
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 1.137 0.20 1.000 0.08480 105 90 110

Sample ID	N013456-003A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841592
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 237.766 4.0 100.0 135.3 102 90 110

Sample ID	N013456-004A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841596
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 52.223 1.0 25.00 27.02 101 90 110

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N013456-005A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841598		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	60.868	1.0	25.00	36.75	96.5	90	110						

Sample ID	N013456-001A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841599		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.033	0.20	1.000	0.08640	94.6	90	110						

Sample ID	N013456-008A-DUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841601		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	37.028	1.0								37.19	0.439	20	

Sample ID	N013456-008A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841602		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	63.809	1.0	25.00	37.19	106	90	110						

Sample ID	N013456-008A-MSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841603		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	63.508	1.0	25.00	37.19	105	90	110	63.81	0.473	20			

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N013456-009A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841606		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	24.986	0.40	10.00	14.40	106	90	110

Sample ID	N013456-014A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841608		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	7.269	0.20	5.000	2.138	103	90	110

Sample ID	N013456-015A-MS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	95053		
Client ID:	ZZZZZZ	Batch ID:	R95053	TestNo:	EPA 218.6			Analysis Date:	9/26/2014	SeqNo:	1841610		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	10.200	1.0	5.000	5.424	95.5	90	110

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
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ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID	LCS-R95037	SampType:	LCS	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	95037			
Client ID:	LCSW	Batch ID:	R95037	TestNo:	SM 3500-Cr B			Analysis Date:	9/26/2014	SeqNo:	1841020			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent	252.687	10	250.0	0	101	85	115							

Sample ID	MB-R95037	SampType:	MBLK	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	95037			
Client ID:	PBW	Batch ID:	R95037	TestNo:	SM 3500-Cr B			Analysis Date:	9/26/2014	SeqNo:	1841021			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent	ND	10												

Sample ID	N013456-010A-DUP	SampType:	DUP	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	95037			
Client ID:	ZZZZZZ	Batch ID:	R95037	TestNo:	SM 3500-Cr B			Analysis Date:	9/26/2014	SeqNo:	1841023			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent	552.250	20									538.5	2.51	20	

Sample ID	N013456-010A-MS	SampType:	MS	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	95037			
Client ID:	ZZZZZZ	Batch ID:	R95037	TestNo:	SM 3500-Cr B			Analysis Date:	9/26/2014	SeqNo:	1841024			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent	1035.002	20	500.0	538.5	99.3	85	115							

Sample ID	N013456-010A-MSD	SampType:	MSD	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	95037			
Client ID:	ZZZZZZ	Batch ID:	R95037	TestNo:	SM 3500-Cr B			Analysis Date:	9/26/2014	SeqNo:	1841025			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent	1030.390	20	500.0	538.5	98.4	85	115	1035	0.447	20				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-46608	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087			
Client ID:	PBW	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842490			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID	LCS-46608	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087			
Client ID:	LCSW	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842491			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.774 1.0 10.00 0 97.7 85 115

Sample ID	N013478-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087			
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842495			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 11.174 1.0 10.00 1.582 95.9 75 125

Sample ID	N013478-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087			
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842496			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 11.035 1.0 10.00 1.582 94.5 75 125 11.17 1.25 20

Sample ID	N013456-015B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087			
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842502			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 12.740 1.0 10.00 4.515 82.2 75 125

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-46650	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95186			
Client ID:	PBW	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/6/2014	SeqNo:	1846410			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID	LCS-46650	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95186			
Client ID:	LCSW	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/6/2014	SeqNo:	1846416			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.327 1.0 10.00 0 93.3 85 115

Sample ID	N013515-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95214			
Client ID:	ZZZZZZ	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/8/2014	SeqNo:	1847534			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 1013.287 25 10.00 991.7 216 75 125 S

Sample ID	N013515-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95214			
Client ID:	ZZZZZZ	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/8/2014	SeqNo:	1847535			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 832.485 25 10.00 991.7 -1590 75 125 1013 19.6 20 S

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-38S-199
Lab Order:	N013456	Collection Date:	9/22/2014 1:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	ND	0.022	0.050
		mg/L	1
			10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-63-065-199
Lab Order:	N013456	Collection Date:	9/22/2014 10:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION**SM4500-NO3F**

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	1.1 0.022 0.050	mg/L	1 10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-72-080-199
Lab Order:	N013456	Collection Date:	9/22/2014 12:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	1.1	0.022	0.050
		mg/L	1
			10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-73-080-199
Lab Order:	N013456	Collection Date:	9/23/2014 7:34:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	3.3	0.022	0.050
		mg/L	1
			10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-120-199
Lab Order:	N013456	Collection Date:	9/23/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.21 0.022	0.050 mg/L	1 10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-44-115-199
Lab Order:	N013456	Collection Date:	9/23/2014 12:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.17	0.022	0.050
			mg/L
			1
			10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-46-175-199
Lab Order:	N013456	Collection Date:	9/23/2014 10:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.86 0.022	0.050 mg/L	1 10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-62-065-199
Lab Order:	N013456	Collection Date:	9/23/2014 2:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141008A	QC Batch: R95207	PrepDate	Analyst: PS
Nitrate/Nitrite as N	4.2 0.11	0.25 mg/L	5 10/8/2014

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		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-62-110-199
Lab Order:	N013456	Collection Date:	9/23/2014 2:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141008A	QC Batch: R95207	PrepDate	Analyst: PS
Nitrate/Nitrite as N	3.6 0.11	0.25 mg/L	5 10/8/2014

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		



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-58BR-199
Lab Order:	N013456	Collection Date:	9/24/2014 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.19	0.022	0.050
			mg/L
			1
			10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-72BR-200-199
Lab Order:	N013456	Collection Date:	9/24/2014 1:08:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM2_141006A	QC Batch: R95159	PrepDate	Analyst: PS
Nitrate/Nitrite as N	0.093 0.022	0.050 mg/L	1 10/6/2014

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
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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CLIENT: CH2M HILL
 Work Order: N013456
 Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R95159	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95159			
Client ID:	PBW	Batch ID:	R95159	TestNo:	SM4500-NO3			Analysis Date:	10/6/2014	SeqNo:	1845328			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N ND 0.050

Sample ID	LCS-R95159	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95159		
Client ID:	LCSW	Batch ID:	R95159	TestNo:	SM4500-NO3			Analysis Date:	10/6/2014	SeqNo:	1845329		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.949 0.050 1.000 0 94.9 85 115

Sample ID	N013456-001CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95159		
Client ID:	ZZZZZZ	Batch ID:	R95159	TestNo:	SM4500-NO3			Analysis Date:	10/6/2014	SeqNo:	1845331		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N ND 0.050 0.03090 0 20

Sample ID	N013456-001CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95159		
Client ID:	ZZZZZZ	Batch ID:	R95159	TestNo:	SM4500-NO3			Analysis Date:	10/6/2014	SeqNo:	1845332		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.914 0.050 1.000 0.03090 88.3 85 115

Sample ID	N013456-001CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95159			
Client ID:	ZZZZZZ	Batch ID:	R95159	TestNo:	SM4500-NO3			Analysis Date:	10/6/2014	SeqNo:	1845333			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.969 0.050 1.000 0.03090 93.8 85 115 0.9143 5.77 20

Qualifiers:

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

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

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



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CLIENT: CH2M HILL
Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	N013456-003CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95159		
Client ID:	ZZZZZZ	Batch ID:	R95159	TestNo:	SM4500-NO3			Analysis Date:	10/6/2014	SeqNo:	1845336		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		1.096		0.050						1.102	0.519		20

Sample ID	N013456-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95159			
Client ID:	ZZZZZZ	Batch ID:	R95159	TestNo:	SM4500-NO3			Analysis Date:	10/6/2014	SeqNo:	1845337			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		2.203		0.050	1.000	1.102		110	85	115				

Sample ID	N013456-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95159		
Client ID:	ZZZZZZ	Batch ID:	R95159	TestNo:	SM4500-NO3			Analysis Date:	10/6/2014	SeqNo:	1845338		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		2.032		0.050	1.000	1.102	93.0	85	115	2.203	8.09	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R95207	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95207			
Client ID:	PBW	Batch ID:	R95207	TestNo:	SM4500-NO3			Analysis Date:	10/8/2014	SeqNo:	1847218			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.028 0.050

Sample ID	LCS-R95207	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95207			
Client ID:	LCSW	Batch ID:	R95207	TestNo:	SM4500-NO3			Analysis Date:	10/8/2014	SeqNo:	1847219			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.902 0.050 1.000 0 90.2 85 115

Sample ID	N013515-005CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95207			
Client ID:	ZZZZZZ	Batch ID:	R95207	TestNo:	SM4500-NO3			Analysis Date:	10/8/2014	SeqNo:	1847223			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 16.562 1.0 16.26 1.83 20

Sample ID	N013515-005CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95207			
Client ID:	ZZZZZZ	Batch ID:	R95207	TestNo:	SM4500-NO3			Analysis Date:	10/8/2014	SeqNo:	1847224			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 26.252 1.0 10.00 16.26 99.9 85 115

Sample ID	N013515-005CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95207			
Client ID:	ZZZZZZ	Batch ID:	R95207	TestNo:	SM4500-NO3			Analysis Date:	10/8/2014	SeqNo:	1847225			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 26.970 1.0 10.00 16.26 107 85 115 26.25 2.70 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-38S-199
Lab Order:	N013456	Collection Date:	9/22/2014 1:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608			PrepDate	9/30/2014	Analyst: CEI
Arsenic	14	0.027	0.10	µg/L	1	9/30/2014 05:18 PM
Manganese	220	0.13	2.5	µg/L	5	9/30/2014 05:13 PM
Molybdenum	47	0.15	0.50	µg/L	1	9/30/2014 05:18 PM
Selenium	ND	0.069	0.50	µg/L	1	9/30/2014 05:18 PM

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



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-63-065-199
Lab Order:	N013456	Collection Date:	9/22/2014 10:24:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_141006A	QC Batch: 46608			PrepDate	9/30/2014	Analyst: CEI
Arsenic	1.5	0.027	0.10	µg/L	1	10/6/2014 02:23 PM
Manganese	ND	0.026	0.50	µg/L	1	9/30/2014 05:29 PM
Molybdenum	18	0.15	0.50	µg/L	1	9/30/2014 05:29 PM
Selenium	0.99	0.069	0.50	µg/L	1	9/30/2014 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		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-72-080-199
Lab Order:	N013456	Collection Date:	9/22/2014 12:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608			PrepDate	9/30/2014	Analyst: CEI
Arsenic	9.4	0.027	0.10	µg/L	1	9/30/2014 05:40 PM
Manganese	25	0.026	0.50	µg/L	1	9/30/2014 05:40 PM
Molybdenum	72	0.76	2.5	µg/L	5	9/30/2014 05:35 PM
Selenium	ND	0.34	2.5	µg/L	5	9/30/2014 05:35 PM

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



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-73-080-199
Lab Order:	N013456	Collection Date:	9/23/2014 7:34:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608			PrepDate	9/30/2014	Analyst: CEI
Arsenic	2.0	0.027	0.10	µg/L	1	9/30/2014 05:51 PM
Manganese	ND	0.026	0.50	µg/L	1	9/30/2014 05:51 PM
Molybdenum	24	0.15	0.50	µg/L	1	9/30/2014 05:51 PM
Selenium	2.7	0.069	0.50	µg/L	1	9/30/2014 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		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-120-199
Lab Order:	N013456	Collection Date:	9/23/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Arsenic	5.5	0.027	0.10	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	88	0.76	2.5	µg/L
Selenium	ND	0.34	2.5	µg/L

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



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ANALYTICAL RESULTS

Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-44-115-199
Lab Order:	N013456	Collection Date:	9/23/2014 12:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Arsenic	5.5	0.027	0.10	µg/L
Manganese	3.1	0.026	0.50	µg/L
Molybdenum	91	0.76	2.5	µg/L
Selenium	ND	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-46-175-199
Lab Order:	N013456	Collection Date:	9/23/2014 10:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_141006A	QC Batch: 46650	PrepDate	10/6/2014	Analyst: CEI
Molybdenum	170	0.76	2.5	µg/L
Selenium	ND	0.34	2.5	µg/L

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



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-62-065-199
Lab Order:	N013456	Collection Date:	9/23/2014 2:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Arsenic	1.3	0.027	0.10	µg/L
Manganese	ND	0.026	0.50	µg/L
Molybdenum	15	0.15	0.50	µg/L
Selenium	3.2	0.069	0.50	µg/L

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



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Print Date: 09-Oct-14

CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-011

Client Sample ID: MW-62-110-199
Collection Date: 9/23/2014 2:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Arsenic	6.4	0.027	0.10	µg/L
Manganese	69	0.026	0.50	µg/L
Molybdenum	44	0.76	2.5	µg/L
Selenium	2.8	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS

Print Date: 09-Oct-14

CLIENT:	CH2M HILL	Client Sample ID:	MW-58BR-199
Lab Order:	N013456	Collection Date:	9/24/2014 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	Matrix:	WATER
Lab ID:	N013456-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Arsenic	1.1	0.027	0.10	µg/L
Manganese	560	0.13	2.5	µg/L
Molybdenum	26	0.76	2.5	µg/L
Selenium	1.3	0.069	0.50	µg/L

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



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ANALYTICAL RESULTS
Print Date: 09-Oct-14

CLIENT: CH2M HILL
Lab Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N013456-015

Client Sample ID: MW-72BR-200-199
Collection Date: 9/24/2014 1:08:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed

DISSOLVED METALS BY ICP-MS
EPA 3010A
EPA 6020

RunID: ICP7_140930A	QC Batch: 46608	PrepDate	9/30/2014	Analyst: CEI
Arsenic	14	0.027	0.10	µg/L
Manganese	6.2	0.026	0.50	µg/L
Molybdenum	82	0.76	2.5	µg/L
Selenium	ND	0.34	2.5	µg/L

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



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CLIENT: CH2M HILL
 Work Order: N013456
 Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-46608	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087
Client ID:	PBW	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842733
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-46608	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087
Client ID:	LCSW	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842734
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	9.860	0.10	10.00	0	98.6	85	115				
Manganese	97.472	0.50	100.0	0	97.5	85	115				
Molybdenum	9.909	0.50	10.00	0	99.1	85	115				
Selenium	9.558	0.50	10.00	0	95.6	85	115				

Sample ID	N013478-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842738
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.515	0.10	10.00	1.070	104	75	125				
Manganese	93.092	0.50	100.0	0	93.1	75	125				
Molybdenum	12.112	0.50	10.00	2.756	93.6	75	125				
Selenium	10.692	0.50	10.00	0.4569	102	75	125				

Sample ID	N013478-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842739
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.457	0.10	10.00	1.070	104	75	125	11.52	0.509	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CLIENT: CH2M HILL
Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N013478-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	9/30/2014	SeqNo:	1842739
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	92.194	0.50	100.0	0	92.2	75	125	93.09	0.969	20	
Molybdenum	12.235	0.50	10.00	2.756	94.8	75	125	12.11	1.01	20	
Selenium	10.573	0.50	10.00	0.4569	101	75	125	10.69	1.12	20	

Sample ID	N013456-015B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	9/30/2014	SeqNo:	1842742
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	87.179	2.5	10.00	81.98	51.9	75	125				S
Selenium	9.157	2.5	10.00	0	91.6	75	125				

Sample ID	N013456-015B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/30/2014	RunNo:	95087
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	9/30/2014	SeqNo:	1842745
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	22.623	0.10	10.00	13.78	88.4	75	125				
Manganese	86.871	0.50	100.0	6.213	80.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-46650	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95186
Client ID:	PBW	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/6/2014	SeqNo:	1846462
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-46650	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95186
Client ID:	LCSW	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/6/2014	SeqNo:	1846468
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.898	0.10	10.00	0	99.0	85	115				
Manganese	93.127	0.50	100.0	0	93.1	85	115				
Molybdenum	9.503	0.50	10.00	0	95.0	85	115				
Selenium	9.934	0.50	10.00	0	99.3	85	115				

Sample ID	N013515-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95186
Client ID:	ZZZZZZ	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/6/2014	SeqNo:	1846475
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.562	0.10	10.00	2.324	102	75	125				
Manganese	75.826	0.50	100.0	0	75.8	75	125				
Molybdenum	94.460	0.50	10.00	82.60	119	75	125				
Selenium	21.161	0.50	10.00	10.72	104	75	125				

Sample ID	N013515-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95186
Client ID:	ZZZZZZ	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/6/2014	SeqNo:	1846477
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.624	0.10	10.00	2.324	103	75	125	12.56	0.496	20	
Manganese	75.666	0.50	100.0	0	75.7	75	125	75.83	0.211	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CLIENT: CH2M HILL
Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N013515-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/6/2014	RunNo:	95186		
Client ID:	ZZZZZZ	Batch ID:	46650	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/6/2014	SeqNo:	1846477		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum		94.711		0.50	10.00	82.60	121	75	125	94.46	0.266	20	
Selenium		20.873		0.50	10.00	10.72	102	75	125	21.16	1.37	20	

Qualifiers:

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

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

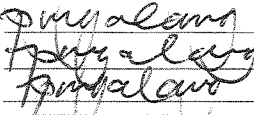
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

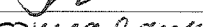
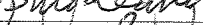


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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.0 Task Order Project 2014-GMP-199-Q3 Turnaround Time 10 Days Shipping Date: 9/25/2014 COC Number: 2				Container:	250 ml Poly (NH4)2S O4/NH4O H, 4°C	250 ml Poly (NH4)2S O4/NH4O H, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	125 ml Poly H2SO4, pH<2, 4°C	Number of Containers	COMMENTS
DATE TIME Matrix				Filtered:	Field	Field	Field	Field	Field	Field	NA		
Holding Time:					28	28	180	180	180	180	28		
					Cr6 (E218.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Chromium	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Nitrate/Nitrite (SM4500NO3) Nitrate		
MW-38S-199	9/22/2014	13:58	Water	X			X	X		X	X	3	N013456-01
MW-63-065-199	9/22/2014	10:24	Water	X			X	X		X	X	3	-02
MW-72-080-199	9/22/2014	12:32	Water	X			X	X		X	X	3	-03
MW-73-080-199	9/22/2014	7:34	Water	X			X	X		X	X	3	-04
MW-120-199	9/23/2014	8:00	Water	X			X	X		X	X	3	-05
MW-200-199	9/23/2014	6:41	Water	X								1	-06
MW-201-199	9/23/2014	6:40	Water	X								1	-07
MW-44-115-199	9/23/2014	12:25	Water	X			X	X		X	X	3	-08
MW-46-175-199	9/23/2014	10:12	Water	X				X	X		X	3	-09
MW-62-065-199	9/23/2014	14:28	Water			X	X	X		X	X	3	-10
MW-62-110-199	9/23/2014	14:10	Water			X	X	X		X	X	3	-11
MW-202-199	9/24/2014	6:40	Water	X								1	-12
MW-203-199	9/24/2014	6:50	Water	X								1	-13
MW-58BR-199	9/24/2014	14:50	Water	X			X	X		X	X	3	-14

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Marlon	Special Instructions: Sept 22 to Oct 2, 2014 Report Copy to Shawn Duffy (530) 229-3303
Approved by		9/25/14 1545	Method of Shipment:	courier		
Sampled by			On Ice:	yes / no 2-3°C 1P#2		
Relinquished by			Airbill No:			
Received by		9/25/14 1545	Lab Name:	ADVANCED TECHNOLOGY LABORATO		
Relinquished by		9/25/14 1741	Lab Phone:	(702) 307-2659		
Received by		9/25/14 1741				

Signatures Approved by  Sampled by  Relinquished by  Received by  Relinquished by  Received by 		Date/Time 9-25-14 1545 9/25/14 1545 9/25/14 1545 9/25/14 1545		Shipping Details Method of Shipment: courier On Ice: ☒ yes / no 2-3°C Airbill No: 1R#? Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: Sept 22 to Oct 2, 2014 Report Copy to Shawn Duffy (530) 229-3303	

ASSET Laboratories

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: 9/25/2014

Workorder: N013456

Rep sample Temp (Deg C): 2.3

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 shipping 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

AC

ACortes

09/26/14

Reviewed By: *gog* 10/2/2014

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: WATER

FORMULA:

Calculate the Hexavalent Chromium concentration, in $\mu\text{g/L}$, in the original sample as follows:

$$\text{Cr}^{+6}, \mu\text{g/L} = A * \text{DF}$$

where:

A = $\mu\text{g/L}$, IC Cr^{+6} calculated concentration
DF = dilution factor

For **N013456-004A** concentration in $\mu\text{g/L}$ is calculated as follows:

$$\begin{aligned}\text{Cr}^{+6}, \mu\text{g/L} &= 5.4048 * 5 \\ &= 27.024\end{aligned}$$

Reporting result in two significant figures,

$$\text{Cr}^{+6}, \mu\text{g/L} = 27$$

 10/8/2014

SAMPLE CALCULATION

METHOD: SM 3500-Cr B

TEST NAME: Hexavalent Chromium by Colorimetric Method

MATRIX: Water

FORMULA:

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

$$\text{Hexavalent Chromium, ug/L} = A * DF$$

Where:

A= ug/L, UV-VIS Hexavalent Chromium calculated concentration

DF= dilution factor

For **N013456-010A**, concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Hexavalent Chromium, ug/L} &= 269.274 * 2 \\ &= 538.548 \text{ ug/L}\end{aligned}$$

Reporting result in 2 significant figures,

$$\text{Hexavalent Chromium, ug/L} = 540 \text{ ug/L}$$

 10/9/2014

SAMPLE CALCULATION

METHOD: SM 4500NO3F_W

TEST NAME: NITRATE/NITRITE BY CADMIUM REDUCTION

MATRIX: Water

FORMULA:

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

$$\text{the nitrate/nitrite, mg/L} = A * DF$$

Where:

A= mg/L, nitrate/nitrite calculated concentration

DF= dilution factor

For **N013456-001C**, concentration in mg/L is calculated as follows:

$$\begin{aligned}\text{Nitrate/nitrite, mg/L} &= 0.0309 * 1 \\ &= 0.0309 \text{ mg/L}\end{aligned}$$

Reporting result in 2 significant figures,

Nitrate/nitrite, mg/L = ND, since reporting limit is 0.05 mg/L

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

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

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

where:

A = ug/L, calculated concentration

DF = dilution factor

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

For Sample **N013456-001B**, the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Molybdenum, ug/L} &= 47.2915643818747 * 1 * (25/25) \\ &= 47.2915643818747\end{aligned}$$

Reporting results in two significant figures,

$$\text{Molybdenum, ug/L} = 47$$



ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N013456
Test Method: EPA 6020
Analysis Date: 9/30/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46608

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to all analytes. The calculated values are <25X RL. PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N013478-001B-DT 5X	Chromium	µg/L	1.576353284	NA	1.582039864	0.36%	10
N013478-001B-DT 5X	Arsenic	µg/L	1.104519577	NA	1.06956266	3.27%	10
N013478-001B-DT 5X	Manganese	µg/L	0	NA	0		10
N013478-001B-DT 5X	Molybdenum	µg/L	2.917602985	NA	2.756413596	5.85%	10
N013478-001B-DT 5X	Selenium	µg/L	0.346819928	NA	0.456928399	24.10%	10

Note: NA - Not applicable

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N013456
Test Method: EPA 6020
Analysis Date: 10/6/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46650

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As & Se. The calculated values are <25X RL. PS passed criteria except Mn.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N013515-001B-DT 5X	Arsenic	µg/L	2.236074986	NA	2.324240847	3.79%	10
N013515-001B-DT 5X	Molybdenum	µg/L	85.08277676	PASS	82.59845052	3.01%	10
N013515-001B-DT 5X	Selenium	µg/L	11.39134287	NA	10.71788817	6.28%	10

Note: NA - Not applicable

ASSET Laboratories**ICP-Metals in Water**

Work Order No.: N013456
Test Method: EPA 6020
Analysis Date: 10/8/2014

Dilution Test Summary

Matrix: Water
Batch No.: 46650

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

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N013515-001B-DT 125X	Chromium	µg/L	1052.711868	PASS	991.6778187	6.15%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

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

Sample ID	N013478-001B-PS	SampType: PS	TestCode: 6020_DIS		Units: µg/L	Prep Date:			RunNo: 95087		
Client ID:	ZZZZZZ	Batch ID: 46608	TestNo: EPA 6020		EPA 3010A	Analysis Date: 9/30/2014			SeqNo: 1842737		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.593	0.10	10.00	1.070	105	80	120				
Manganese	95.009	0.50	100.0	0	95.0	80	120				
Molybdenum	12.177	0.50	10.00	2.756	94.2	80	120				
Selenium	10.644	0.50	10.00	0.4569	102	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: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N013515-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	95186
Client ID:	ZZZZZZ	Batch ID:	46650	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	10/6/2014	SeqNo:	1846473
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.518	0.10	10.00	2.324	102	80	120				
Molybdenum	93.795	0.50	10.00	82.60	112	80	120				
Selenium	21.112	0.50	10.00	10.72	104	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL
Work Order: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N013478-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	95087
Client ID:	ZZZZZZ	Batch ID:	46608	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/30/2014	SeqNo:	1842494
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chromium		11.371		1.0	10.00	1.582	97.9	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: N013456
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: N013515-001B-PS	SampType: PS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date:	RunNo: 95214						
Client ID: ZZZZZZ	Batch ID: 46650	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/8/2014	SeqNo: 1847531						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1062.750	25	10.00	991.7	711	80	120				S

DT @ 125X is within criteria



10/9/2014

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

Appendix C

Other Groundwater Monitoring Results

TABLE C-1

Arsenic Results in Monitoring Wells, October 2013 through October 2014
 Third 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	Sample Method	Dissolved Arsenic (µg/L)
MW-10	SA	12-Dec-13	3V	4.5
MW-12	SA	10-Dec-13	3V	38.0
		25-Feb-14	3V	42.0
		01-May-14	3V	38.0
MW-13	SA	13-Nov-13	3V	1.9
MW-16	SA	06-Nov-13	3V	9.1
		22-Apr-14	3V	10.0
MW-17	SA	11-Nov-13	3V	1.3
		23-Apr-14	3V	1.4
MW-20-130	DA	17-Dec-13	3V	4.9
		17-Dec-13	FD 3V	4.9
		12-May-14	3V	5.0
MW-22	SA	14-Nov-13	3V	14.0
		30-Apr-14	3V	12.0
MW-23-060	BR	11-Nov-13	3V	3.0
		13-Feb-14	3V	3.6
		22-Apr-14	3V	2.6
MW-23-080	BR	11-Nov-13	3V	3.0
		13-Feb-14	3V	3.6
		22-Apr-14	3V	2.7
MW-25	SA	09-Dec-13	3V	1.2
MW-26	SA	04-Dec-13	3V	1.8
		05-May-14	3V	1.7
MW-27-20	SA	04-Nov-13	3V	1.3
		14-Apr-14	3V	0.84
MW-27-60	MA	02-Oct-13	3V	6.4
		04-Nov-13	3V	6.3
		10-Feb-14	3V	6.5
		14-Apr-14	3V	6.9
		14-Apr-14	FD 3V	7.2
MW-27-85	DA	02-Oct-13	3V	1.4
		04-Nov-13	3V	1.3
		10-Feb-14	3V	1.4
		14-Apr-14	3V	0.18
MW-28-25	SA	05-Nov-13	3V	1.0
		15-Apr-14	3V	1.8

TABLE C-1

Arsenic Results in Monitoring Wells, October 2013 through October 2014
 Third 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	Sample Method	Dissolved Arsenic (µg/L)
MW-28-90	DA	05-Nov-13	3V	1.5
		12-Feb-14	3V	1.7
		15-Apr-14	3V	1.8
		15-Apr-14	FD 3V	1.8
MW-29	SA	05-Nov-13	3V	6.4
		05-Nov-13	FD 3V	6.1
		16-Apr-14	3V	5.7
MW-30-30	SA	04-Nov-13	3V	0.84
MW-30-50	MA	04-Nov-13	3V	2.7
MW-31-60	SA	03-Dec-13	3V	1.2
MW-31-135	DA	07-Nov-13	3V	3.4
MW-32-20	SA	16-Dec-13	3V	3.6
MW-32-35	SA	06-Nov-13	3V	23.0
		16-Apr-14	3V	27.0
MW-33-40	SA	03-Dec-13	3V	12.0
		12-Feb-14	3V	13.0
		17-Apr-14	3V	14.0
MW-33-90	MA	03-Dec-13	3V	1.3
		12-Feb-14	3V	1.3
		21-Apr-14	3V	1.3
		21-Apr-14	FD 3V	1.3
MW-33-150	DA	03-Dec-13	3V	1.7
		12-Feb-14	3V	1.6
		12-Feb-14	FD 3V	1.7
		17-Apr-14	3V	1.1
MW-33-210	DA	03-Dec-13	3V	1.1
		03-Dec-13	FD 3V	1.2
		12-Feb-14	3V	1.1
		21-Apr-14	3V	0.94
MW-34-55	MA	20-Nov-13	3V	2.6
MW-34-80	DA	02-Oct-13	3V	1.3
		20-Nov-13	3V	1.3
		20-Nov-13	FD 3V	1.3
		10-Feb-14	3V	1.3
		17-Apr-14	3V	1.4
MW-34-100	DA	02-Oct-13	3V	1.2

TABLE C-1

Arsenic Results in Monitoring Wells, October 2013 through October 2014
 Third 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	Sample Method	Dissolved Arsenic (µg/L)
MW-34-100	DA	02-Oct-13	FD 3V	1.3
		20-Nov-13	3V	1.5
		20-Nov-13	FD 3V	1.4
		16-Dec-13	3V	2.2
		22-Jan-14	3V	1.8
		10-Feb-14	3V	1.6
		17-Apr-14	3V	1.3
		02-Oct-14	MP	1.3
MW-35-60	SA	12-Nov-13	3V	0.91
		17-Feb-14	3V	1.1
		17-Feb-14	FD 3V	1.0
		24-Apr-14	3V	1.0
		24-Apr-14	FD 3V	1.0
MW-35-135	DA	12-Nov-13	3V	0.85
MW-36-20	SA	11-Nov-13	3V	1.5 J
		11-Nov-13	FD 3V	1.2 J
MW-36-40	SA	11-Nov-13	3V	4.7
MW-36-50	MA	11-Nov-13	3V	3.6
MW-36-70	MA	11-Nov-13	3V	3.5
MW-36-90	DA	11-Nov-13	3V	20.0
		17-Apr-14	3V	19.0
MW-36-100	DA	16-Dec-13	3V	7.1
		17-Apr-14	3V	8.5
MW-37S	MA	06-Nov-13	3V	1.6
MW-38D	DA	13-Nov-13	3V	6.6
		14-May-14	3V	6.5
MW-38S	SA	03-Dec-13	3V	13.0
		14-May-14	3V	11.0
		22-Sep-14	3V	14.0
MW-39-40	SA	12-Nov-13	3V	17.0
MW-39-50	MA	12-Nov-13	3V	3.5
MW-39-60	MA	12-Nov-13	3V	5.2
MW-39-100	DA	04-Dec-13	3V	2.2
		04-Dec-13	FD 3V	2.0
MW-40D	DA	02-Dec-13	3V	4.3
		24-Apr-14	3V	3.9

TABLE C-1

Arsenic Results in Monitoring Wells, October 2013 through October 2014
 Third 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	Sample Method	Dissolved Arsenic (µg/L)
MW-40S	SA	11-Nov-13	3V	1.5
MW-41D	DA	04-Nov-13	3V	2.1
MW-41M	DA	04-Nov-13	3V	1.8
MW-41S	SA	04-Nov-13	3V	1.7
MW-42-30	SA	05-Nov-13	3V	3.1
MW-42-55	MA	05-Nov-13	3V	11.0
		11-Feb-14	3V	13.0
		14-Apr-14	3V	11.0
MW-42-65	MA	05-Nov-13	3V	2.2
		11-Feb-14	3V	2.2
		14-Apr-14	3V	3.0
MW-43-25	SA	06-Nov-13	3V	19.0
		15-Apr-14	3V	16.0
MW-43-75	DA	06-Nov-13	3V	12.0
MW-43-90	DA	06-Nov-13	3V	3.1
		15-Apr-14	3V	3.1
MW-44-70	MA	02-Dec-13	3V	4.1
		16-Apr-14	3V	4.2
MW-44-115	DA	02-Dec-13	3V	5.4
		11-Feb-14	3V	5.5
		16-Apr-14	3V	5.8
		23-Sep-14	MP	5.5
		23-Sep-14	FD MP	5.5
MW-44-125	DA	02-Dec-13	3V	3.1
		02-Dec-13	FD 3V	3.3
		11-Feb-14	3V	3.4
		11-Feb-14	FD 3V	3.5
		16-Apr-14	3V	2.7
		16-Apr-14	FD 3V	3.2
MW-45-095a	DA	02-Dec-13	3V	3.2
MW-47-55	SA	12-Nov-13	3V	1.2
MW-49-135	DA	06-Nov-13	3V	1.9
MW-51	MA	11-Dec-13	3V	3.8
		12-May-14	3V	3.9
MW-52D	DA	13-Nov-13	MP	3.8
		30-Apr-14	MP	3.3

TABLE C-1

Arsenic Results in Monitoring Wells, October 2013 through October 2014
 Third 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	Sample Method	Dissolved Arsenic (µg/L)
MW-52M	DA	13-Nov-13	MP	1.9
		13-Nov-13	FD MP	1.9
		30-Apr-14	MP	1.4
MW-52S	MA	13-Nov-13	MP	0.23
		30-Apr-14	MP	0.21
MW-53D	DA	13-Nov-13	MP	3.1
		30-Apr-14	MP	3.4
MW-53M	DA	13-Nov-13	MP	0.95
		30-Apr-14	MP	0.84
MW-54-85	DA	21-Nov-13	3V	3.4
		09-Apr-14	3V	3.5
MW-54-140	DA	21-Nov-13	3V	2.1
		09-Apr-14	3V	2.6
		09-Apr-14	FD 3V	1.4
MW-54-195	DA	21-Nov-13	3V	ND (0.2)
		09-Apr-14	3V	0.23
MW-57-070	BR	12-Dec-13	3V	1.5
MW-57-185	BR	07-Nov-13	3V	14.0
		07-Nov-13	FD 3V	14.0
		13-Feb-14	3V	13.0
		22-Apr-14	3V	13.0
MW-58BR	BR	17-Dec-13	MP	0.97
		25-Feb-14	MP	1.2
		06-May-14	MP	1.0
		24-Sep-14	MP	1.1
MW-59-100	SA	10-Dec-13	3V	2.1
		25-Feb-14	3V	2.3
		07-May-14	3V	2.1
MW-60-125	BR	04-Dec-13	3V	1.4
		25-Feb-14	3V	1.4
		01-May-14	3V	1.5
MW-60BR-245	BR	04-Dec-13	3V	5.9
		19-Feb-14	3V	6.4
		29-Apr-14	3V	6.8
		25-Sep-14	3V	4.9
MW-61-110	BR	05-Dec-13	3V	3.4

TABLE C-1

Arsenic Results in Monitoring Wells, October 2013 through October 2014
 Third 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	Sample Method	Dissolved Arsenic (µg/L)
MW-61-110	BR	05-Dec-13	FD 3V	3.6
		19-Feb-14	3V	3.5
		29-Apr-14	3V	3.1
MW-62-065	BR	11-Dec-13	3V	1.2
		23-Sep-14	3V	1.3
MW-62-110	BR	13-Nov-13	3V	6.6
		19-Feb-14	3V	5.6
		07-May-14	3V	6.0
		23-Sep-14	3V	6.4
MW-62-190	BR	13-Nov-13	3V	4.6
		19-Feb-14	3V	4.9
		07-May-14	3V	3.6
MW-63-065	BR	04-Dec-13	3V	1.5
		12-Feb-14	3V	1.5
		09-Apr-14	3V	1.5
		22-Sep-14	3V	1.5
MW-64BR	BR	16-Dec-13	MP	2.9
		26-Feb-14	MP	3.1
		06-May-14	MP	2.9
		30-Sep-14	MP	2.0
MW-65-160	SA	02-Dec-13	3V	0.73
		19-Feb-14	3V	0.89
		24-Apr-14	3V	0.72
		25-Sep-14	MP	0.8
MW-65-225	DA	02-Dec-13	3V	2.3
		19-Feb-14	3V	2.4
		29-Apr-14	3V	2.2
		25-Sep-14	MP	2.6
MW-66-165	SA	03-Dec-13	3V	1.1
		19-Feb-14	3V	1.2
		01-May-14	3V	1.2
		01-May-14	FD 3V	1.3
MW-66-230	DA	12-Dec-13	3V	7.7
		26-Feb-14	3V	9.5
		07-May-14	3V	8.5
MW-66BR-270	BR	17-Dec-13	3V	ND (0.5)
		26-Feb-14	3V	ND (0.5)

TABLE C-1

Arsenic Results in Monitoring Wells, October 2013 through October 2014
 Third 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	Sample Method	Dissolved Arsenic (µg/L)
MW-66BR-270	BR	13-May-14	3V	ND (0.5)
MW-67-185	SA	04-Dec-13	3V	1.5
		24-Feb-14	3V	1.4
		05-May-14	3V	1.5
MW-67-225	MA	09-Dec-13	3V	2.9
		24-Feb-14	3V	3.2
		06-May-14	3V	3.1
MW-67-260	DA	09-Dec-13	3V	11.0
		24-Feb-14	3V	13.0
		05-May-14	3V	11.0
MW-68-180	SA	12-Dec-13	3V	2.5
		12-Dec-13	FD 3V	2.4
		27-Feb-14	3V	2.6
		12-May-14	3V	2.9
		30-Sep-14	MP	2.5
MW-68-240	DA	04-Dec-13	3V	2.0
		25-Feb-14	3V	1.9
		06-May-14	3V	1.9
		06-May-14	FD 3V	1.8
MW-68BR-280	BR	18-Dec-13	3V	1.4
		27-Feb-14	3V	1.5
		13-May-14	3V	1.3
MW-69-195	BR	03-Dec-13	3V	2.2
		19-Feb-14	3V	2.4
		01-May-14	3V	2.3
		25-Sep-14	3V	2.5
		25-Sep-14	FD 3V	2.3
MW-70-105	BR	04-Dec-13	3V	5.1
		17-Feb-14	3V	5.0
		28-Apr-14	3V	4.6
MW-70BR-225	BR	10-Dec-13	3V	1.8
		25-Feb-14	3V	1.9
		05-May-14	3V	1.9
MW-71-035	SA	11-Dec-13	3V	1.3
		18-Feb-14	3V	1.5
		24-Apr-14	3V	1.3

TABLE C-1

Arsenic Results in Monitoring Wells, October 2013 through October 2014
 Third 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	Sample Method	Dissolved Arsenic (µg/L)
MW-72-080	BR	04-Dec-13	3V	10.0
		18-Feb-14	3V	12.0
		24-Apr-14	3V	10.0
		22-Sep-14	3V	9.4
MW-72BR-200	BR	05-Nov-13	3V	14.0
		05-Nov-13	FD 3V	13.0
		17-Feb-14	3V	15.0
		17-Feb-14	FD 3V	15.0
		21-Apr-14	3V	14.0
		24-Sep-14	3V	14.0
MW-73-080	BR	05-Dec-13	3V	1.3
		18-Feb-14	3V	1.5
		29-Apr-14	3V	1.4
		23-Sep-14	3V	2.0
MW-74-240	BR	05-Dec-13	3V	14.0
		26-Feb-14	3V	13.0
		01-May-14	3V	12.0
OW-3D	DA	05-Nov-13	3V	2.3

Notes:

3V = three volume.

FD = field duplicate.

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

MP = minimal drawdown/micro purge.

ND = not detected at listed reporting limit.

µg/L = micrograms per liter.

Starting in Third Quarter 2014, the groundwater sample collection method was switched from the traditional three-volume purge method (3V) to the minimal drawdown, or micropurge (MP) method at many short screen wells screened in alluvial sediments. The method for purging prior to sample collection is indicated in the sample method column of this table.

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).

Appendix D
Groundwater Monitoring Data for GMP and
Interim Measures Monitoring Wells

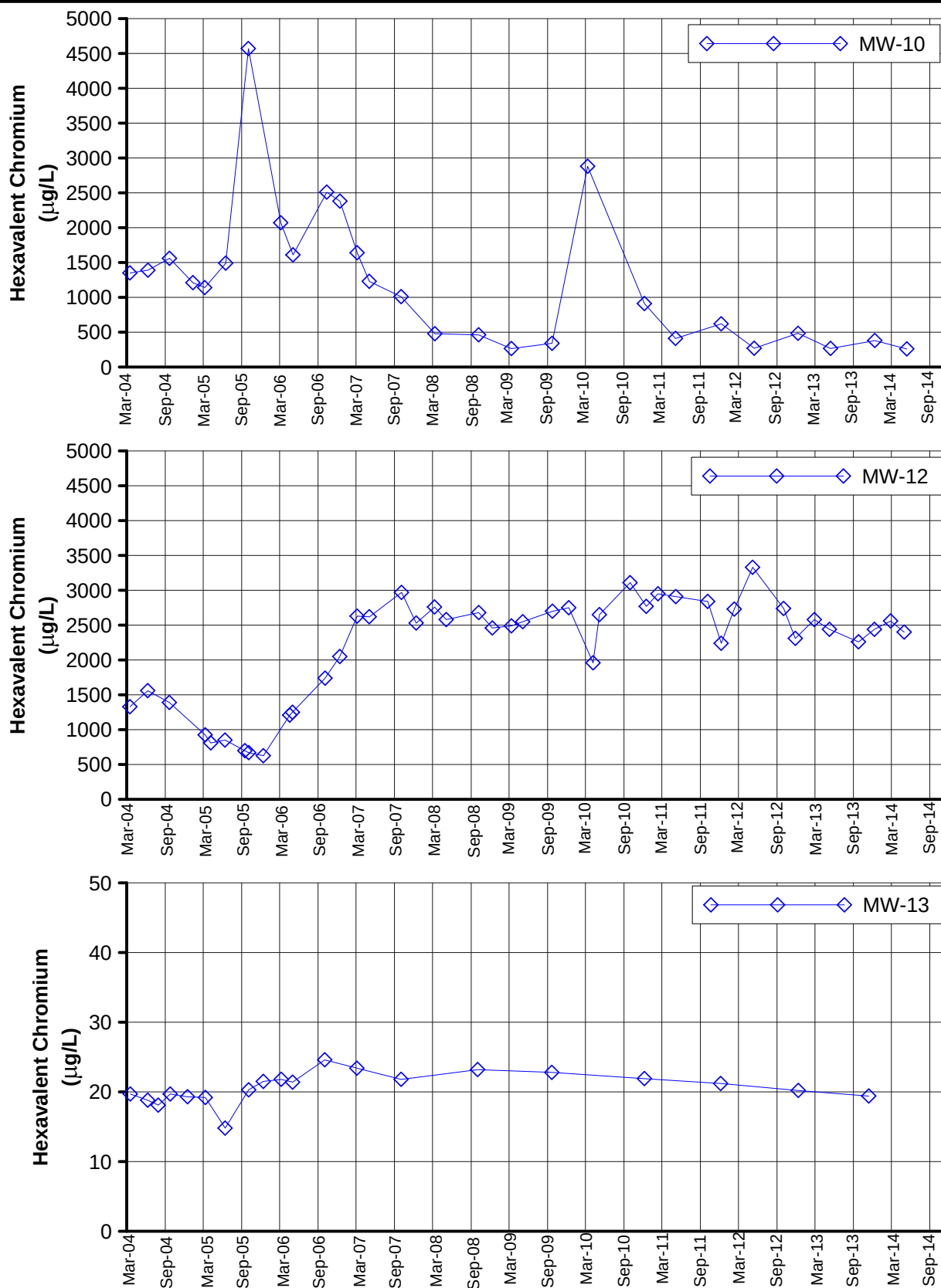


**FIGURE D-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12, AND MW-13**

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

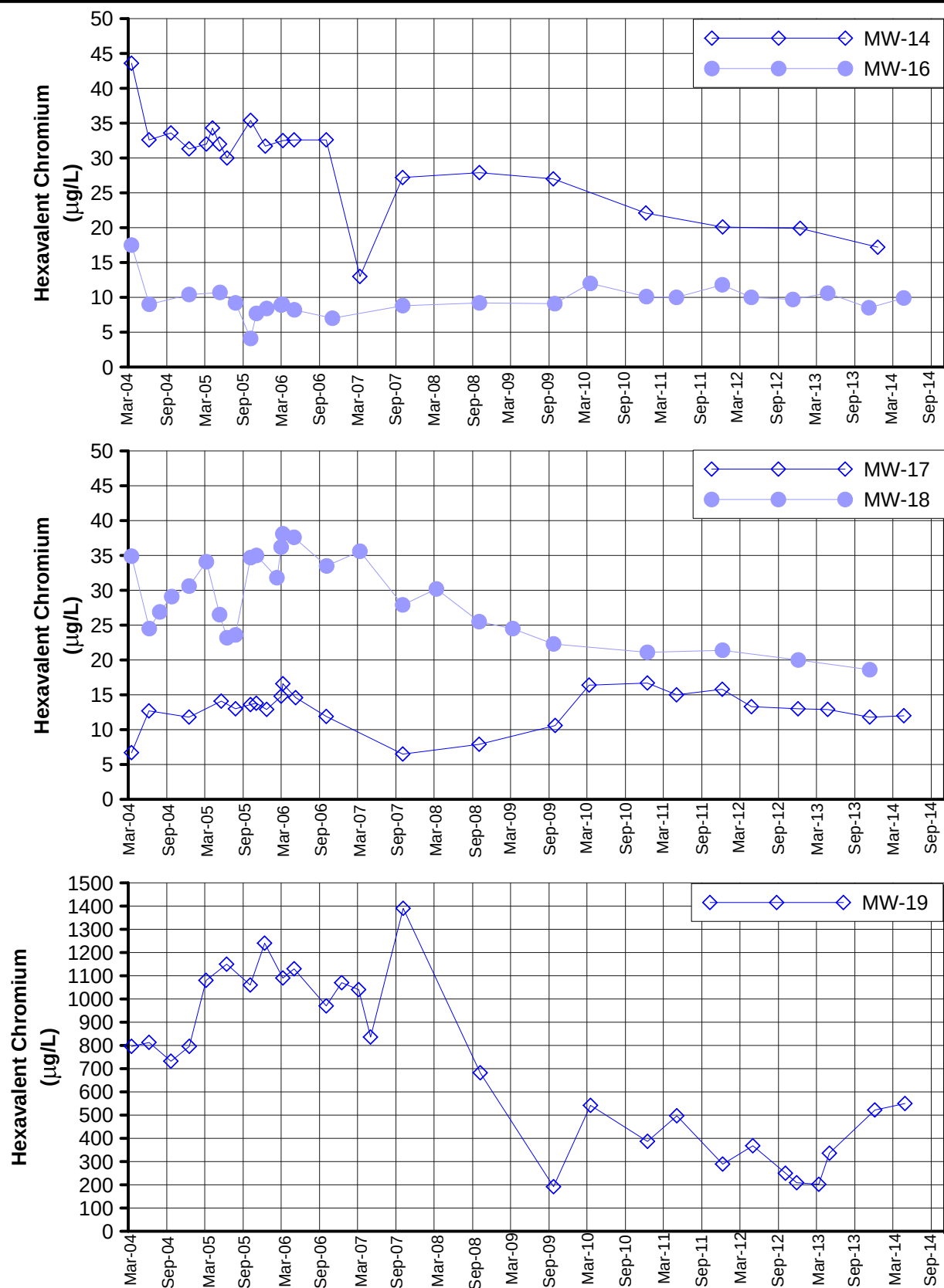


**FIGURE D-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19**
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

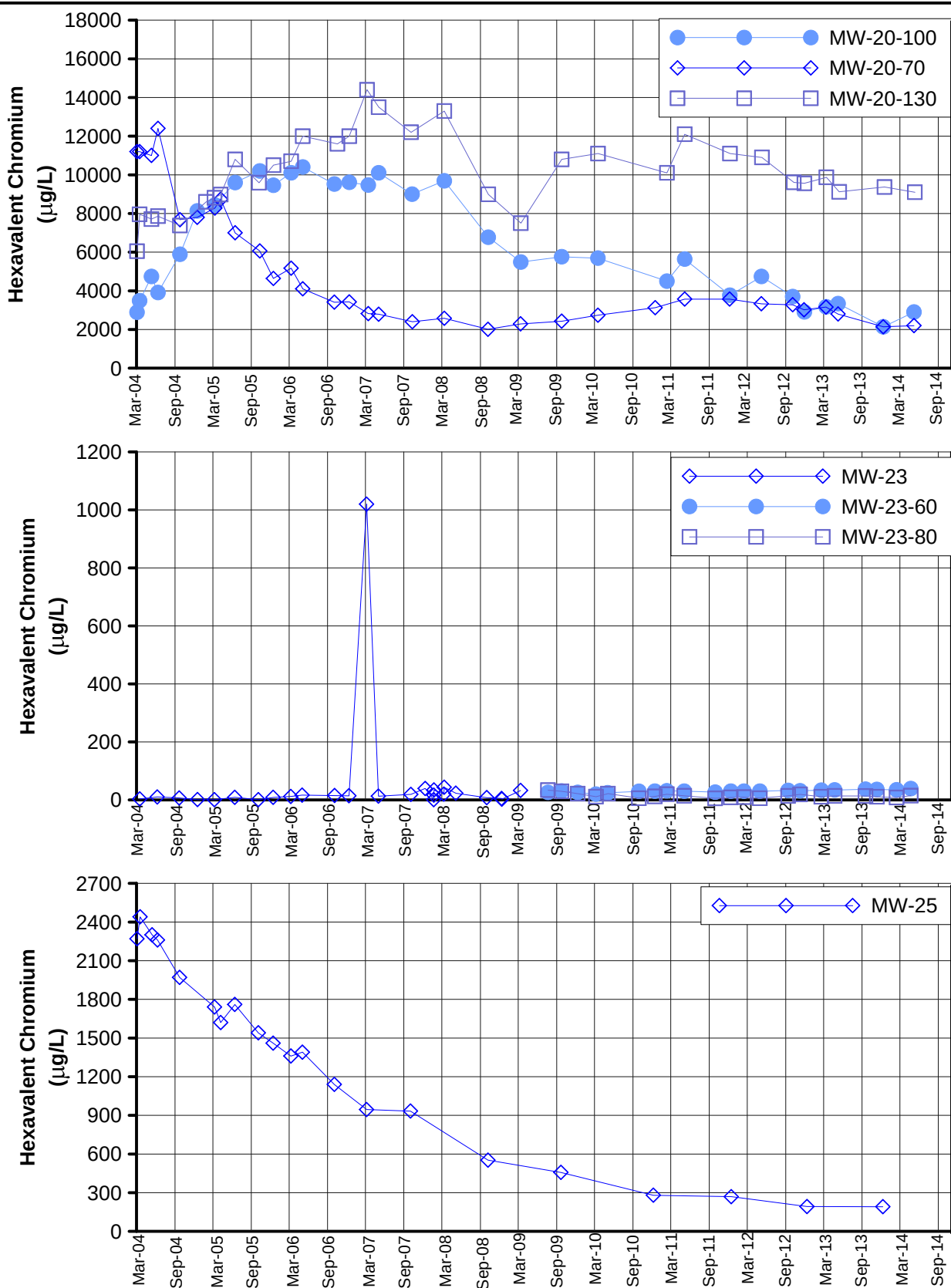
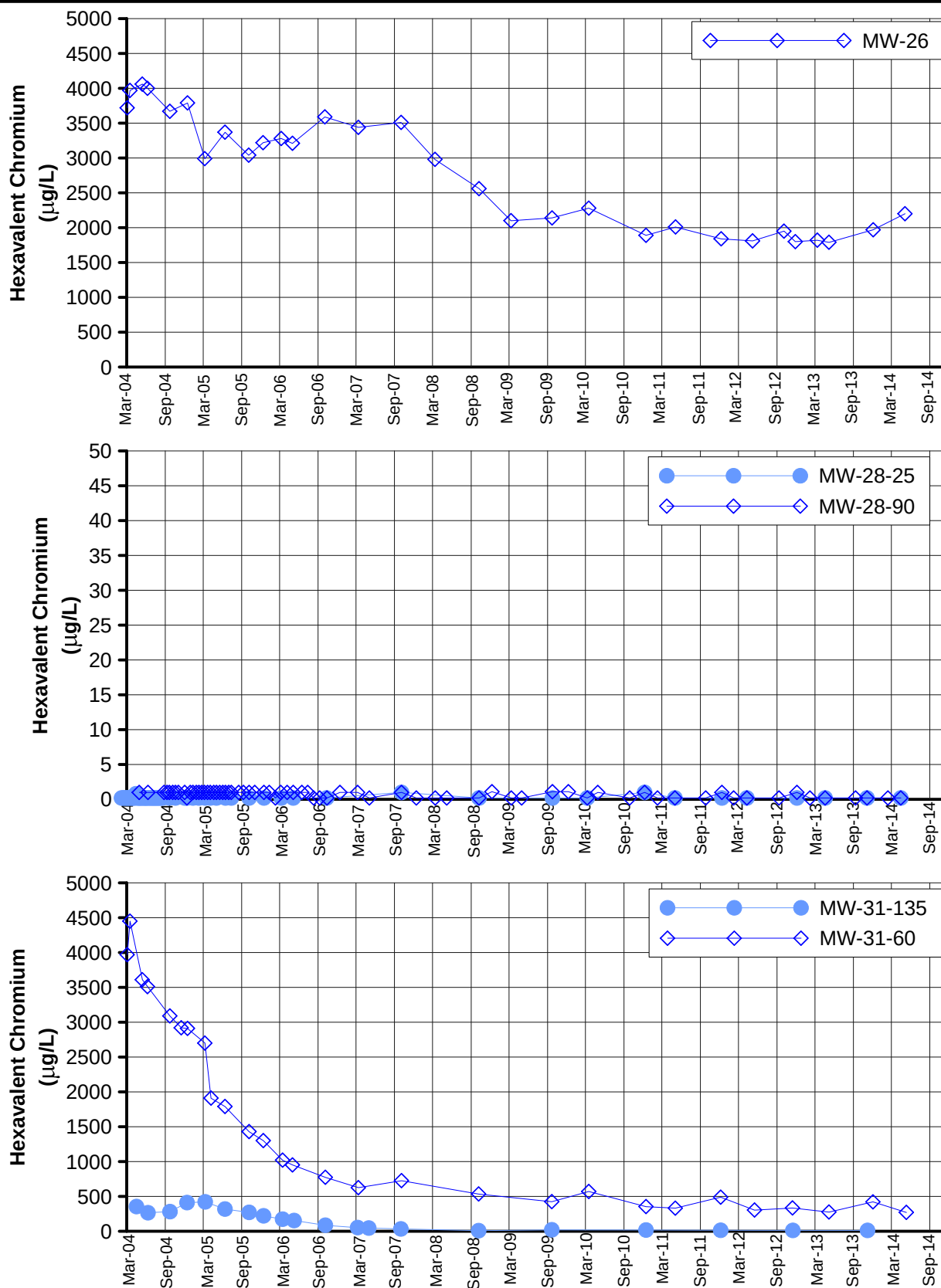


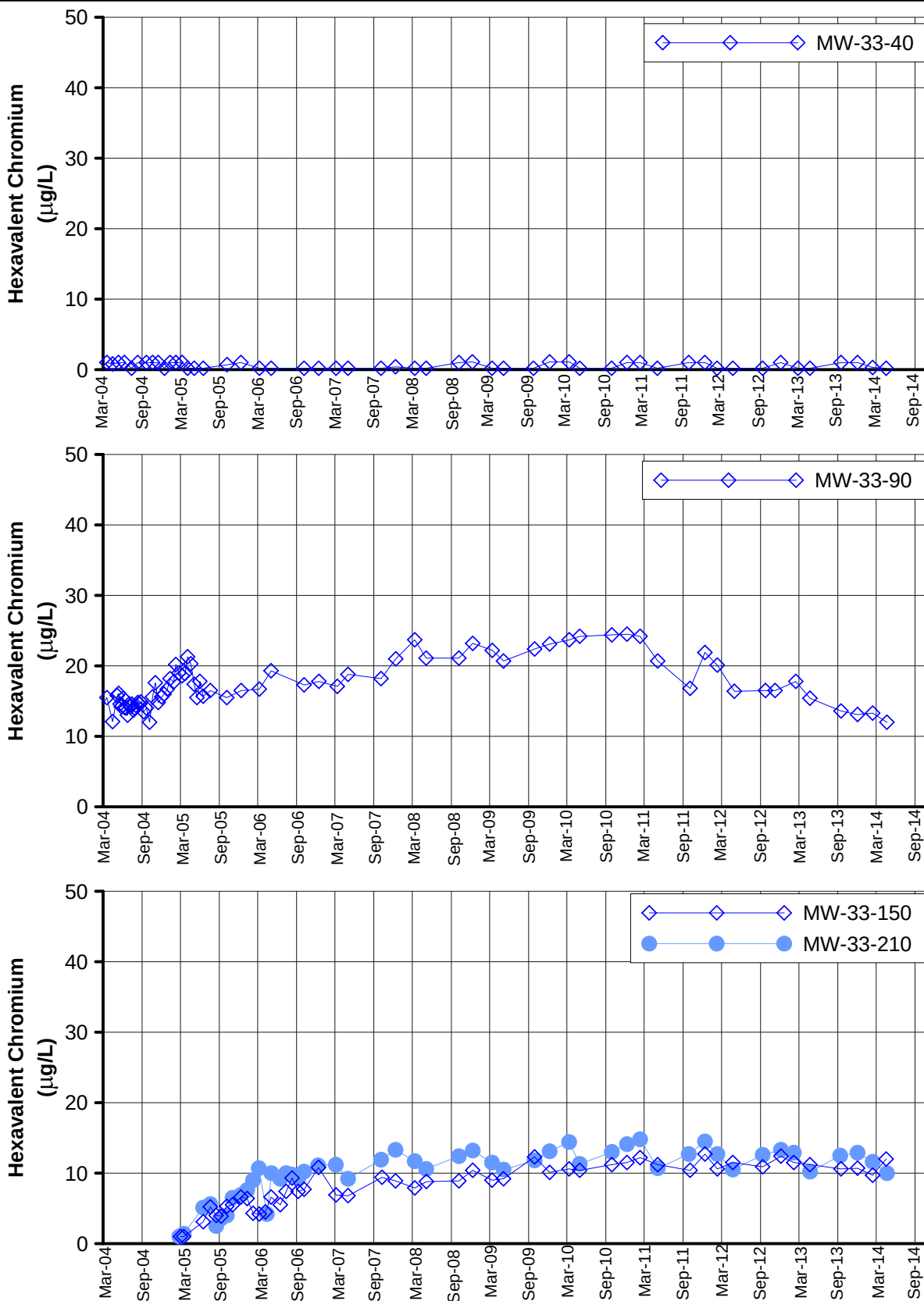
**FIGURE D-3
HEXAVALENT CHROMIUM
IN MW-20, MW-23, AND MW-25 CLUSTERS**
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



Notes:

- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
- 2) The trigger level for MW-28-90 is 20 µg/L.

FIGURE D-4
HEXAVALENT CHROMIUM
IN MW-26, MW-28, AND MW-31 CLUSTERS
 THIRD QUARTER 2014 INTERIM MEASURESPERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA



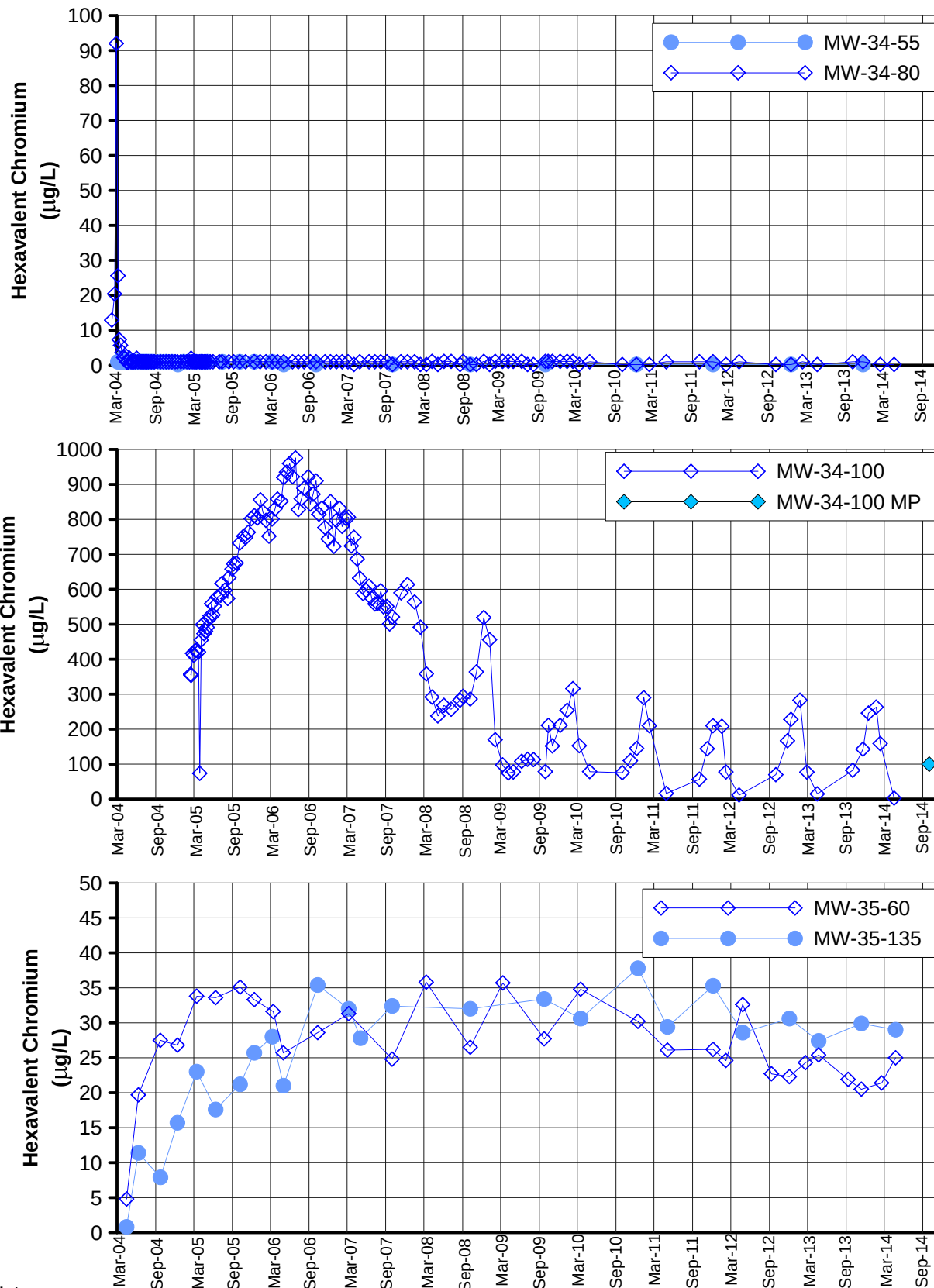
Notes:

- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
- 2) The trigger level for MW-33-40 is 20 µg/L.
- 3) The trigger level for MW-33-90 is 25 µg/L.
- 4) The trigger level for MW-33-150 is 20 µg/L.
- 5) The trigger level for MW-33-210 is 20 µg/L.

**FIGURE D-5
HEXAVALENT CHROMIUM
IN MW-33 CLUSTER**

THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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CH2MHILL



Notes:

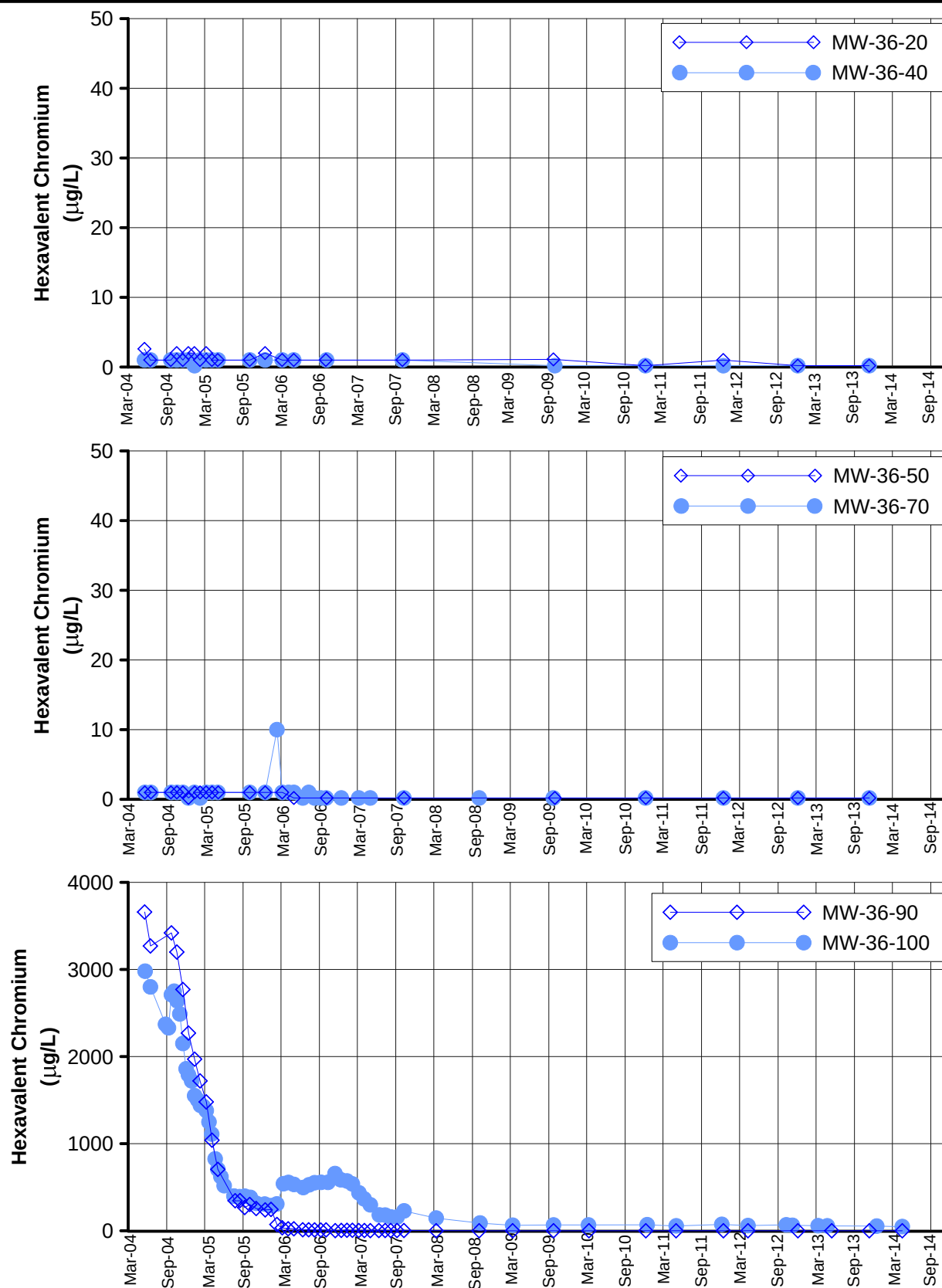
- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
- 2) The trigger level for MW-34-80 is 20 µg/L.
- 3) The trigger level for MW-34-100 is 750 µg/L.

MP = micropurge, hexavalent chromium sample collected using micropurge sampling method. Data not indicated with (MP) was collected using the three-volume purge sampling method.

**FIGURE D-6
HEXAVALENT CHROMIUM
IN MW-34 AND MW-35 CLUSTERS**

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

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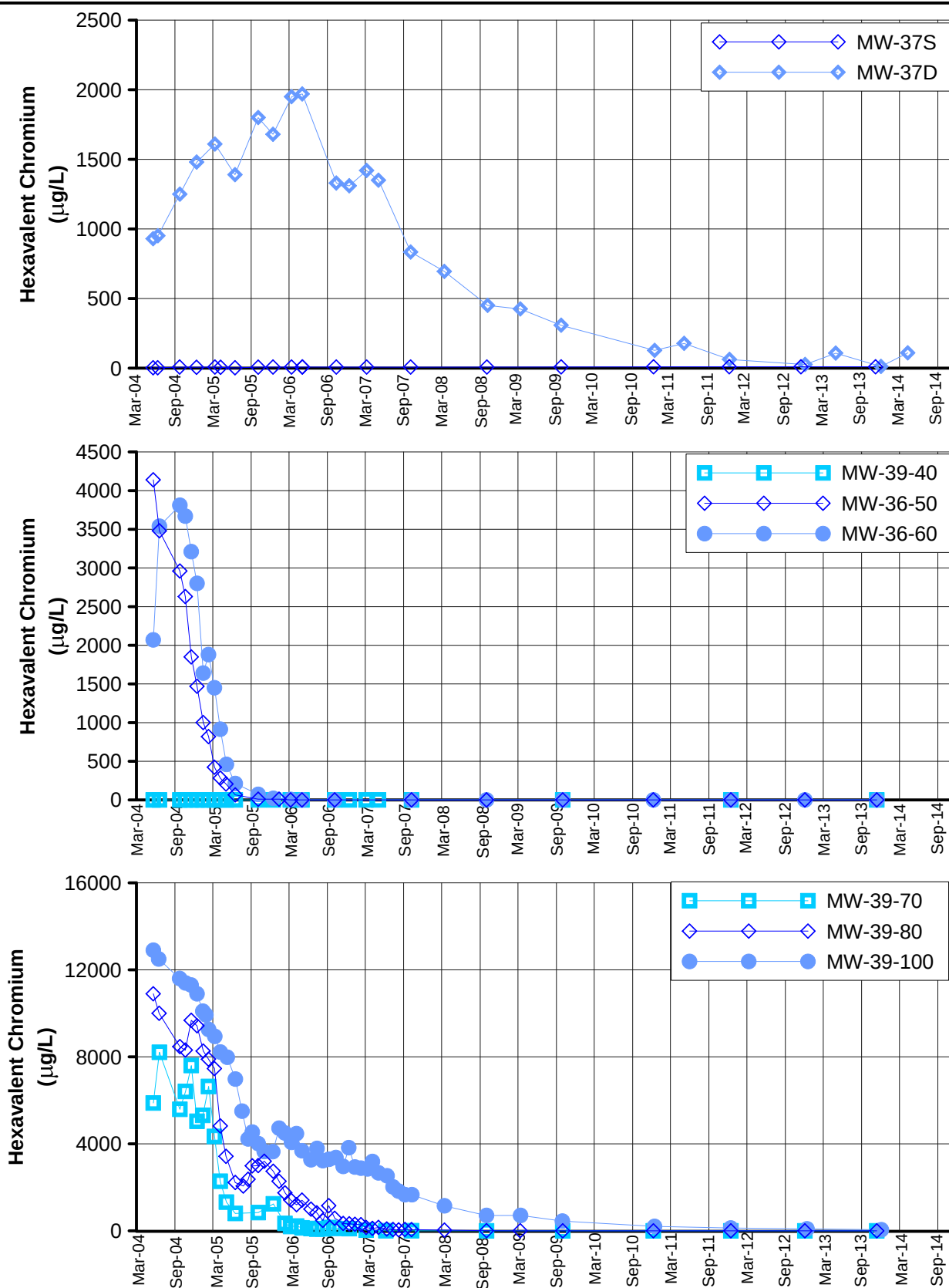
Notes:

- 1) 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**

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

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Notes:

- 1) 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**

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

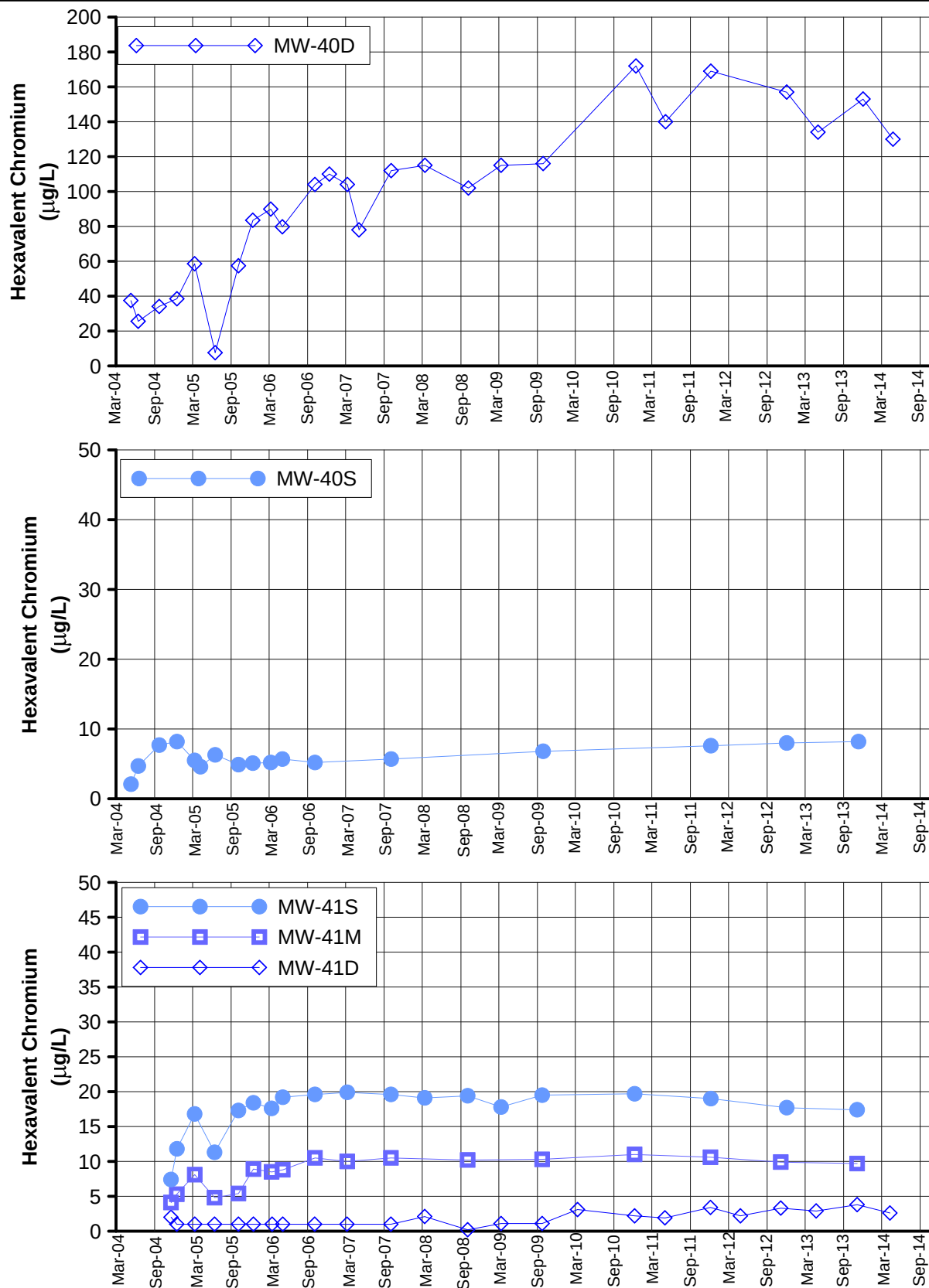
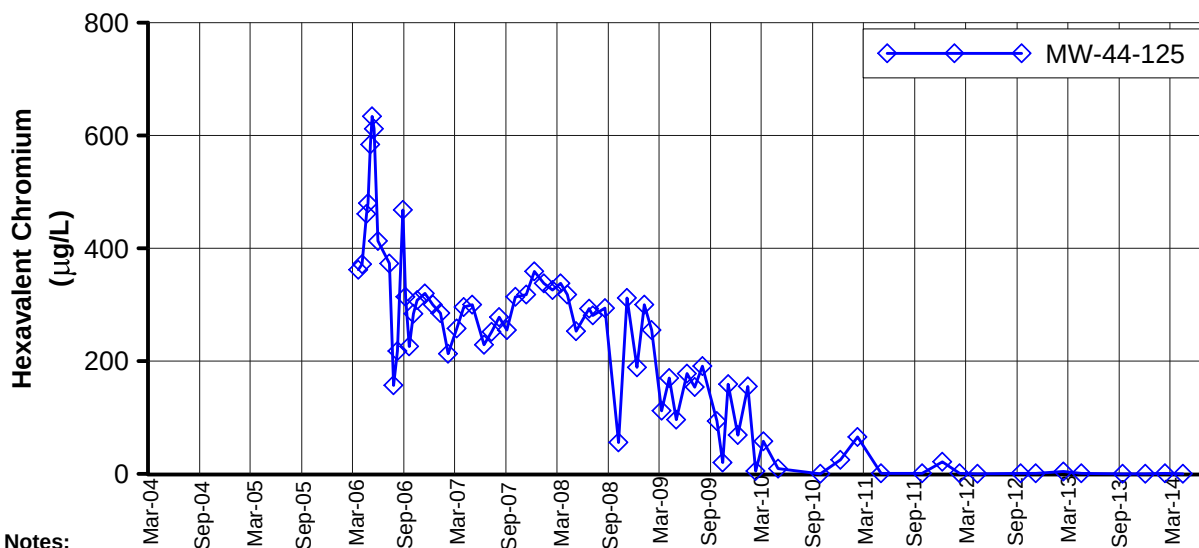
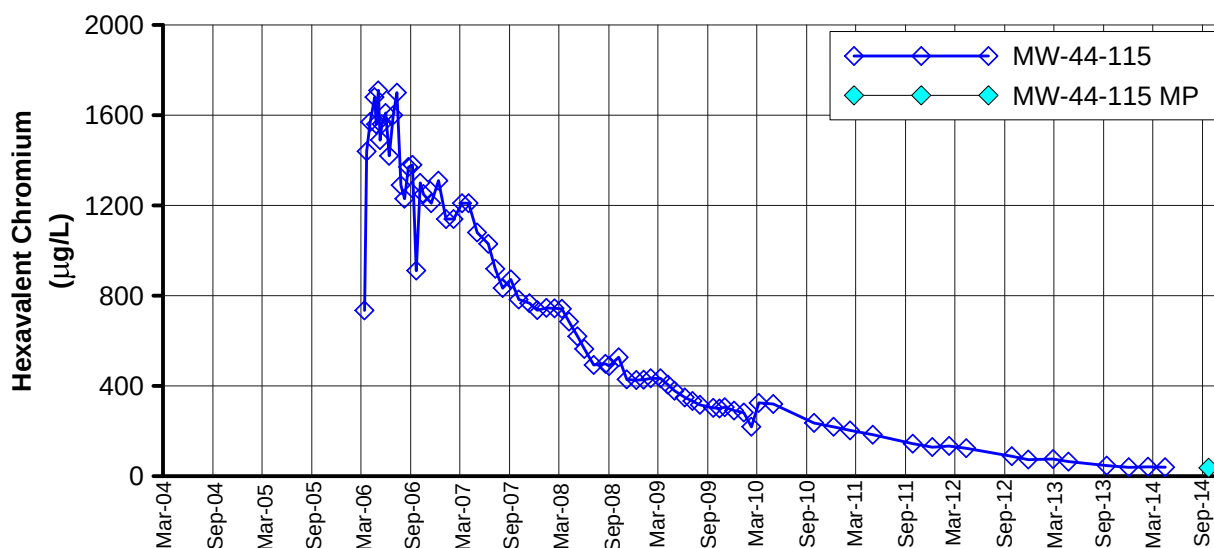
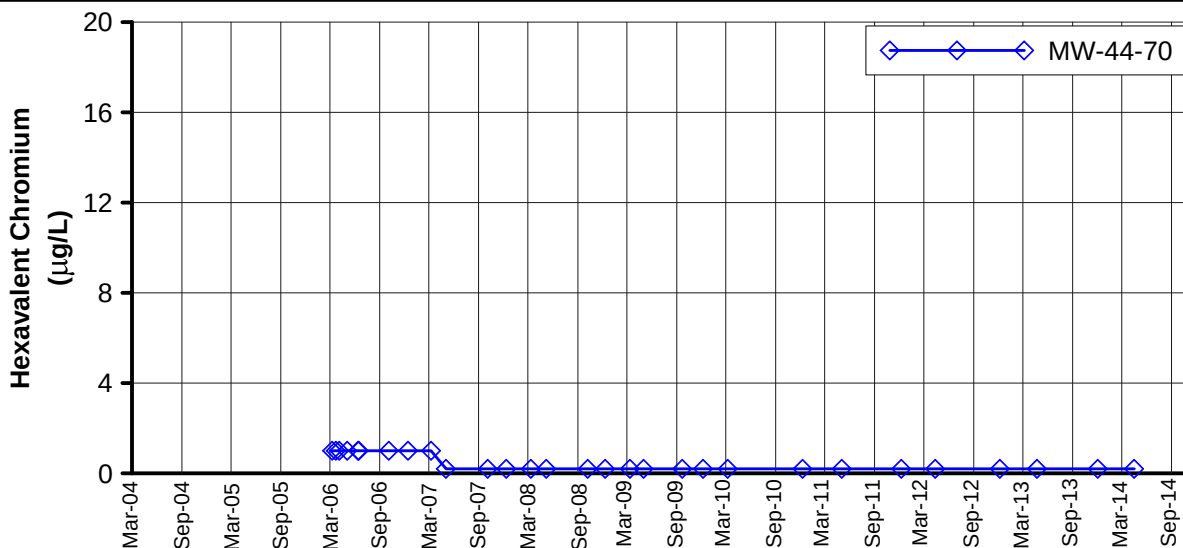


**FIGURE D-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS**
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



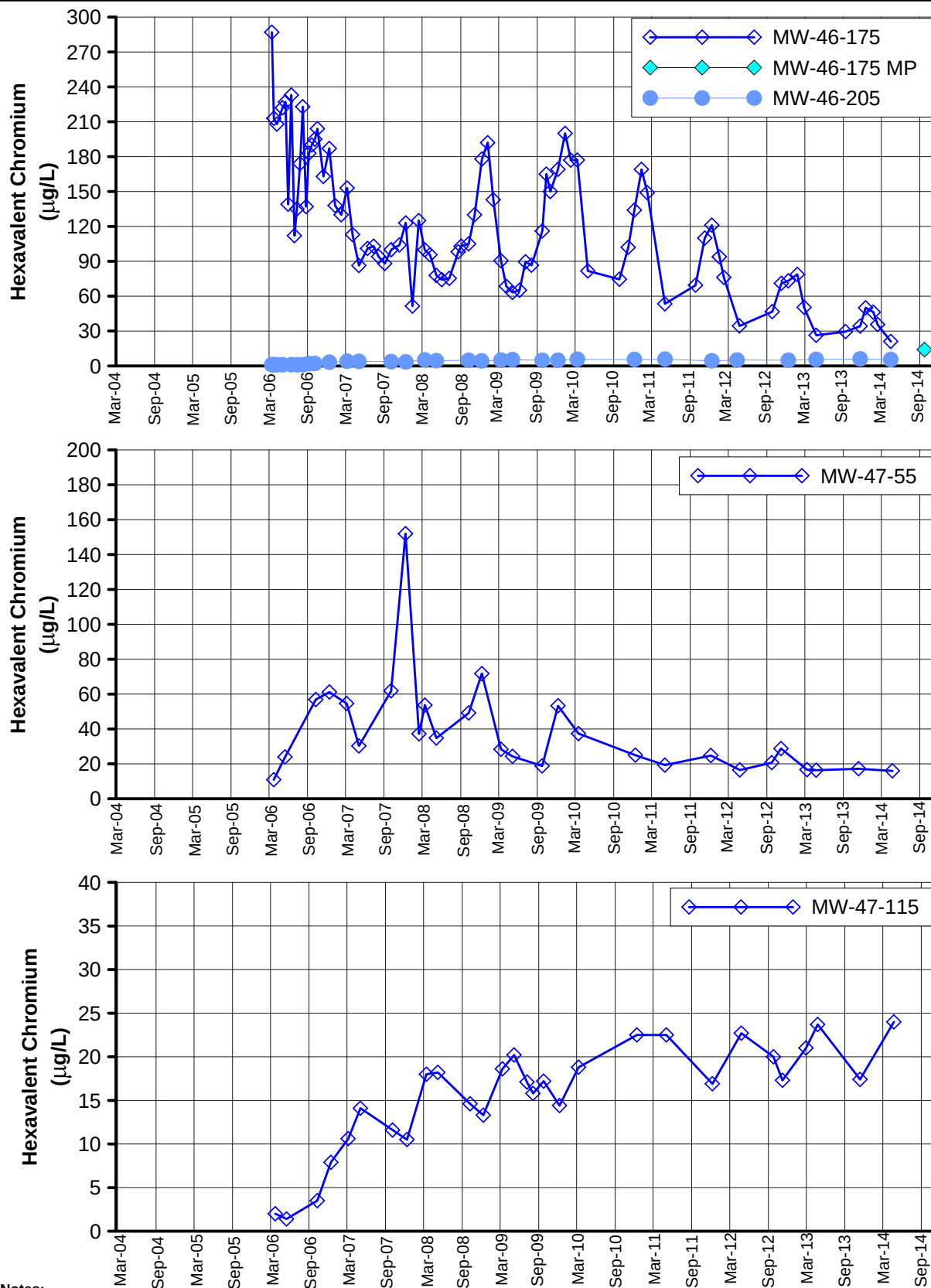
Notes:

- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
 - 2) The trigger level for MW-44-70 is 20 µg/L.
 - 3) The trigger level for MW-44-115 is 1,200 µg/L.
 - 4) The trigger level for MW-44-125 is 475 µg/L.
- MP = micropurge, hexavalent chromium sample collected using micropurge sampling method. Data not indicated with (MP) was collected using the three-volume purge sampling method.

FIGURE D-10 HEXAVALENT CHROMIUM IN MW-44 CLUSTER

THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
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Notes:

- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
 - 2) The trigger level for MW-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.
- MP = micropurge, hexavalent chromium sample collected using micropurge sampling method. Data not indicated with (MP) was collected using the three-volume purge sampling method.

**FIGURE D-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS**

THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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NEEDLES, CALIFORNIA

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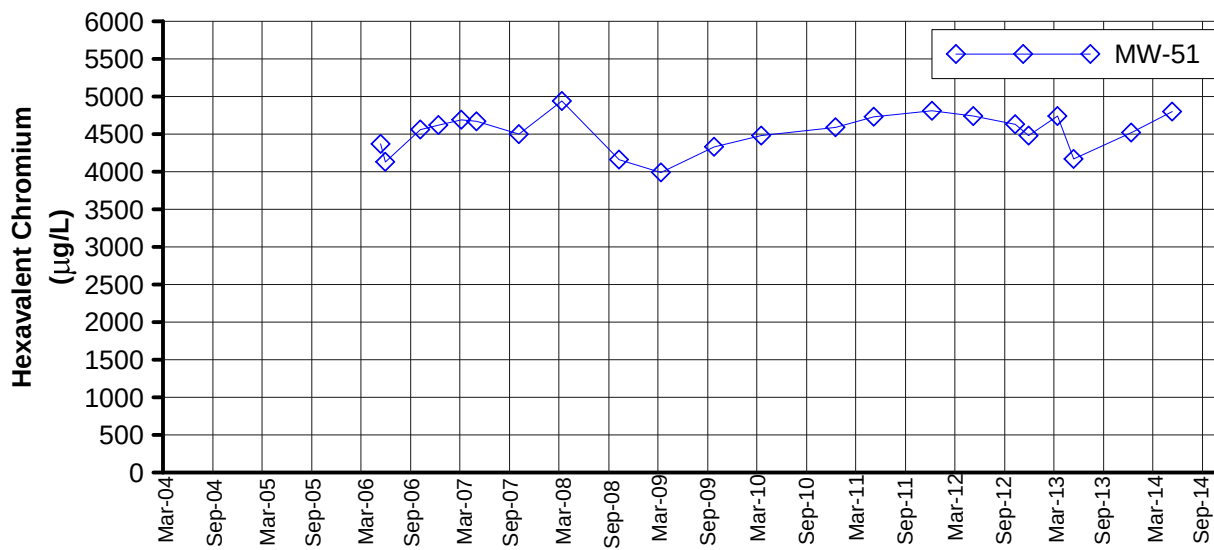
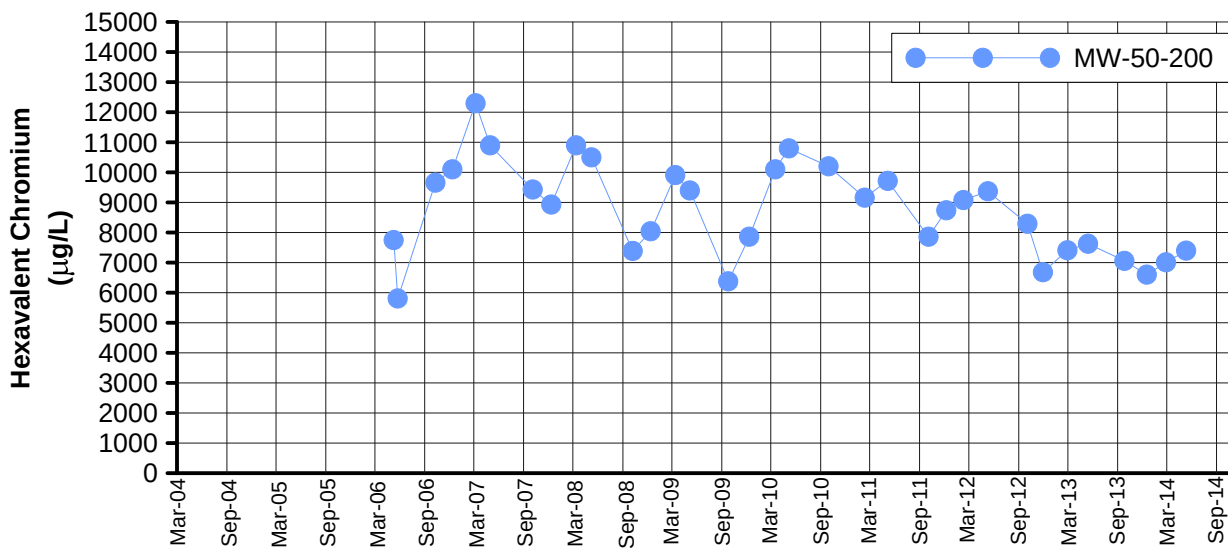
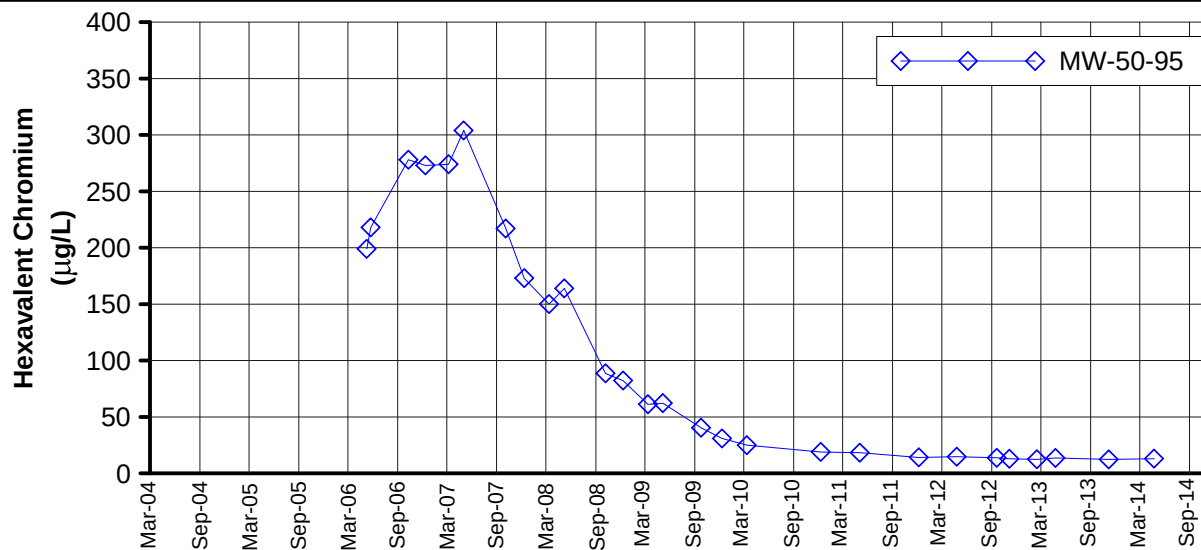


**FIGURE D-12
HEXAVALENT CHROMIUM
IN MW-50 AND MW-51 CLUSTERS**

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

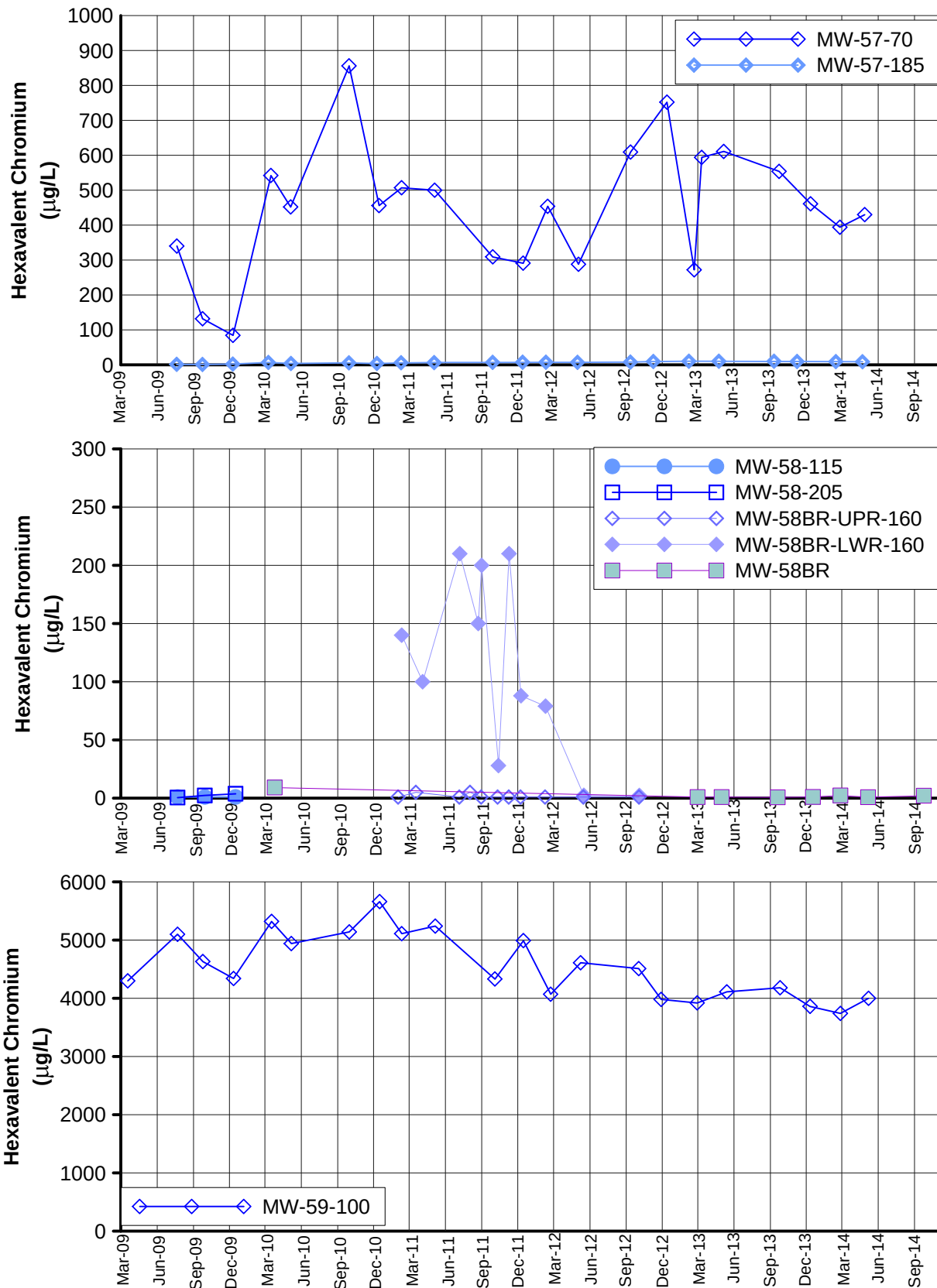


FIGURE D-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

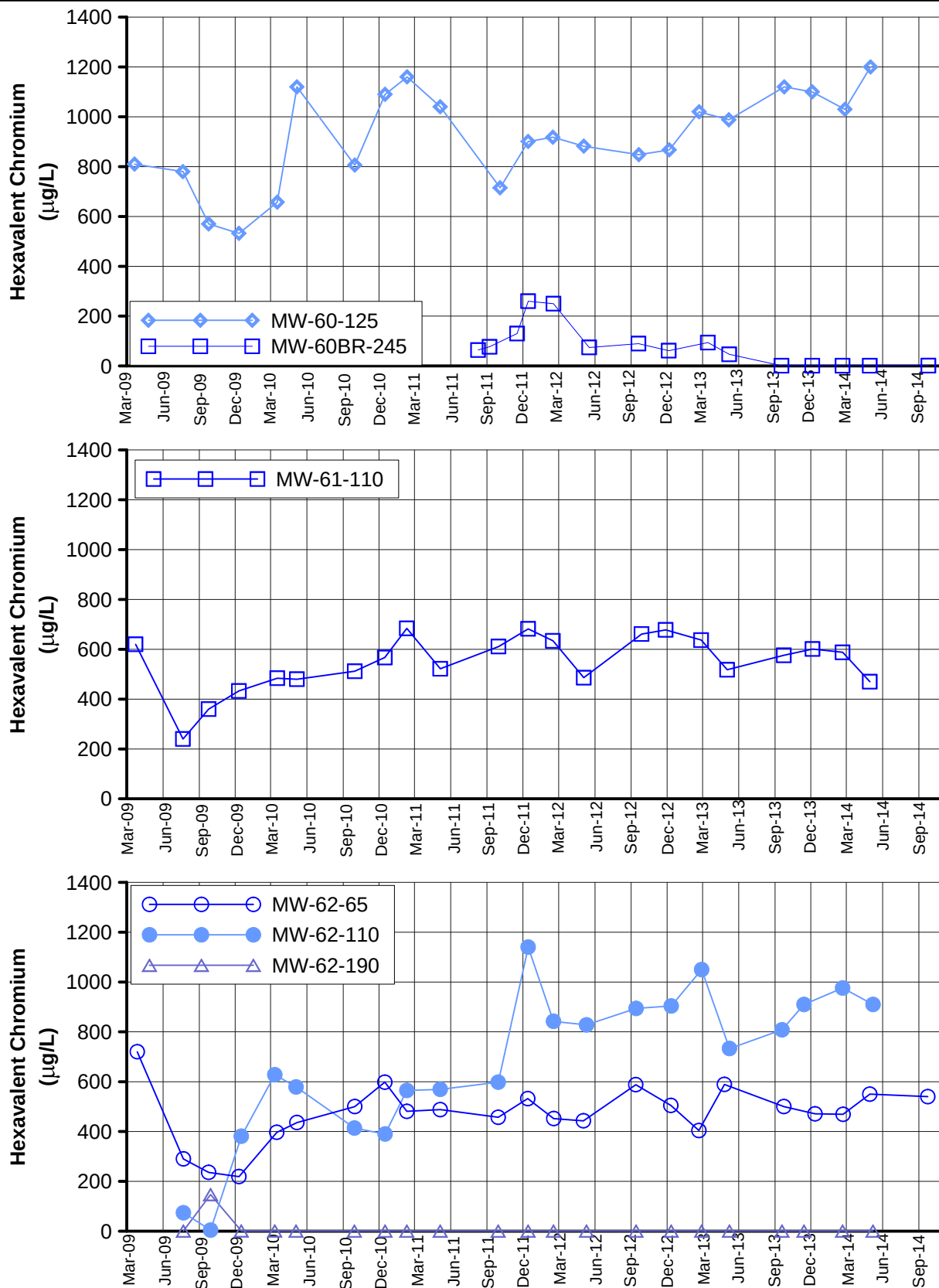
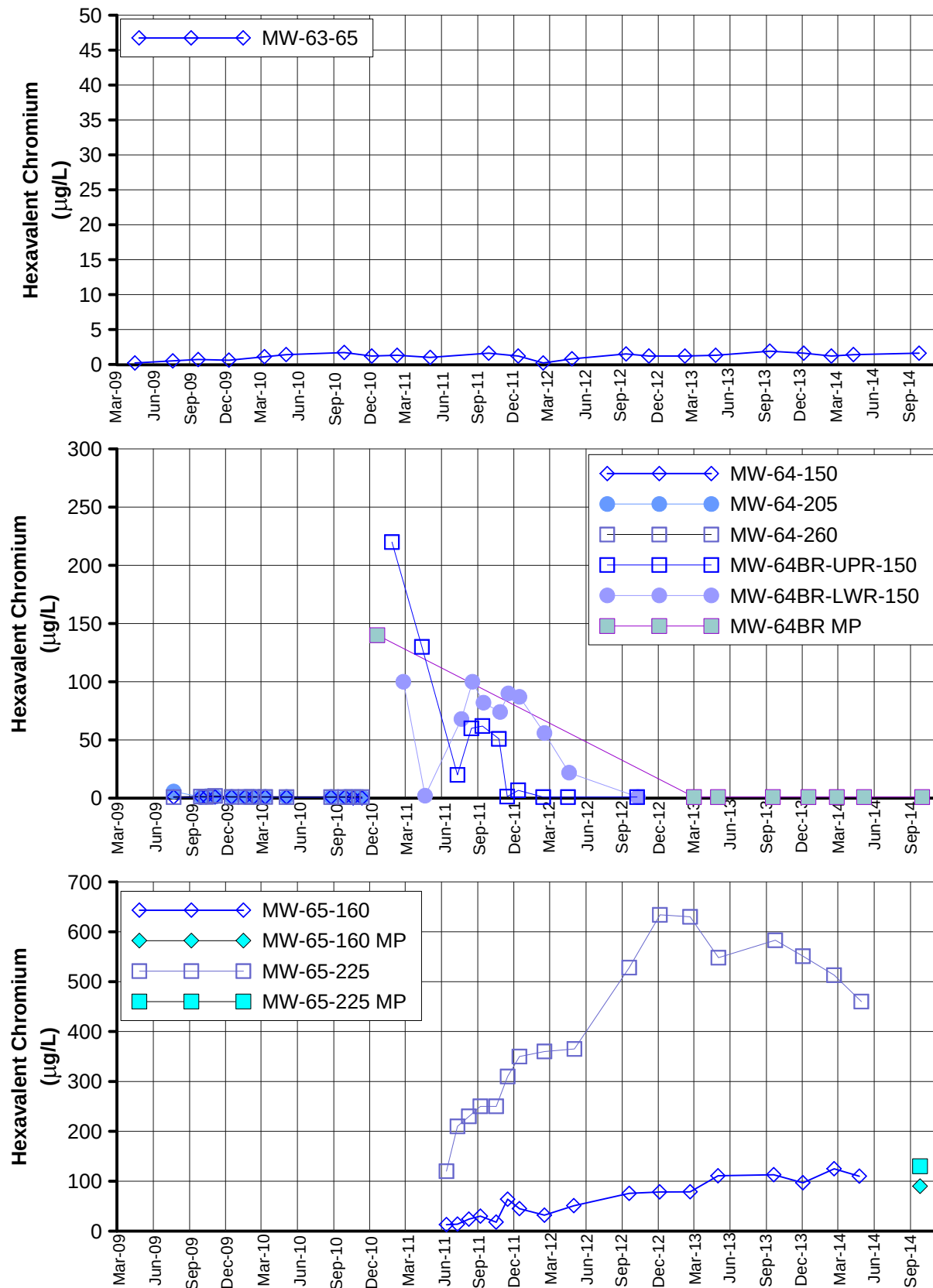


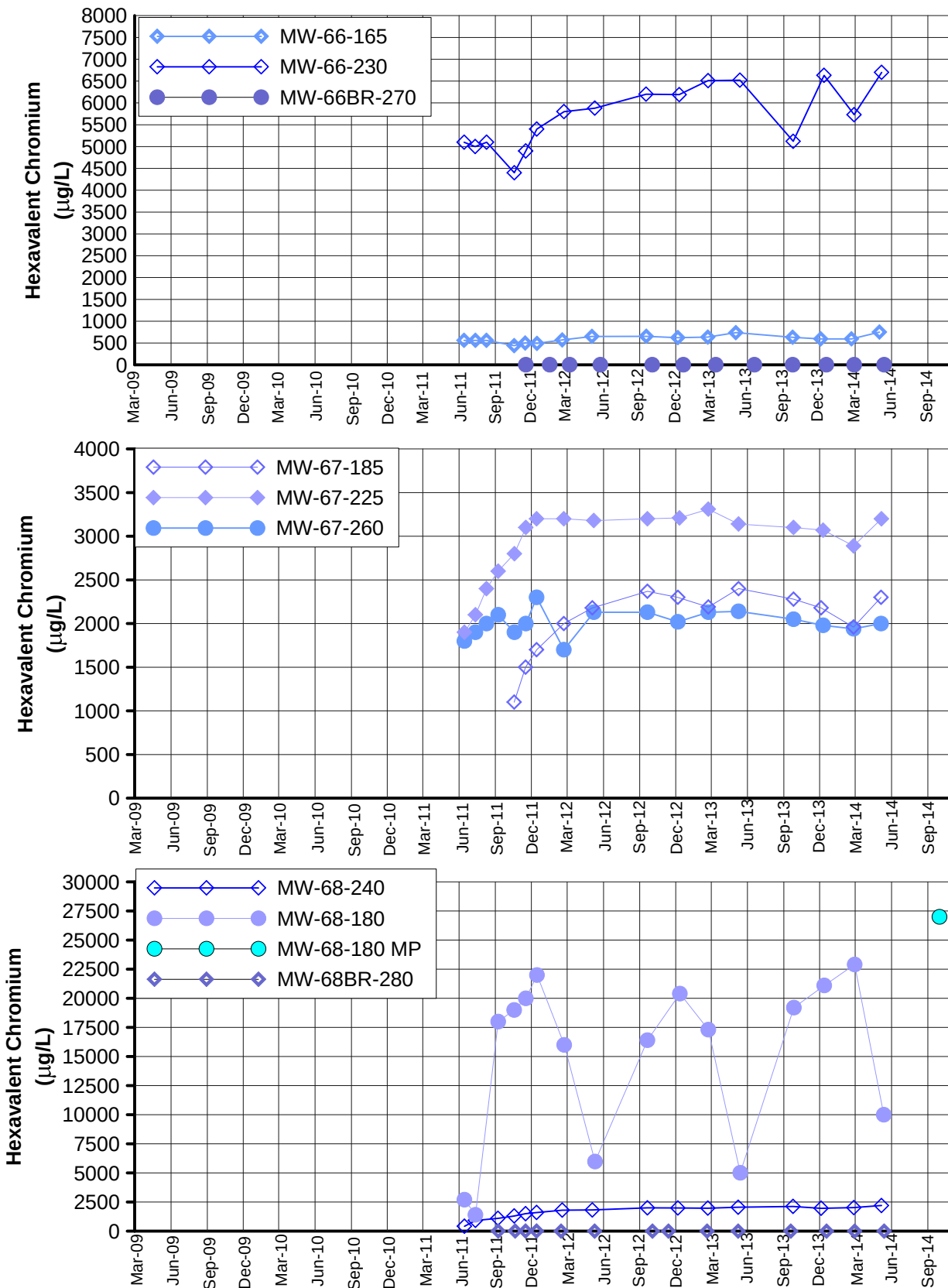
FIGURE D-14
HEXAVALENT CHROMIUM IN THE MW-60 CLUSTER,
MW-61-110 AND THE MW-62 CLUSTER
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA



Notes:

MP = micropurge, hexavalent chromium sample collected using micropurge sampling method. Data not indicated with (MP) was collected using the three-volume purge sampling method.

**FIGURE D-15
HEXAVALENT CHROMIUM
IN MW-63-65, MW-64 CLUSTER AND MW-65 CLUSTER**
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



Notes:

MP = micropurge, hexavalent chromium sample collected using micropurge sampling method. Data not indicated with (MP) was collected using the three-volume purge sampling method.

**FIGURE D-16
HEXAVALENT CHROMIUM
IN MW-66, MW-67, AND MW-68 CLUSTERS**
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

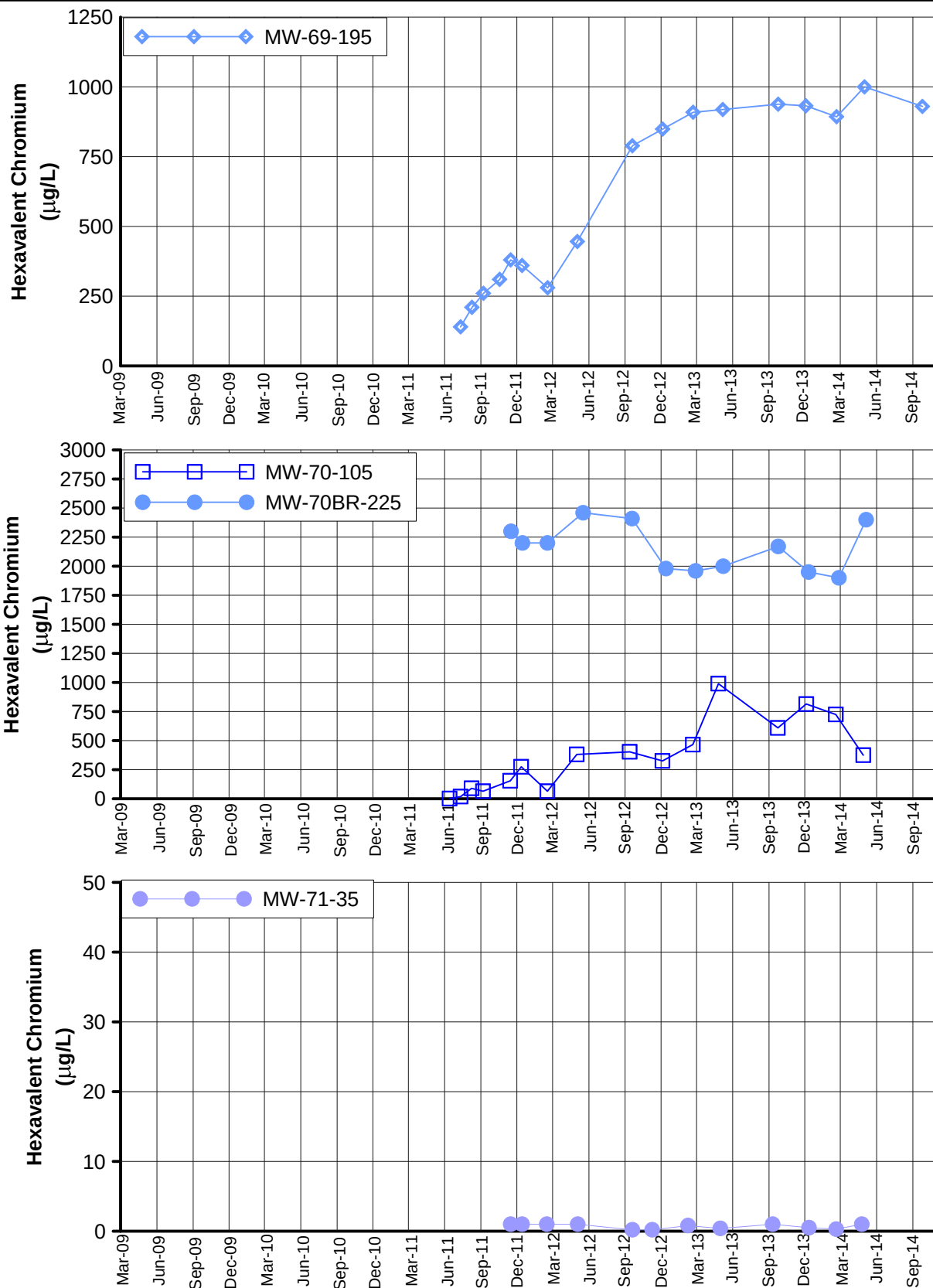


FIGURE D-17
HEXAVALENT CHROMIUM
IN MW-69-195, THE MW-70 CLUSTER, AND MW-71-35
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

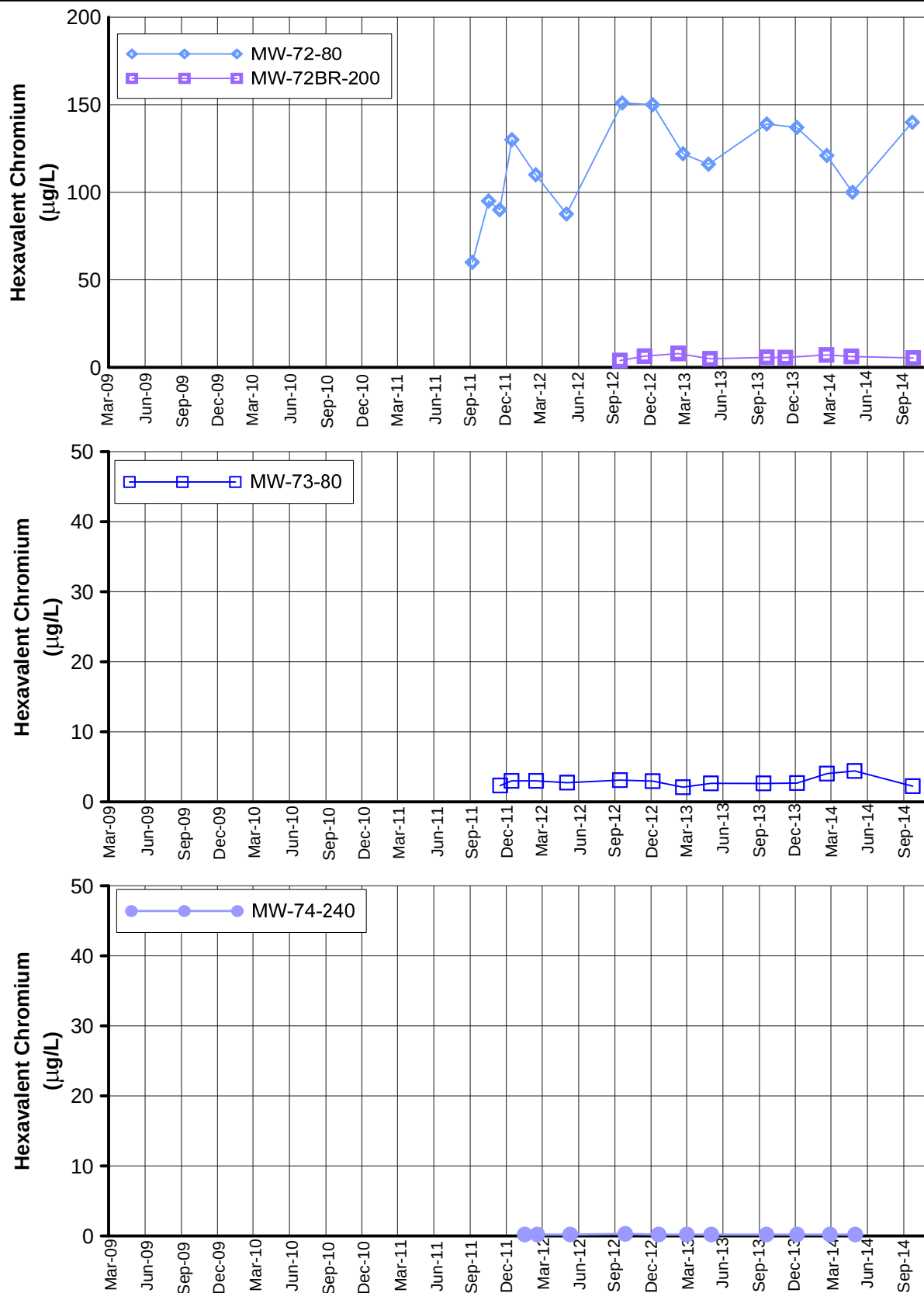


FIGURE D-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-80, AND MW-74-240
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

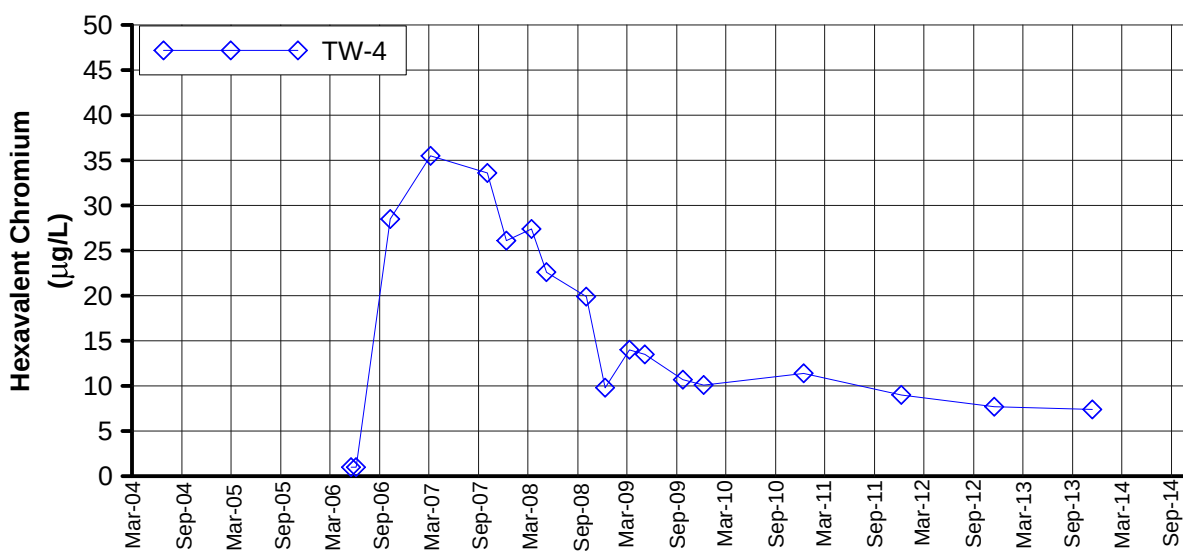


**FIGURE D-19
HEXAVALENT CHROMIUM
IN TW-4**

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

Appendix E
Interim Measures Extraction System
Operations Log, Third Quarter 2014

Interim Measures Extraction System Operations Log, Third Quarter 2014, PG&E Topock Performance Monitoring Program

During Third Quarter 2014 (July through October), 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 well TW-2D operated on September 23 and 24, 2014. Extraction well TW-2S did not operate during Third Quarter 2014. The operational run time for the Interim Measure groundwater extraction system (combined or individual pumping) was approximately 94.5 percent during Third Quarter 2014.

The Interim Measure Number 3 (IM-3) facility treated approximately 22,553,648 gallons of extracted groundwater during Third Quarter 2014. The IM-3 facility also treated approximately 60 gallons of water generated from the groundwater monitoring program and 15,950 gallons of water from IM-3 well backwashing. Seven containers of solids from the IM-3 facility were transported offsite during the reporting period.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 5.5 percent of downtime during Third 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 July 2014

- **July 2, 2014 (planned):** The extraction well system was offline from 9:24 a.m. to 9:32 a.m., from 9:34 a.m. to 9:54 a.m., from 10:00 a.m. to 10:08 a.m., and from 10:14 a.m. to 10:24 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 46 minutes.
- **July 3-4, 2014 (planned):** The extraction well system was offline from 10:40 p.m. on July 3, 2014 to 12:00 a.m. on July 4, 2014 to perform training on generator maintenance, replacement of the strainer on the Raw Water Tank (T-100), and flow meter FSL-201 cleaning. Extraction system downtime was 1 hour, 20 minutes.
- **July 8, 2014 (unplanned):** The extraction well system was offline from 6:26 p.m. to 6:38 p.m., from 6:40 p.m. to 6:50 p.m., from 9:50 p.m. to 9:56 p.m. and from 10:34 p.m. to 10:36 p.m. to switch to/from backup generator power as a precautionary measure due to strong thunderstorms in the area. Extraction system downtime was 30 minutes.
- **July 9, 2014 (unplanned):** The extraction well system was offline from 12:54 p.m. to 1:04 p.m. due to loss of power from the City of Needles Power caused by repairs in the area. Extraction system downtime was 10 minutes.
- **July 10, 2014 (unplanned):** The extraction well system was offline from 9:14 a.m. to 9:20 a.m. and from 10:48 a.m. to 10:52 a.m. due to switch to/from backup generator power as a precautionary measure due to strong thunderstorms in the area. Extraction system downtime was 10 minutes.
- **July 23, 2014 (unplanned):** The extraction well system was offline from 2:04 p.m. to 2:08 p.m. to collect water level measurements from the extraction wells. Extraction system downtime was 4 minutes.
- **July 25-26, 2014 (unplanned):** The extraction well system was offline from 5:26 p.m. on July 25, 2014 to 6:08 p.m. on July 26, 2014 and from 10:20 p.m. to 10:26 p.m. on July 26, 2014 due to power supply and Input/Output (I/O) board failure in the programmable logical controller (PLC). Extraction system downtime was 24 hours, 48 minutes.

- **July 28, 2014 (unplanned):** The extraction well system was offline from 7:32 p.m. to 7:42 p.m. and from 9:44 p.m. to 9:50 p.m. to switch to/from backup generator power as a precautionary measure due to strong thunderstorms in the area. Extraction system downtime was 16 minutes.
- **July 28, 2014 (planned):** The extraction well system was offline from 7:46 a.m. to 12:56 p.m. for new surge protection equipment to be installed around the treatment plant. Extraction system downtime was 5 hours, 10 minutes.

E.2 August 2014

- **August 3, 2014 (unplanned):** The extraction well system was offline from 1:02 p.m. to 1:32 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 30 minutes.
- **August 3-4, 2014 (unplanned):** The extraction well system was offline from 11:46 p.m. on August 3, 2014 to 12:04 a.m. on August 4, 2014 to return the facility to City of Needles' power. Extraction system downtime was 18 minutes.
- **August 4, 2014 (planned):** The extraction well system was offline from 10:46 a.m. to 10:48 a.m., from 10:50 a.m. to 10:52 a.m., from 11:10 a.m. to 11:12 a.m., and from 11:20 a.m. to 11:24 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 10 minutes.
- **August 12, 2014 (unplanned):** The extraction well system was offline from 2:46 p.m. to 3:04 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 18 minutes.
- **August 13, 2014 (unplanned):** The extraction well system was offline from 1:06 p.m. to 1:12 p.m. to return the facility to City of Needles' power. Extraction system downtime was 6 minutes.
- **August 15, 2014 (unplanned):** The extraction well system was offline from 10:54 a.m. to 10:56 a.m. and from 12:26 p.m. to 12:28 p.m. due to switch to/from backup generator power due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.
- **August 18-22, 2014 (planned):** The extraction well system was offline from 6:08 a.m. on August 18, 2014 to 8:10 a.m. on August 22, 2014 and from 8:18 a.m. to 8:52 a.m., 9:02 a.m. to 9:16 a.m., and 11:48 to 1:46 p.m. on August 22, 2014 for semiannual scheduled maintenance. Extraction system downtime was 4 days, 4 hours and 48 minutes.
- **August 22, 2014 (unplanned):** The extraction well system was offline 4:26 p.m. to 10:14 p.m. due to loss of communication with the Programmable Logical Controller (PLC). Extraction system downtime was 5 hours, 38 minutes.
- **August 22-23, 2014 (unplanned):** The extraction well system was offline from 11:08 p.m. on August 22, 2014 to 12:08 a.m. on August 23, 2014 to place the facility in recirculation for tank level management. Extraction system downtime was 1 hour.
- **August 27, 2014 (unplanned):** The extraction well system was offline from 1:28 p.m. to 12:48 p.m. to repair leaks at the chemical loop and RO system. Extraction system downtime was 20 minutes.
- **August 31, 2014 (unplanned):** The extraction well system was offline from 9:56 a.m. to 11:36 a.m. to replace the Microfilter modules. Extraction system downtime was 1 hour, 40 minutes.

E.3 September 2014

- **September 3, 2014 (planned):** The extraction well system was offline from 11:20 a.m. to 11:26 a.m., from 11:34 a.m. to 11:38 a.m., 11:40 a.m. to 11:44 a.m. and from 11:48 a.m. to 12:04 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 30 minutes.
- **September 10, 2014 (unplanned):** The extraction well system was offline from 12:10 a.m. to 12:38 a.m. to clean the microfilter strainer. Extraction system downtime was 28 minutes.
- **September 10, 2014 (unplanned):** The extraction well system was offline from 1:00 p.m. to 1:08 p.m., from 1:22 p.m. to 1:30 p.m., and from 2:22 p.m. to 2:30 p.m. due to loss of power from the City of Needles. The facility was placed on generator power during this time. Extraction system downtime was 24 minutes.
- **September 10, 2014 (unplanned):** The extraction well system was offline from 4:32 p.m. to 5:16 p.m. and from 5:26 p.m. to 6:28 p.m. to clean the microfilter strainer, clean flow control valve 201, troubleshoot an issue with the Permeate Pump (P-605), and return the facility to power from the City of Needles. Extraction system downtime was 1 hour, 46 minutes.
- **September 12, 2014 (unplanned):** The extraction well system was offline from 6:44 a.m. to 7:02 a.m. for maintenance by the City of Needles power company. Extraction system downtime was 18 minutes.
- **September 13, 2014 (unplanned):** The extraction well system was offline from 5:56 a.m. to 6:14 a.m. to change the microfilter strainer. Extraction system downtime was 18 minutes.
- **September 16, 2014 (unplanned):** The extraction well system was offline from 3:38 p.m. to 3:54 p.m. and 7:24 p.m. to 7:34 p.m. to switch the facility onto and off of generator power due to strong storms in the area. Extraction system downtime was 26 minutes.
- **September 18, 2014 (unplanned):** The extraction well system was offline from 12:32 p.m. to 4:18 p.m. and from 4:20 p.m. to 4:34 p.m. to change the microfilter modules, replace a fuse at extraction well PE-1, and repair an electrical connection in the extraction well TW-3D control panel. Extraction system downtime was 4 hours.
- **September 19, 2014 (unplanned):** The extraction well system was offline from 10:16 p.m. to 10:44 p.m. to replace the air pressure mass flow meter at the #2 Iron Oxidation Tank (T-301B). Extraction system downtime was 28 minutes.
- **September 21, 2014 (unplanned):** The extraction well system was offline from 3:40 a.m. to 4:28 a.m. to place the facility in recirculation due to an out of specification process monitoring sample. Extraction system downtime was 48 minutes.
- **September 23, 2014 (planned):** The extraction well system was offline from 8:00 a.m. to 12:48 p.m. for AquaGard injection at extraction wells PE-1 and TW-2D. Extraction system downtime was 4 hours, 48 minutes.
- **September 24, 2014 (unplanned):** The extraction well system was offline from 4:28 a.m. to 4:30 a.m. due to loss of power from the City of Needles. Extraction system downtime was 2 minutes.
- **September 24, 2014 (unplanned):** The extraction well system was offline from 10:08 a.m. to 11:30 a.m. due to a low-level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 1 hour, 22 minutes.

E.4 October 2014

- **October 8, 2014 (unplanned):** The extraction well system was offline from 9:36 a.m. to 10:00 a.m. due to loss of power from the City of Needles. Extraction system downtime was 24 minutes.

- **October 4, 2014 (planned):** The extraction well system was offline from 1:20 p.m. to 1:24 p.m., from 1:28 p.m. to 1:30 p.m., from 1:32 p.m. to 1:34 p.m., from 1:38 p.m. to 1:44 p.m. and from 1:48 p.m. to 1:54 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 20 minutes.
- **October 10, 2014 (planned):** The extraction well system was offline from 11:14 a.m. to 1:40 p.m. due to replacement of the microfilter modules. Extraction system downtime was 2 hours, 26 minutes.
- **October 29, 2014 (unplanned):** The extraction well system was offline from 3:58 p.m. to 4:12 p.m. due to shutdown of the air compressor. Extraction system downtime was 14 minutes.

Appendix F
Hydraulic Data for Interim Measures
Reporting Period

TABLE F-1

Average Monthly and Quarterly Groundwater Elevations, Third Quarter 2014
 Third 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	July 2014	August 2014	September 2014	October 2014	Quarter Average	Days in Quarter Average
I-3	River Station	456.24	455.26	455.30	454.79	455.41	120
MW-20-070	Shallow Zone	455.04	454.54	454.09	453.83	454.39	119
MW-20-100	Middle Zone	454.57	454.11	453.61	453.32	453.92	119
MW-20-130	Deep Zone	454.18	453.73	453.16	452.87	453.50	119
MW-22	Shallow Zone	455.78	455.31	454.95	454.80	455.22	119
MW-25	Shallow Zone	456.47	456.06	455.64	455.45	455.92	119
MW-26	Shallow Zone	456.14	455.76	455.34	455.15	455.61	120
MW-27-020	Shallow Zone	456.09	455.81	455.17	454.90	INC	79
MW-27-060	Middle Zone	456.04	455.02	455.01	454.69	455.21	118
MW-27-085	Deep Zone	456.01	455.09	455.06	454.58	455.19	123
MW-28-025	Shallow Zone	456.23	455.09	455.09	454.70	455.29	119
MW-28-090	Deep Zone	456.18	455.18	455.16	454.77	455.34	119
MW-30-050	Middle Zone	455.76	454.85	454.69	454.40	454.95	119
MW-31-060	Shallow Zone	455.74	455.22	454.90	454.65	455.01	98
MW-31-135	Deep Zone	455.16	454.50	454.10	453.82	454.40	123
MW-32-035	Shallow Zone	455.84	454.98	454.85	454.64	455.09	119
MW-33-040	Shallow Zone	456.06	455.22	455.08	454.60	455.24	116
MW-33-090	Middle Zone	456.28	455.45	455.29	454.87	455.47	123
MW-33-150	Deep Zone	456.21	455.51	455.23	454.82	455.44	123
MW-34-055	Middle Zone	456.13	455.13	455.12	454.77	455.31	118
MW-34-080	Deep Zone	456.08	455.13	455.12	454.78	455.29	118
MW-34-100	Deep Zone	455.81	454.90	454.80	454.45	455.01	118
MW-35-060	Shallow Zone	456.27	455.59	455.53	455.26	INC*	98
MW-35-135	Deep Zone	457.35	456.09	455.95	455.71	INC	83
MW-36-020	Shallow Zone	455.86	455.05	454.93	454.52	455.09	123
MW-36-040	Shallow Zone	455.86	454.94	454.87	454.56	455.08	119
MW-36-050	Middle Zone	455.84	454.80	454.71	454.40	454.96	119
MW-36-070	Middle Zone	455.84	454.91	454.84	454.53	455.05	119
MW-36-090	Deep Zone	454.96	454.18	453.96	453.65	454.21	119
MW-36-100	Deep Zone	455.30	454.53	454.19	453.79	454.46	121
MW-39-040	Shallow Zone	455.74	454.91	454.75	454.45	454.98	118
MW-39-050	Middle Zone	455.55	454.73	454.57	454.28	454.80	118
MW-39-060	Middle Zone	455.37	454.59	454.39	454.10	454.63	118
MW-39-070	Middle Zone	454.95	454.30	453.99	453.71	454.26	118
MW-39-080	Deep Zone	455.09	454.43	454.13	453.85	454.40	118
MW-39-100	Deep Zone	455.61	454.96	454.67	454.39	454.93	118
MW-42-030	Shallow Zone	455.60	454.76	454.59	454.33	454.84	118
MW-42-065	Middle Zone	455.73	454.89	454.80	454.54	455.01	118
MW-43-025	Shallow Zone	456.14	455.01	455.01	454.71	455.24	119
MW-43-090	Deep Zone	456.49	455.36	455.35	455.07	455.59	119
MW-44-070	Middle Zone	456.00	455.04	454.99	454.65	455.19	119
MW-44-115	Deep Zone	455.56	454.72	454.55	454.19	454.78	119
MW-44-125	Deep Zone	456.07	455.18	455.02	454.71	455.27	119
MW-45-095a	Deep Zone	454.61	454.04	453.75	453.25	453.92	123
MW-46-175	Deep Zone	456.11	455.19	455.04	454.86	455.31	119
MW-47-055	Shallow Zone	456.43	455.65	455.47	455.23	455.71	119
MW-47-115	Deep Zone	456.47	455.76	455.54	455.29	455.78	119
MW-49-135	Deep Zone	456.59	455.69	455.60	455.29	455.81	119

TABLE F-1

Average Monthly and Quarterly Groundwater Elevations, Third Quarter 2014
 Third 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	July 2014	August 2014	September 2014	October 2014	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	456.09	455.46	455.17	454.94	455.43	119
MW-51	Middle Zone	456.10	455.75	455.32	455.12	455.59	120
MW-54-085	Deep Zone	INC	INC	455.54	455.07	INC	52
MW-54-140	Deep Zone	456.59	455.71	455.67	455.30	455.82	122
MW-54-195	Deep Zone	456.71	455.85	455.78	455.43	455.95	122
MW-55-045	Middle Zone	456.74	456.21	456.05	455.84	456.21	122
MW-55-120	Deep Zone	456.67	456.20	456.01	455.84	456.18	122
PT2D	Deep Zone	454.73	454.30	453.98	453.67	454.19	119
PT5D	Deep Zone	455.21	454.54	454.29	453.99	454.53	119
PT6D	Deep Zone	455.30	454.61	454.34	454.04	454.59	118
RRB	River Station	456.57	455.43	455.57	455.31	455.75	115

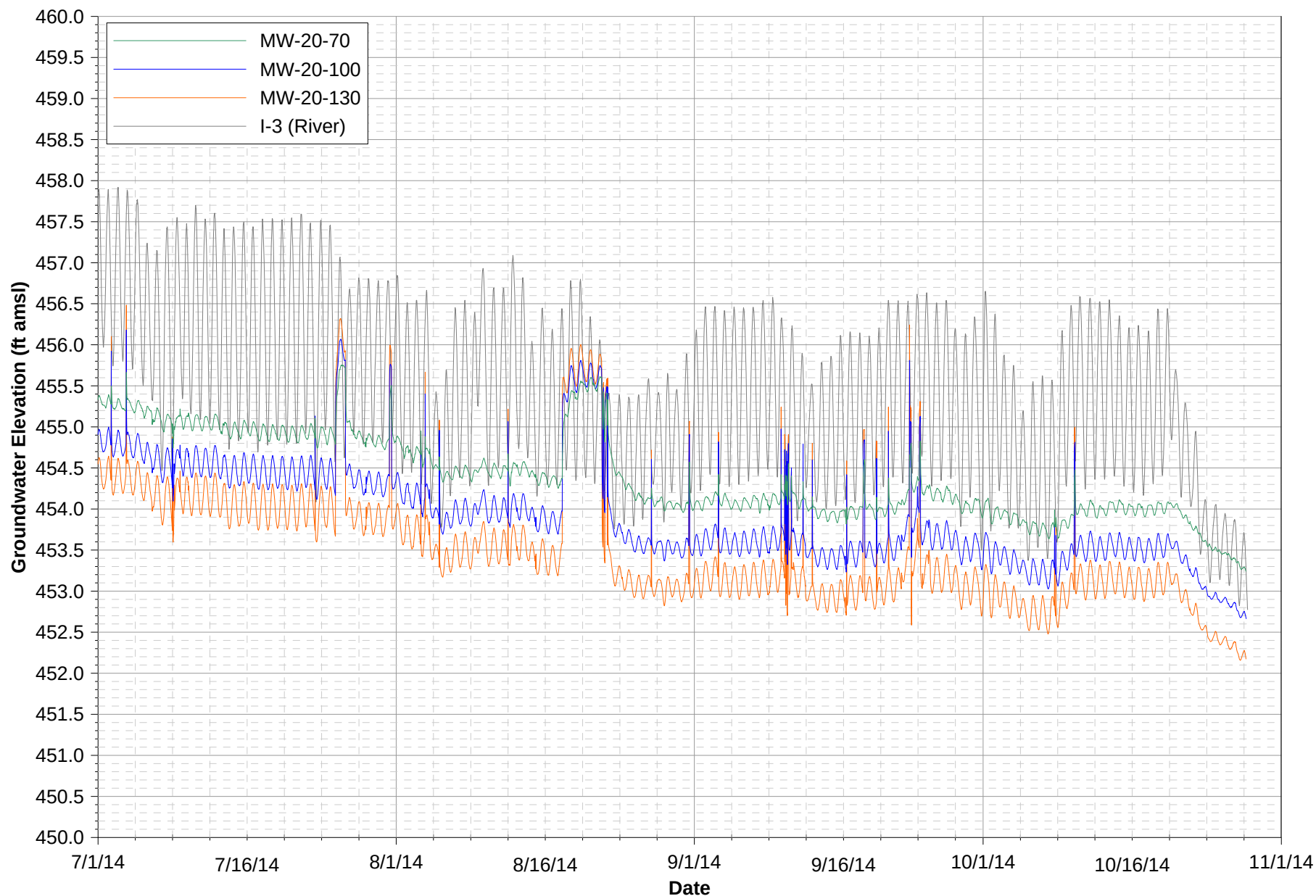
NOTES:

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.

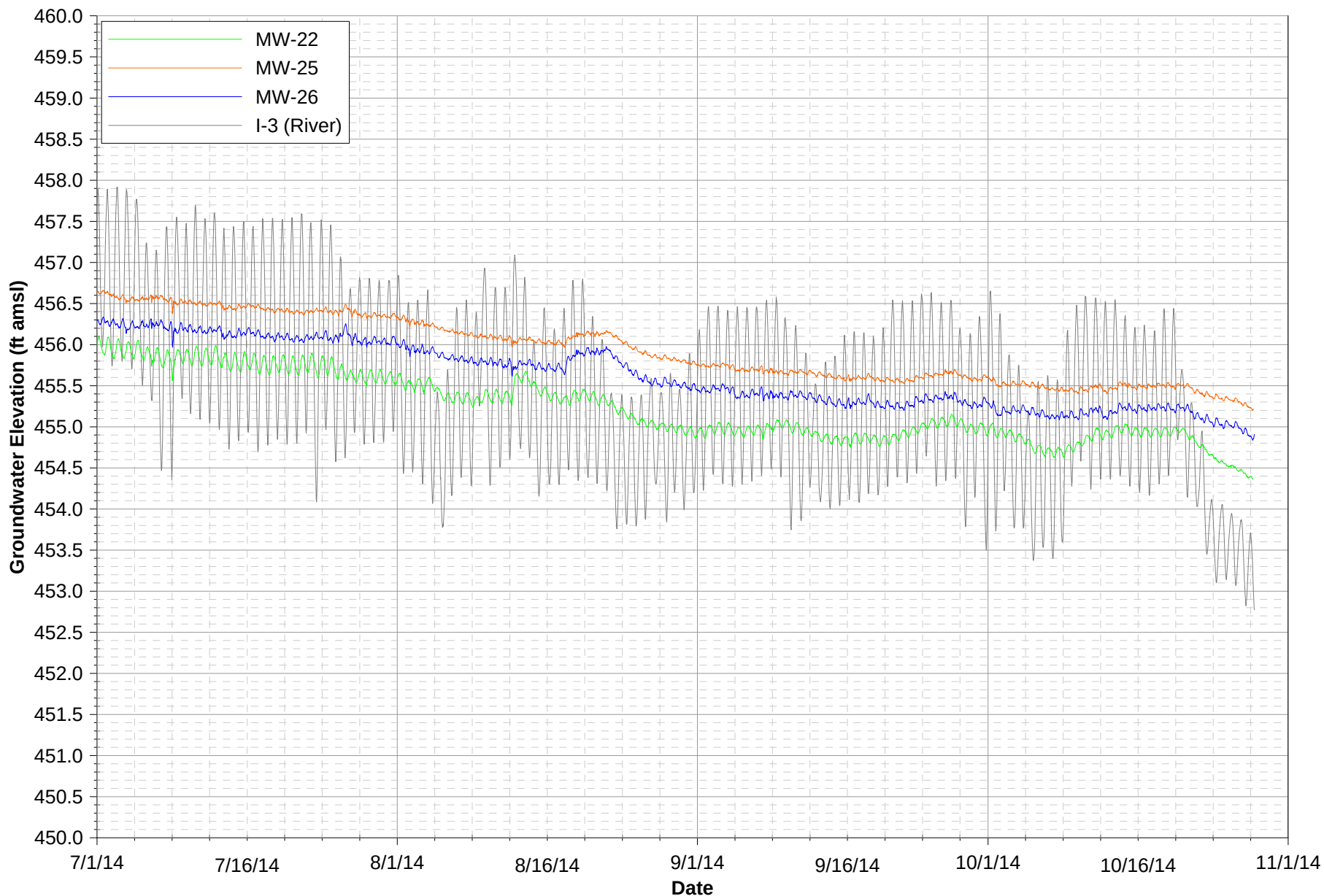
* INC added to MW-35-060, less than 80% of data available over reporting period due to rejection or field equipment malfunction.



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1A
MW-20 CLUSTER HYDROGRAPHS

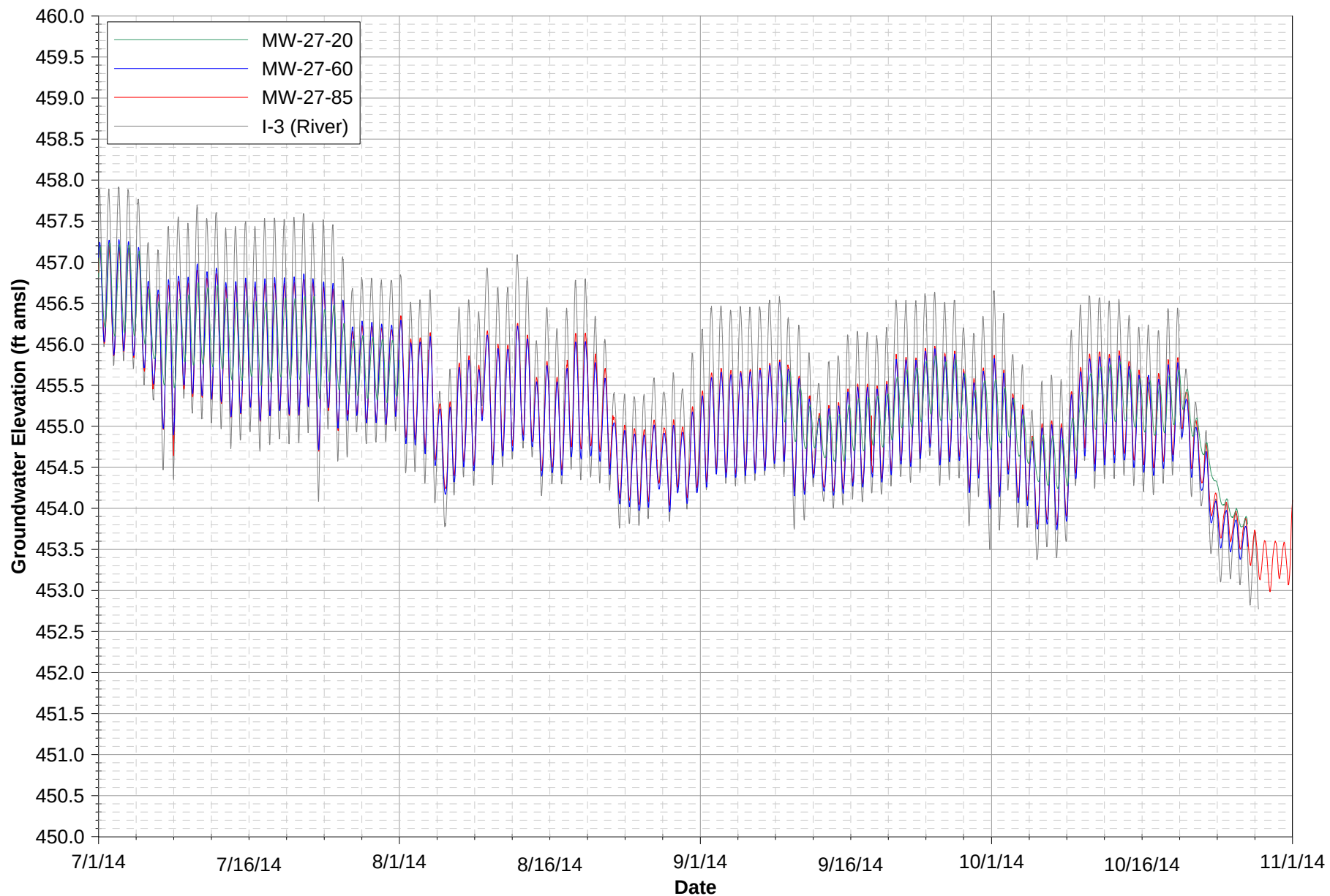
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1B
MW-22, MW-25, AND MW-26 HYDROGRAPHS

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



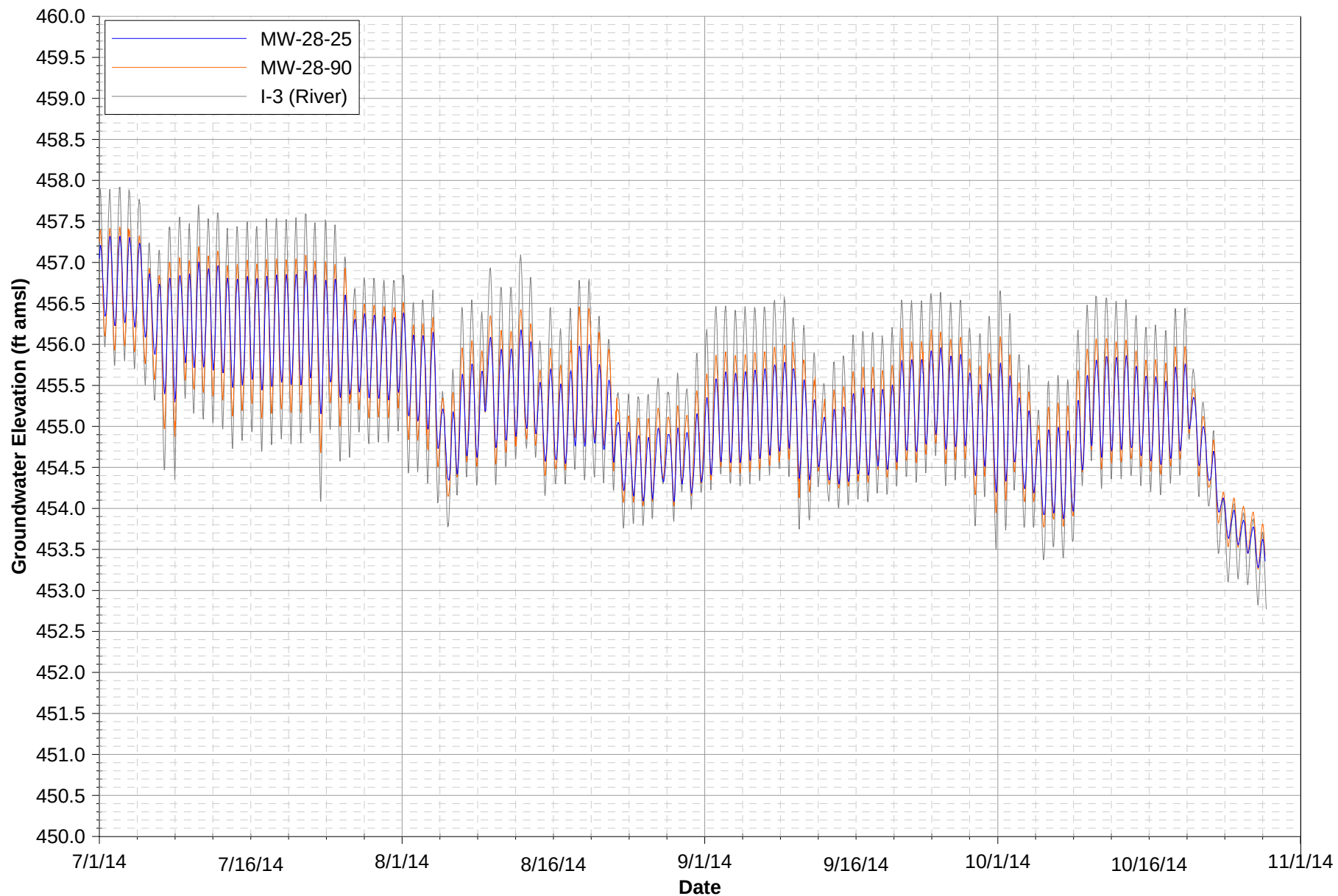
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-27-20 data unavailable from August 1, 2014 through September 9, 2014 due to transducer malfunction.

FIGURE F-1C

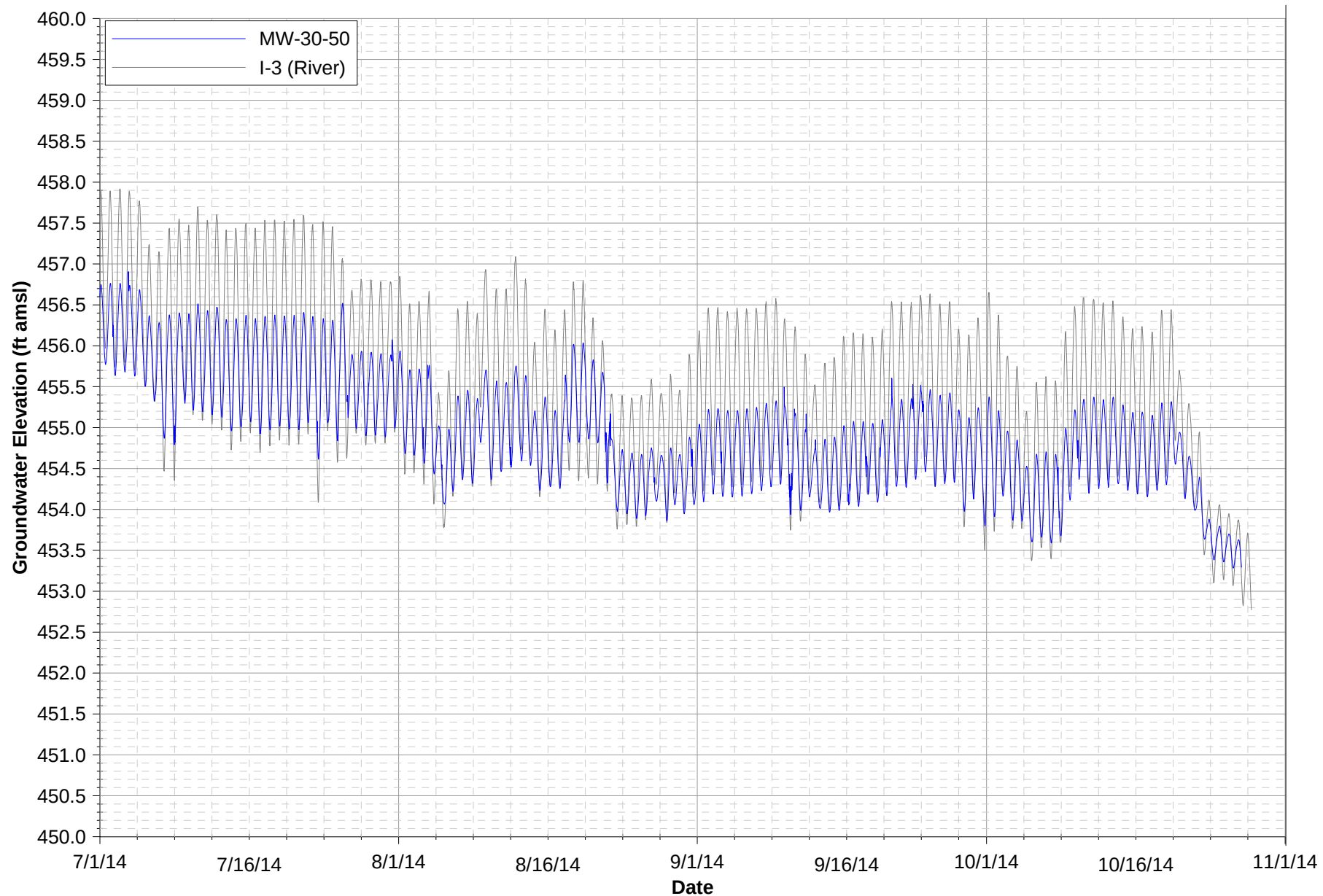
MW-27 CLUSTER HYDROGRAPHS

THIRD 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.

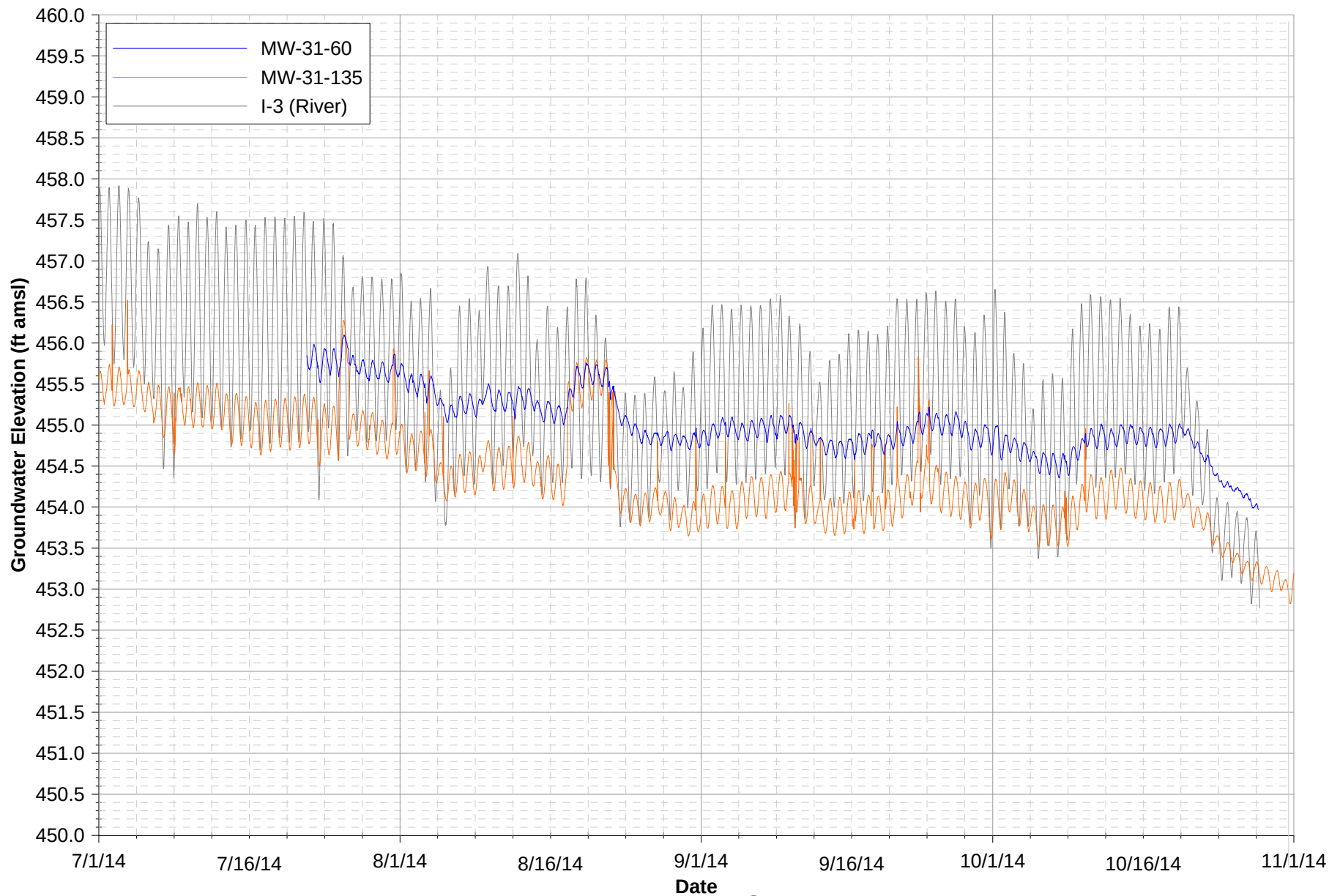
FIGURE F-1D
MW-28 CLUSTER HYDROGRAPHS
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1E MW-30-50 HYDROGRAPH

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



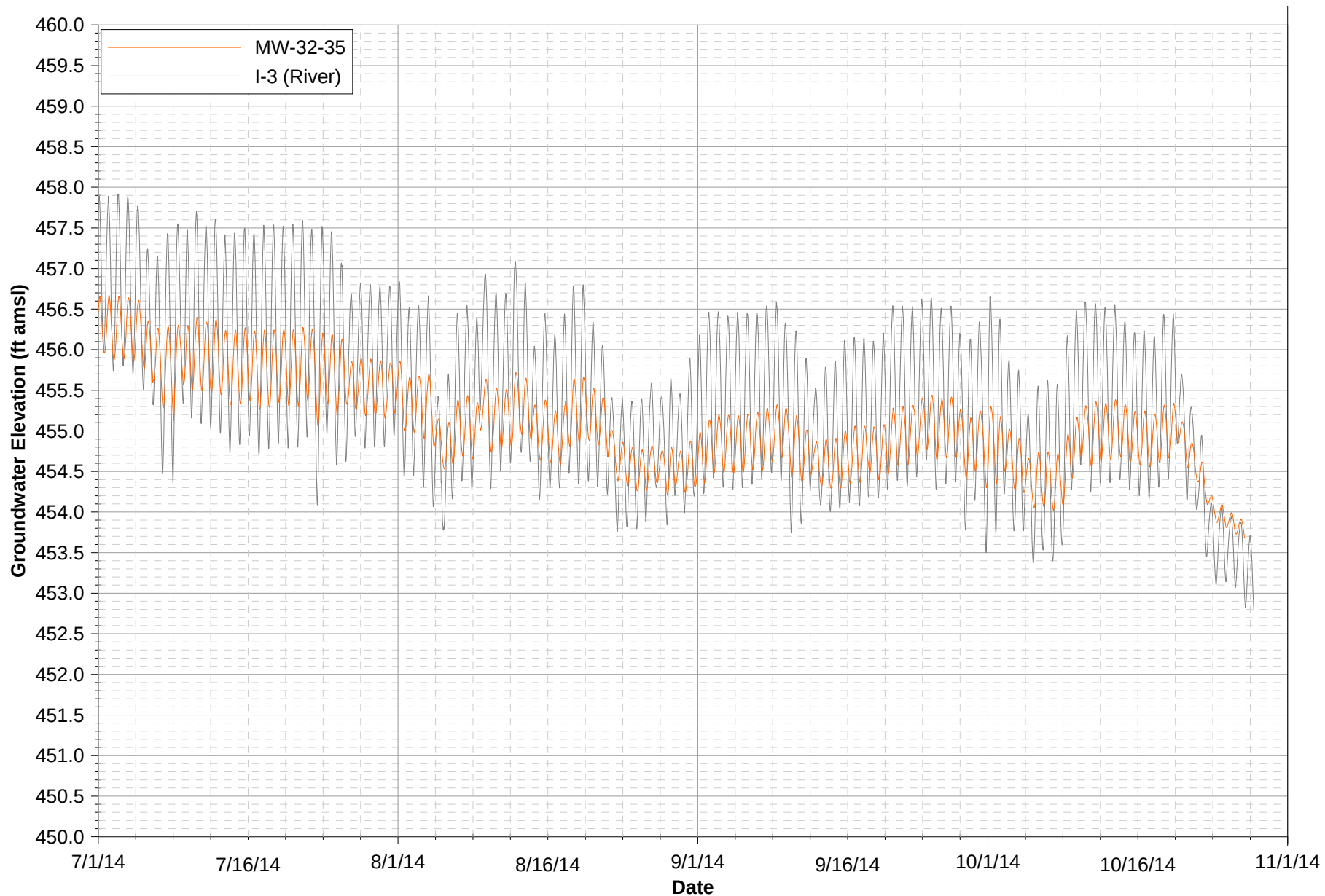
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-31-60 data unavailable from July 1, 2014 through July 22, 2014 due to transducer malfunction.

FIGURE F-1F

MW-31 CLUSTER HYDROGRAPHS

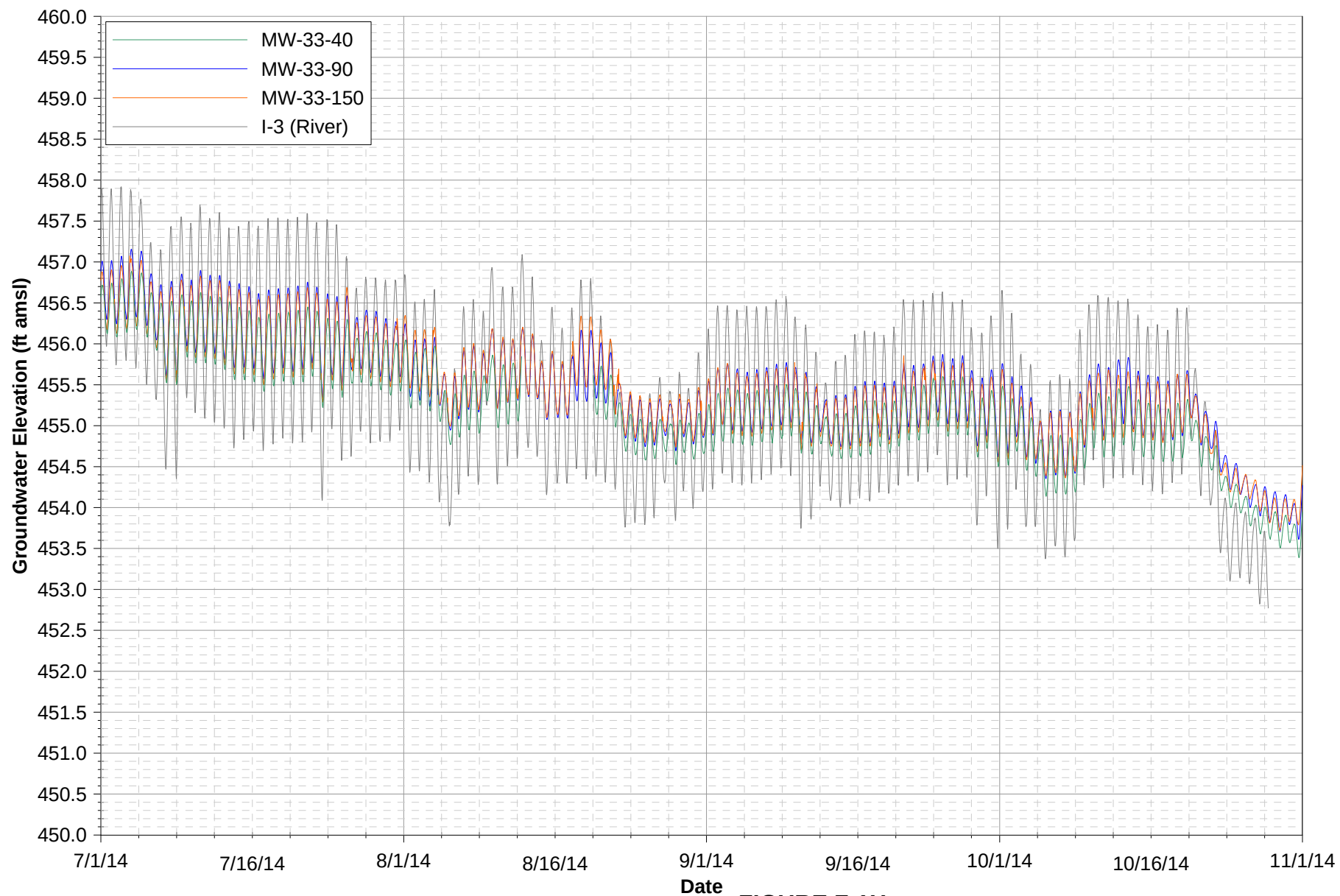
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1G MW-32 HYDROGRAPH

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



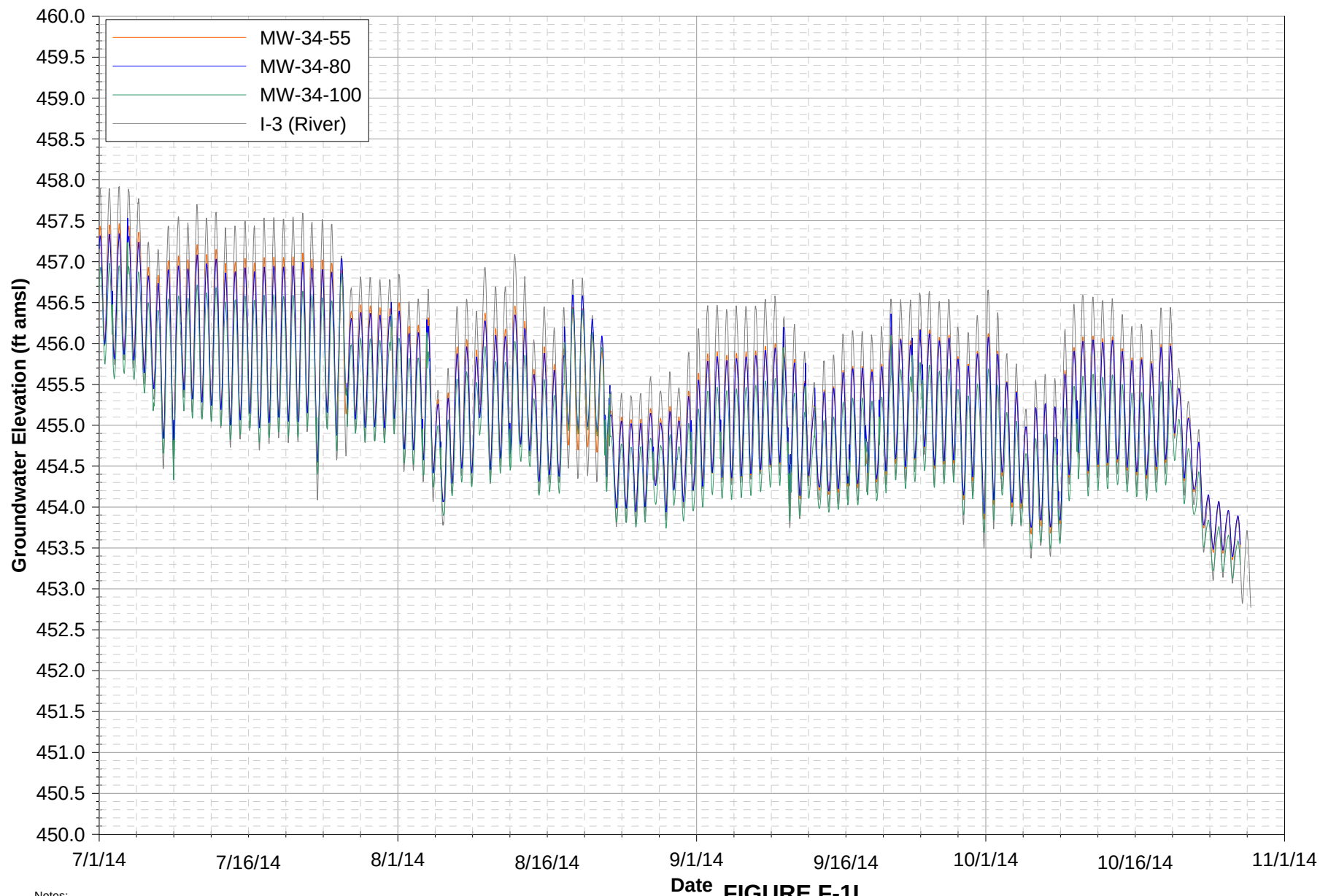
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-33-40 data unavailable from August 13, 2014 through August 20, 2014 due to transducer malfunction.

FIGURE F-1H

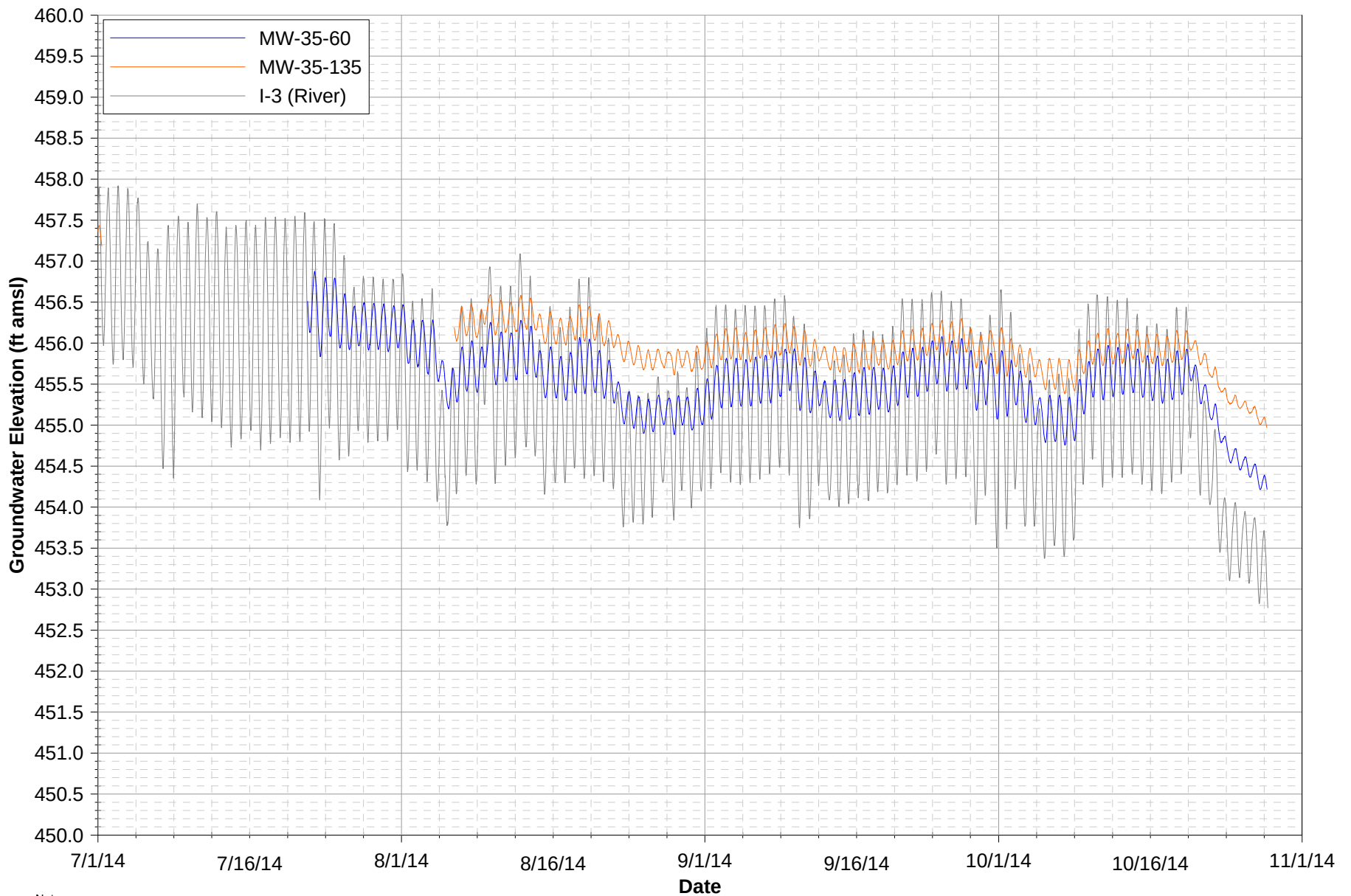
MW-33 CLUSTER HYDROGRAPHS

THIRD 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-11
MW-34 CLUSTER HYDROGRAPHS
 THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



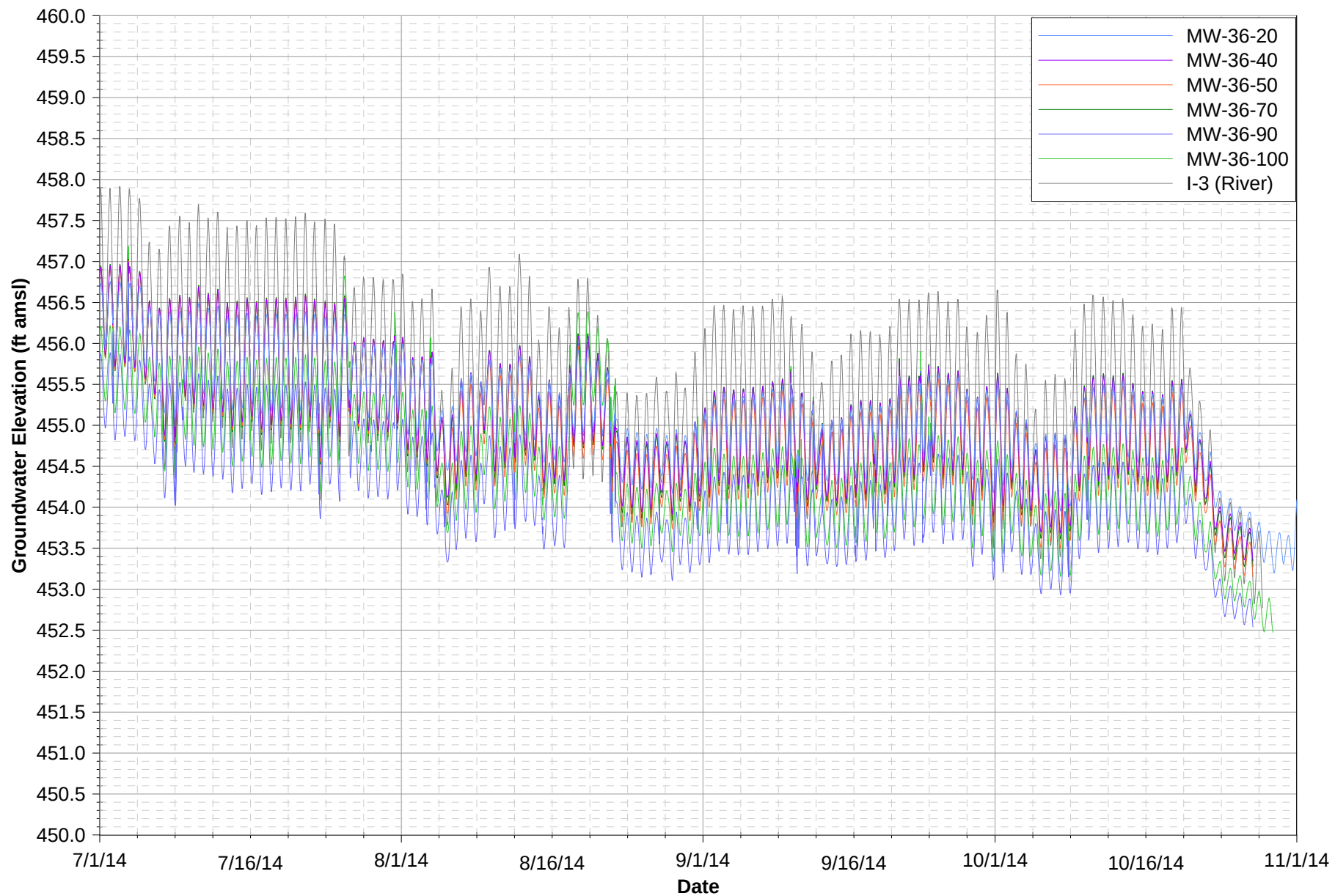
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-35-60 data unavailable from July 1, 2014 through July 22, 2014 due to transducer malfunction.
4. MW-35-135 data unavailable from July 1, 2014 through August 6, 2014 due to transducer malfunction.

FIGURE F-1J MW-35 CLUSTER HYDROGRAPHS

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

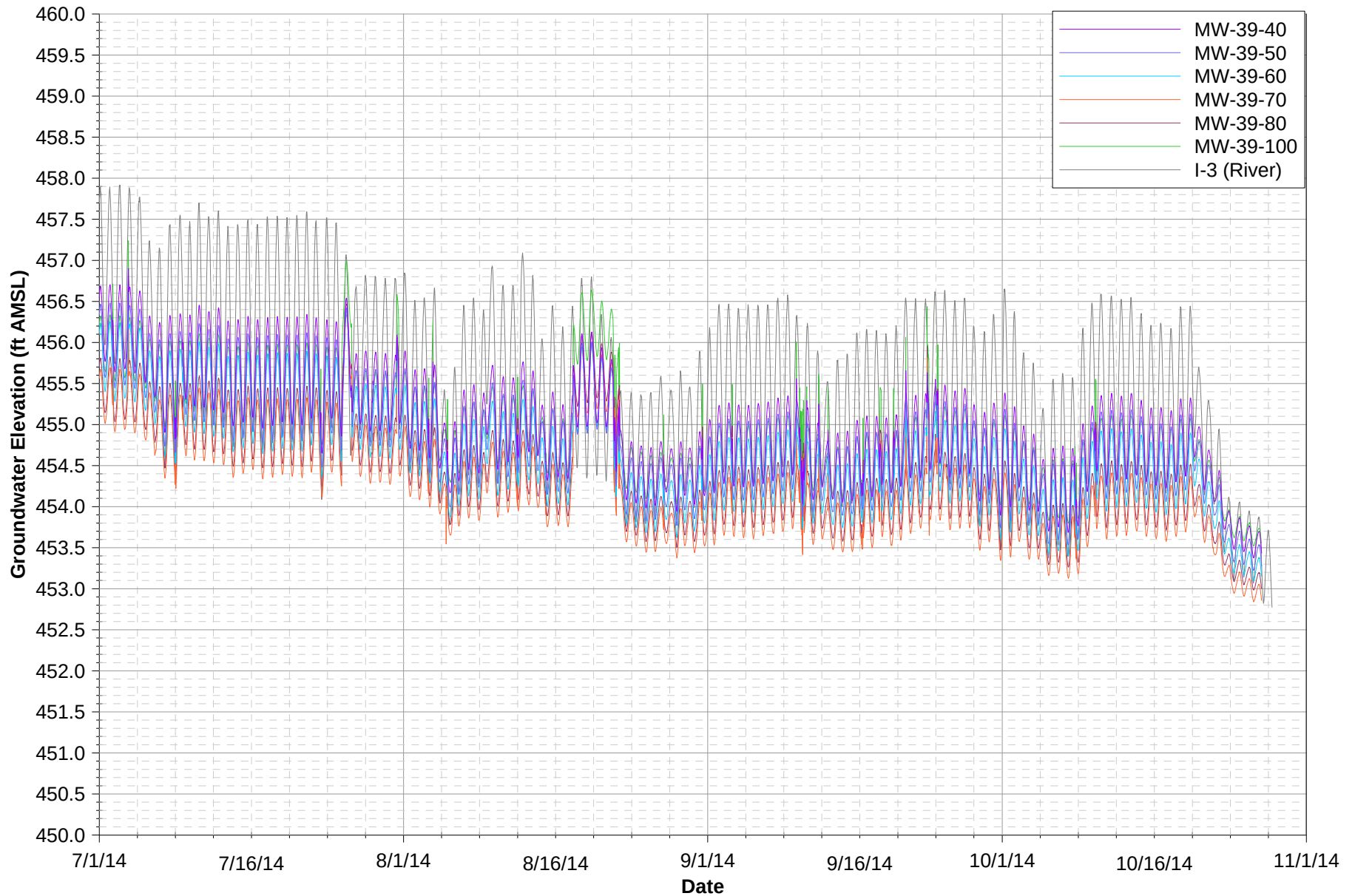
CH2MHILL



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1K
MW-36 CLUSTER HYDROGRAPHS

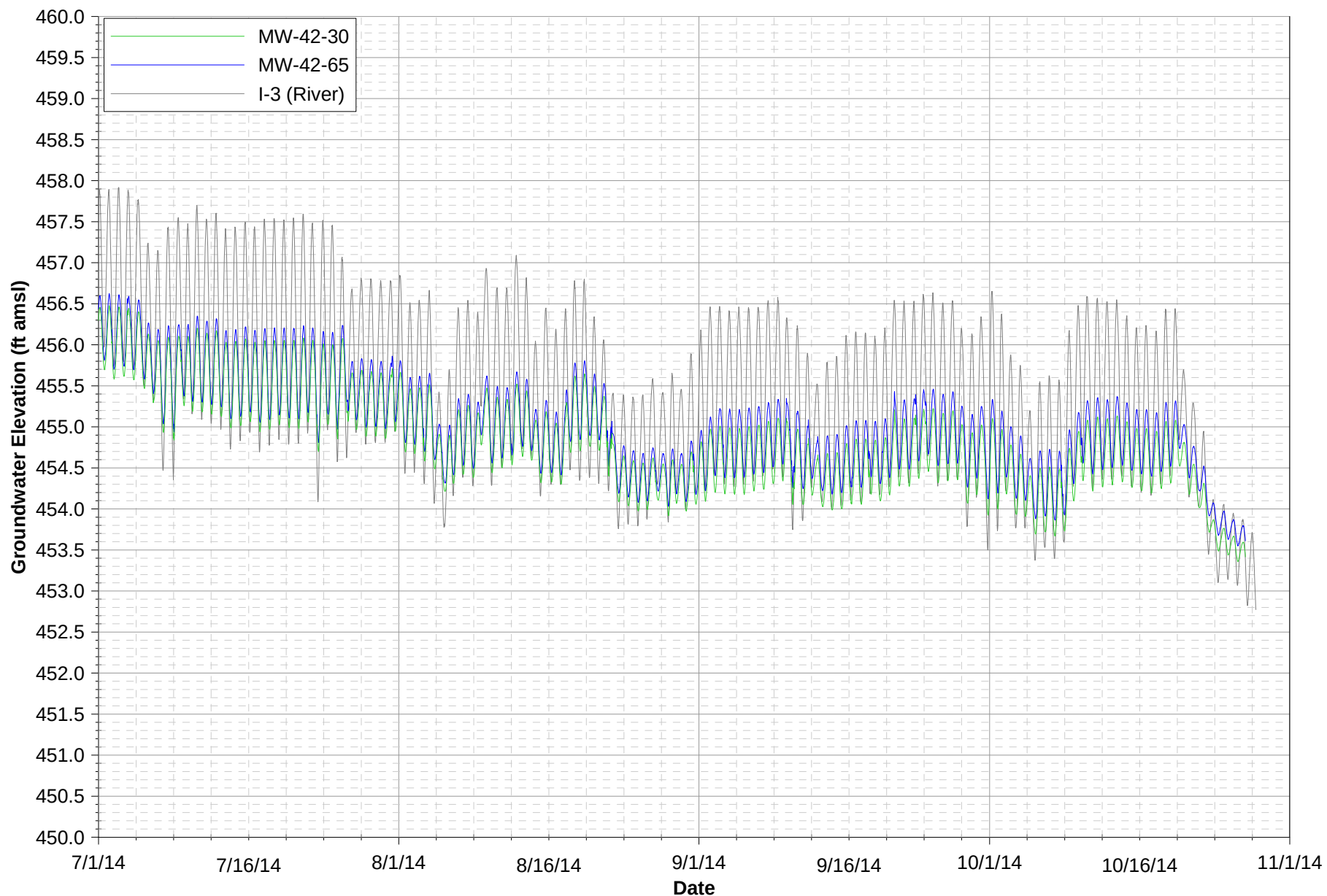
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1L **MW-39 CLUSTER HYDROGRAPHS**

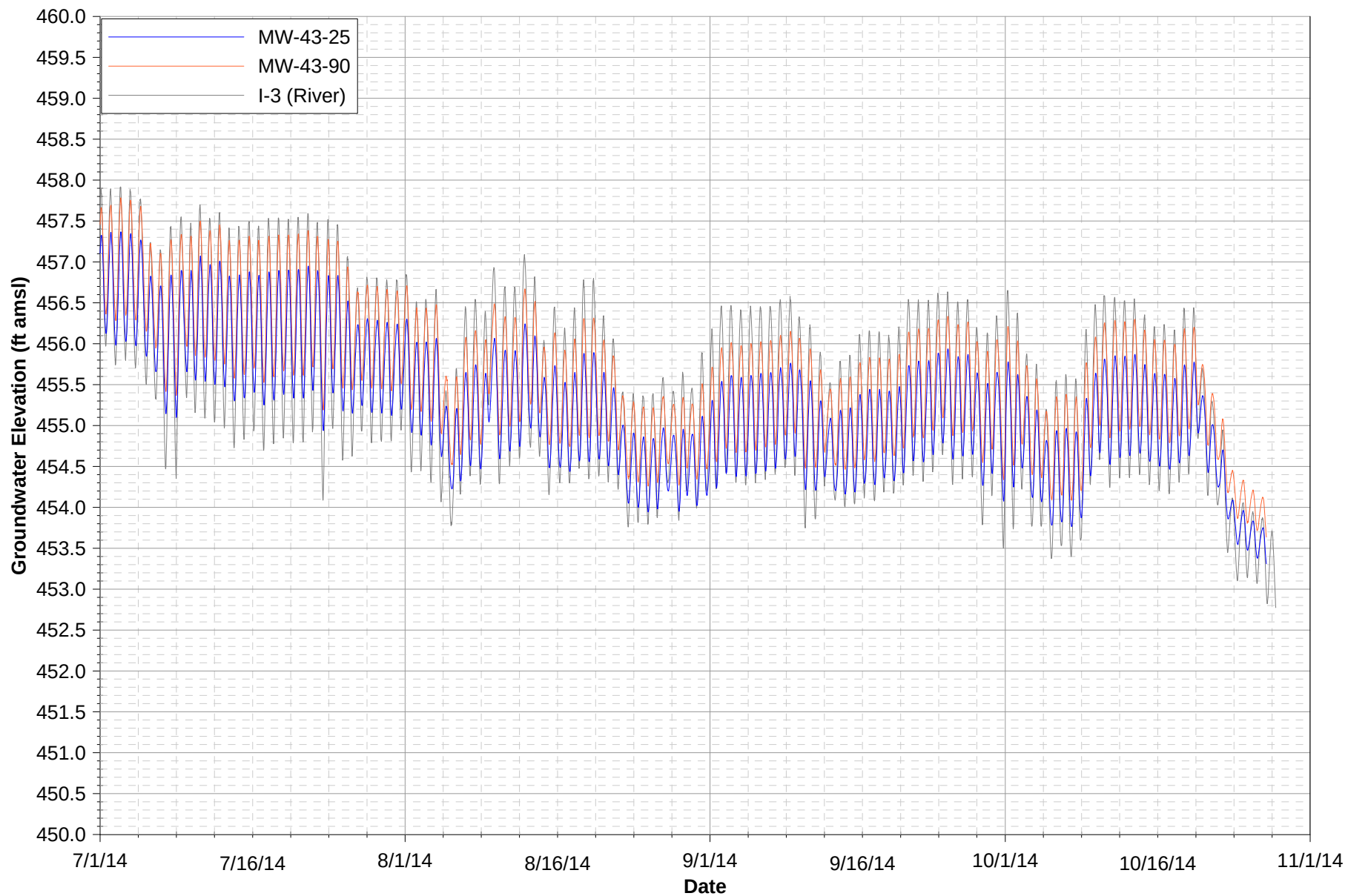
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1M MW-42 CLUSTER HYDROGRAPHS

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



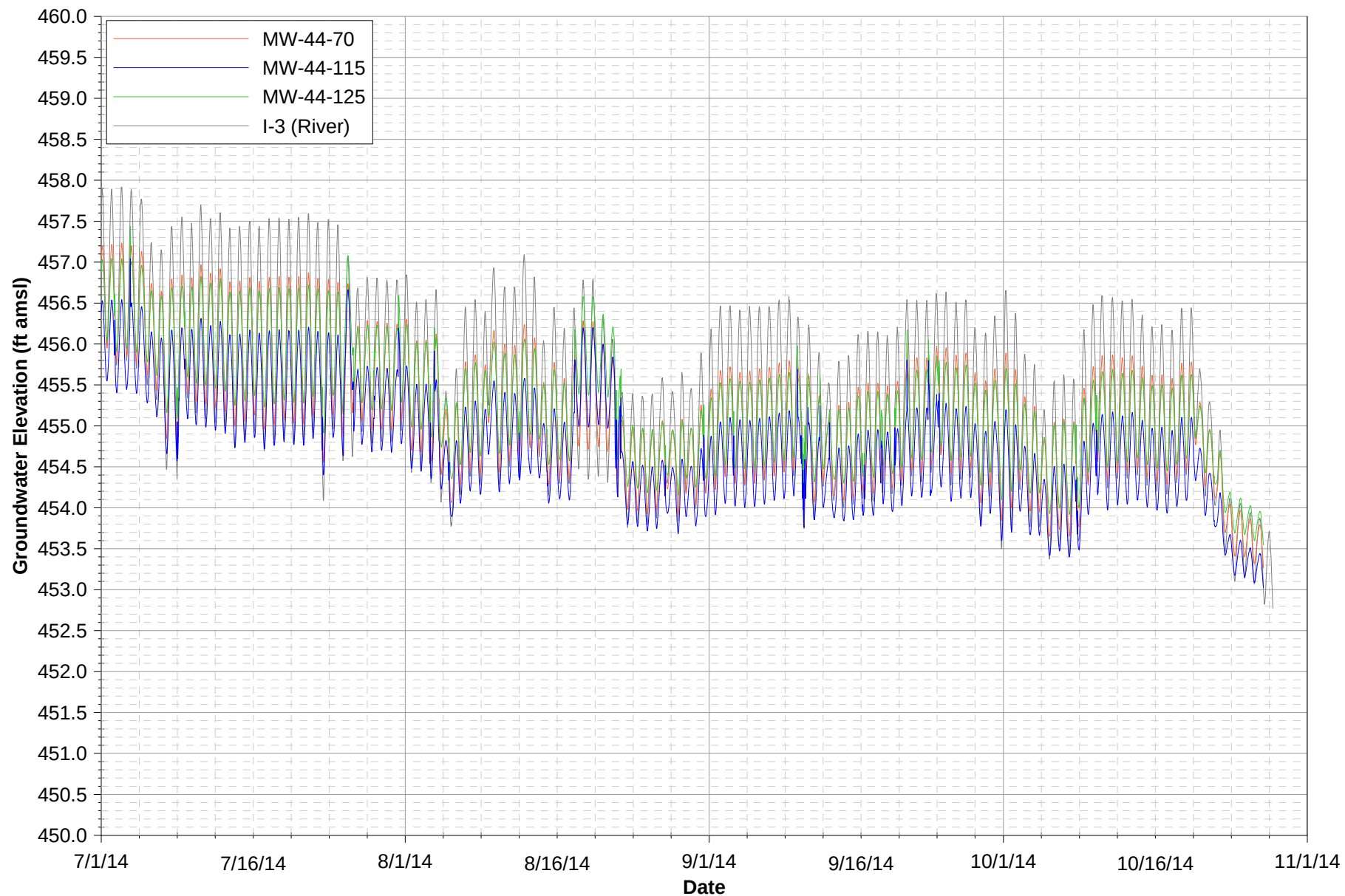
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1N

MW-43 CLUSTER HYDROGRAPHS

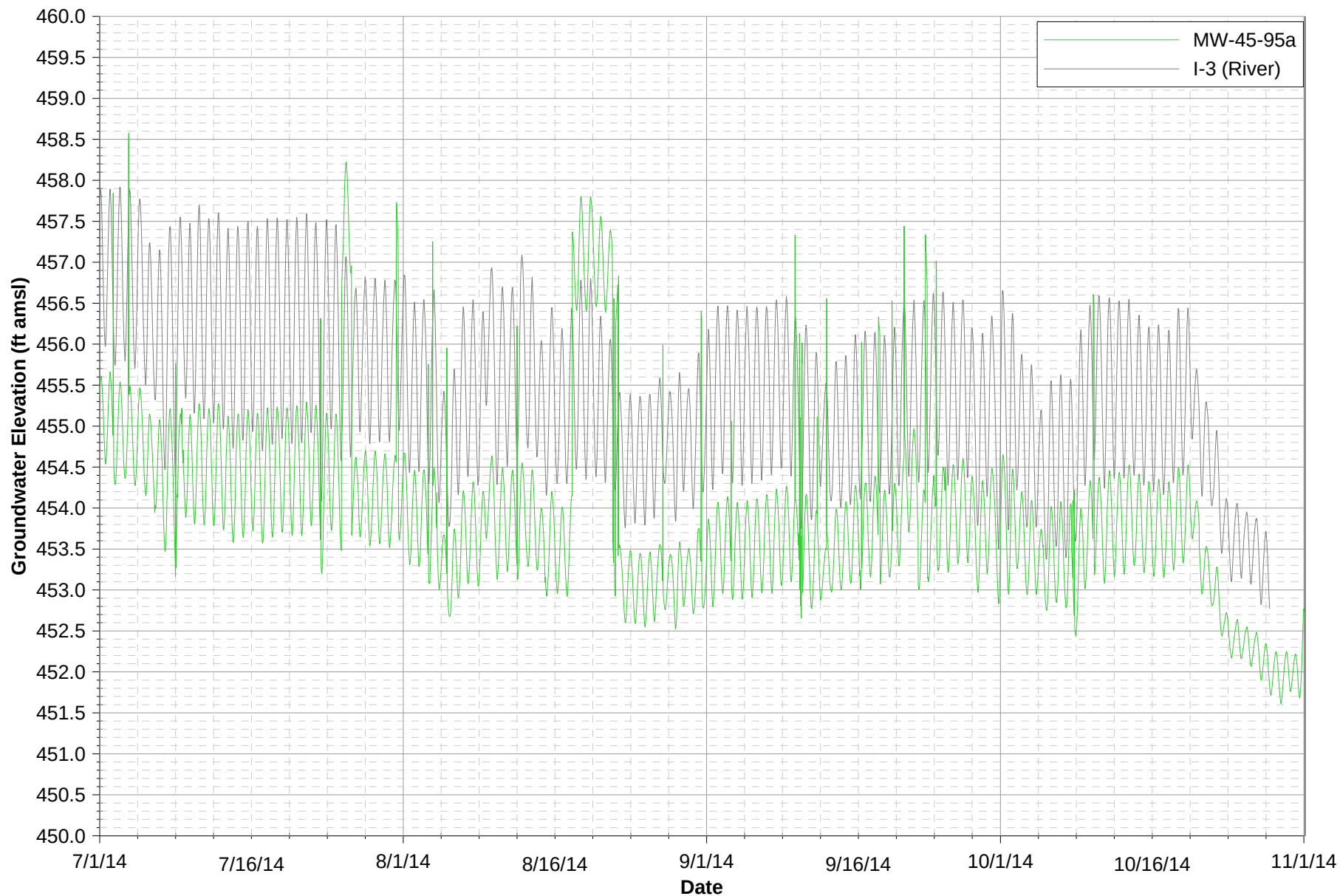
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-10 **MW-44 CLUSTER HYDROGRAPHS**

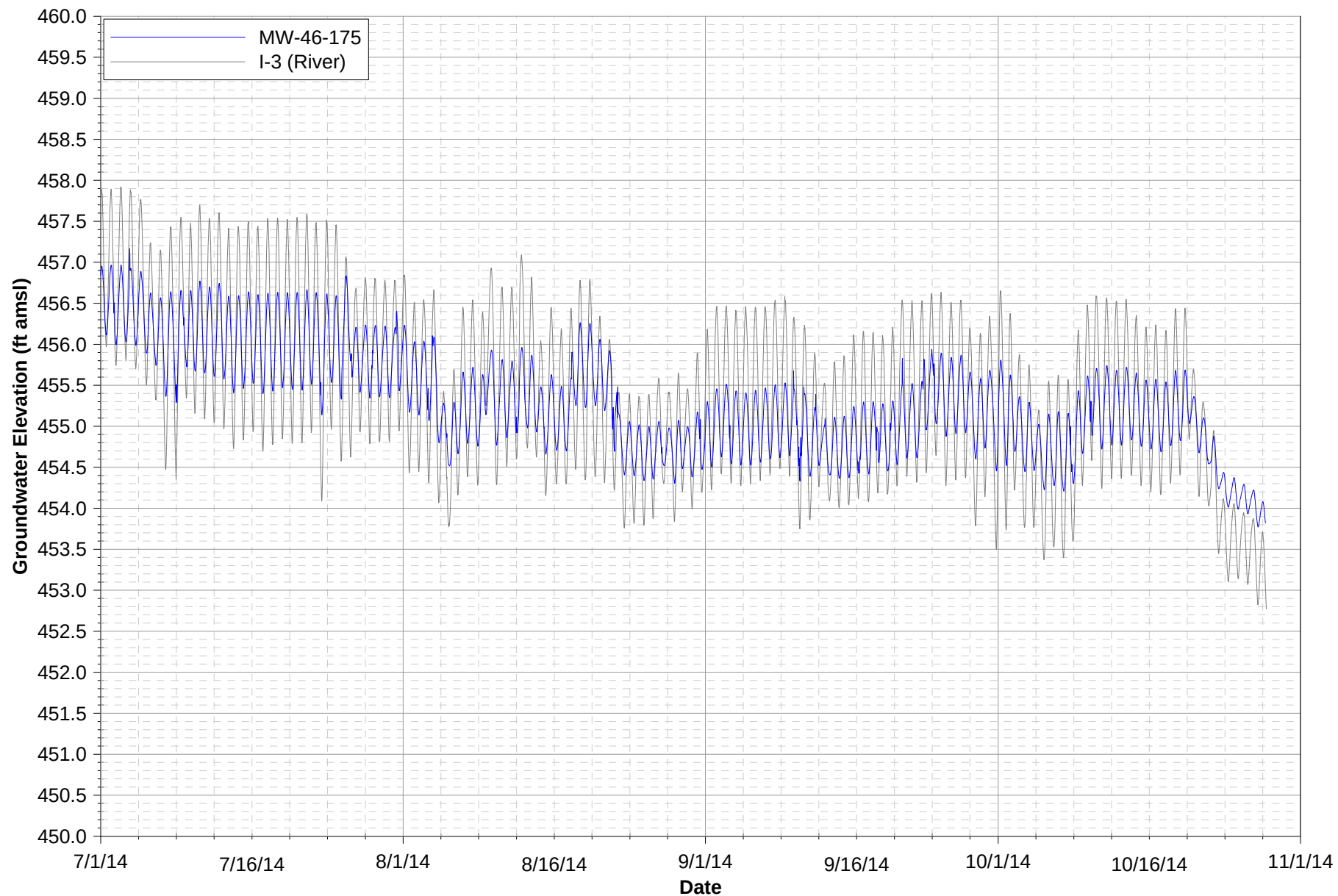
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1P MW-45-95a HYDROGRAPH

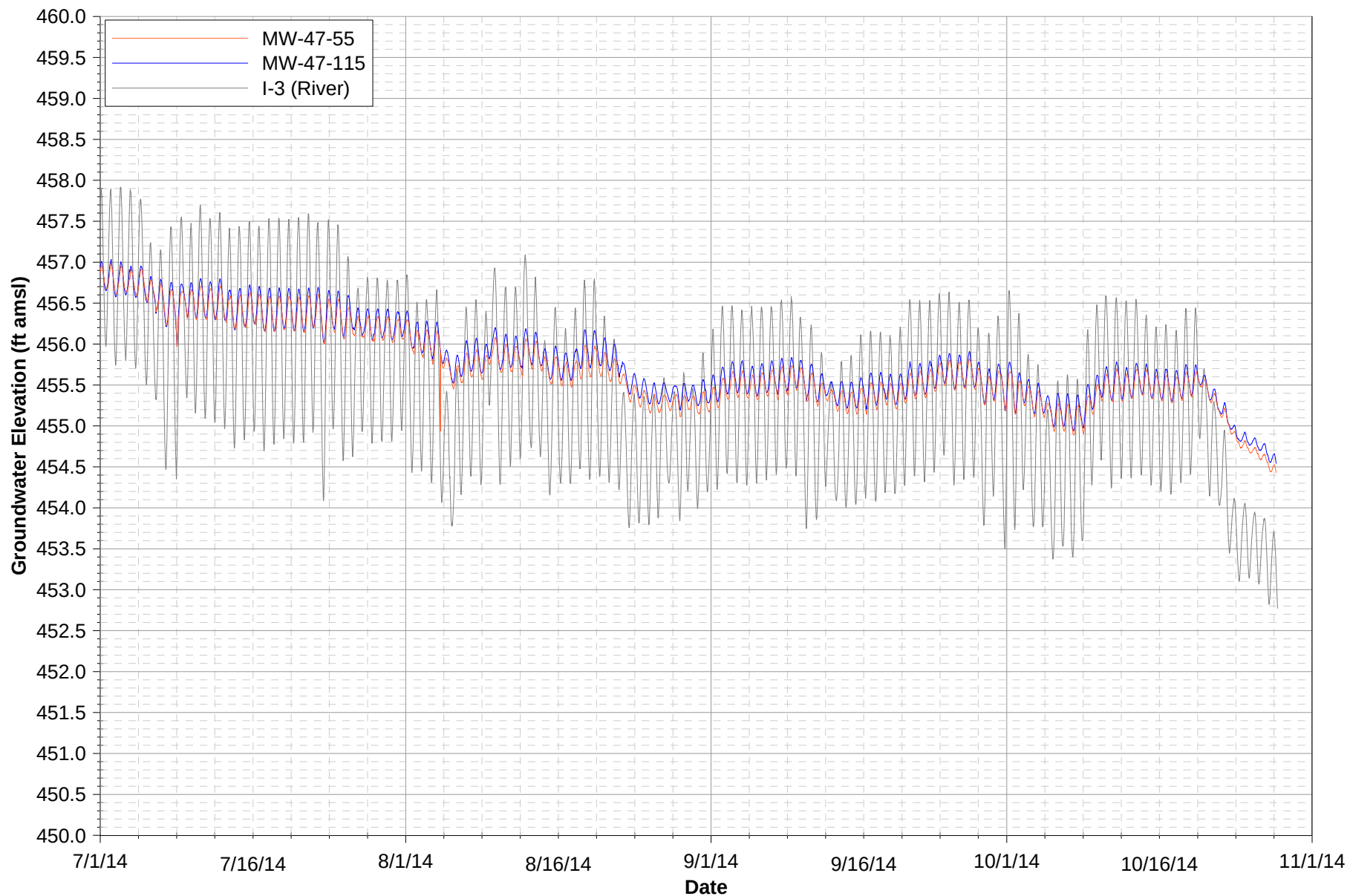
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1Q MW-46 HYDROGRAPH

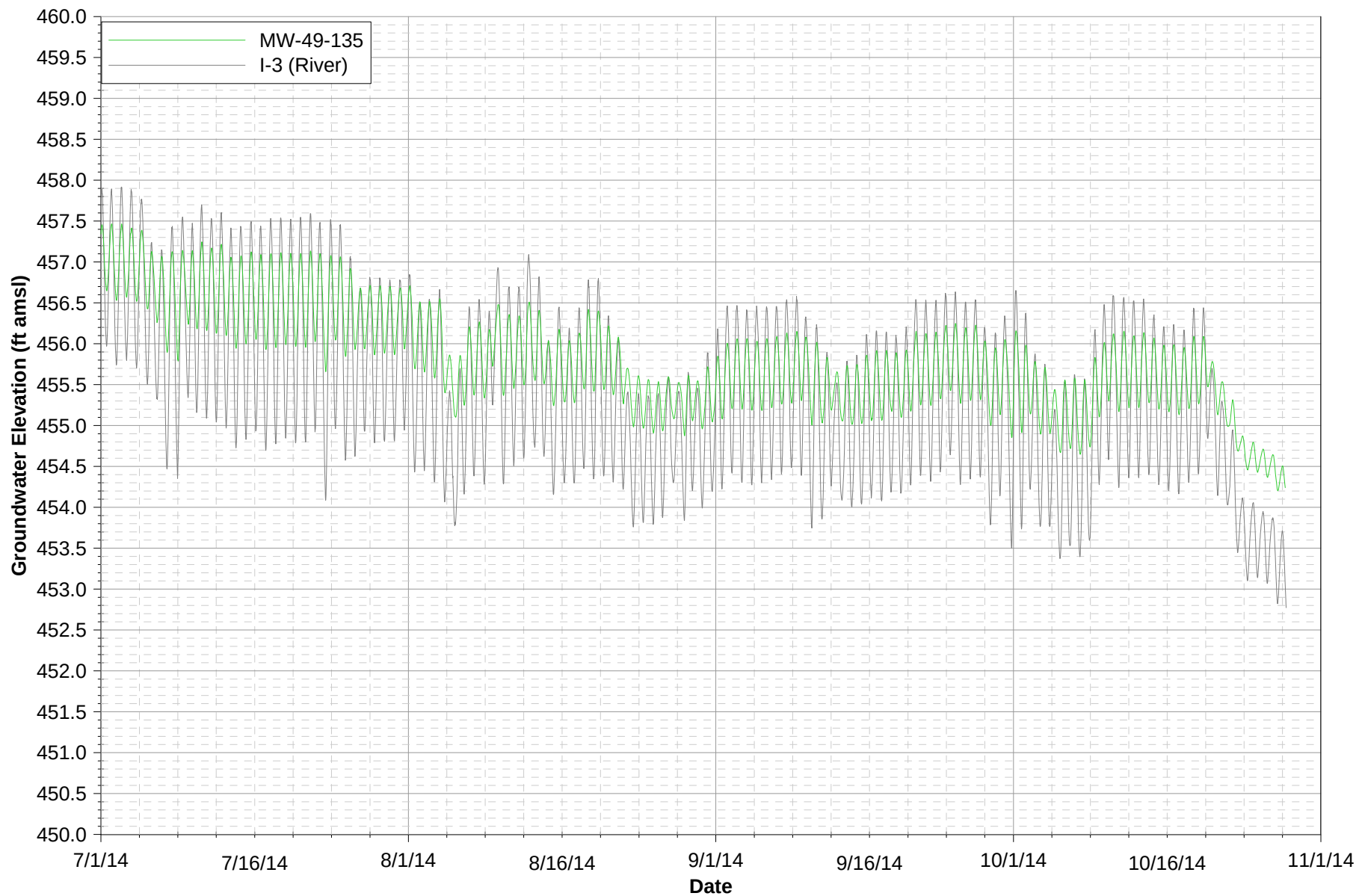
THIRD QUARTER 2014 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1R **MW-47 CLUSTER HYDROGRAPHS**

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

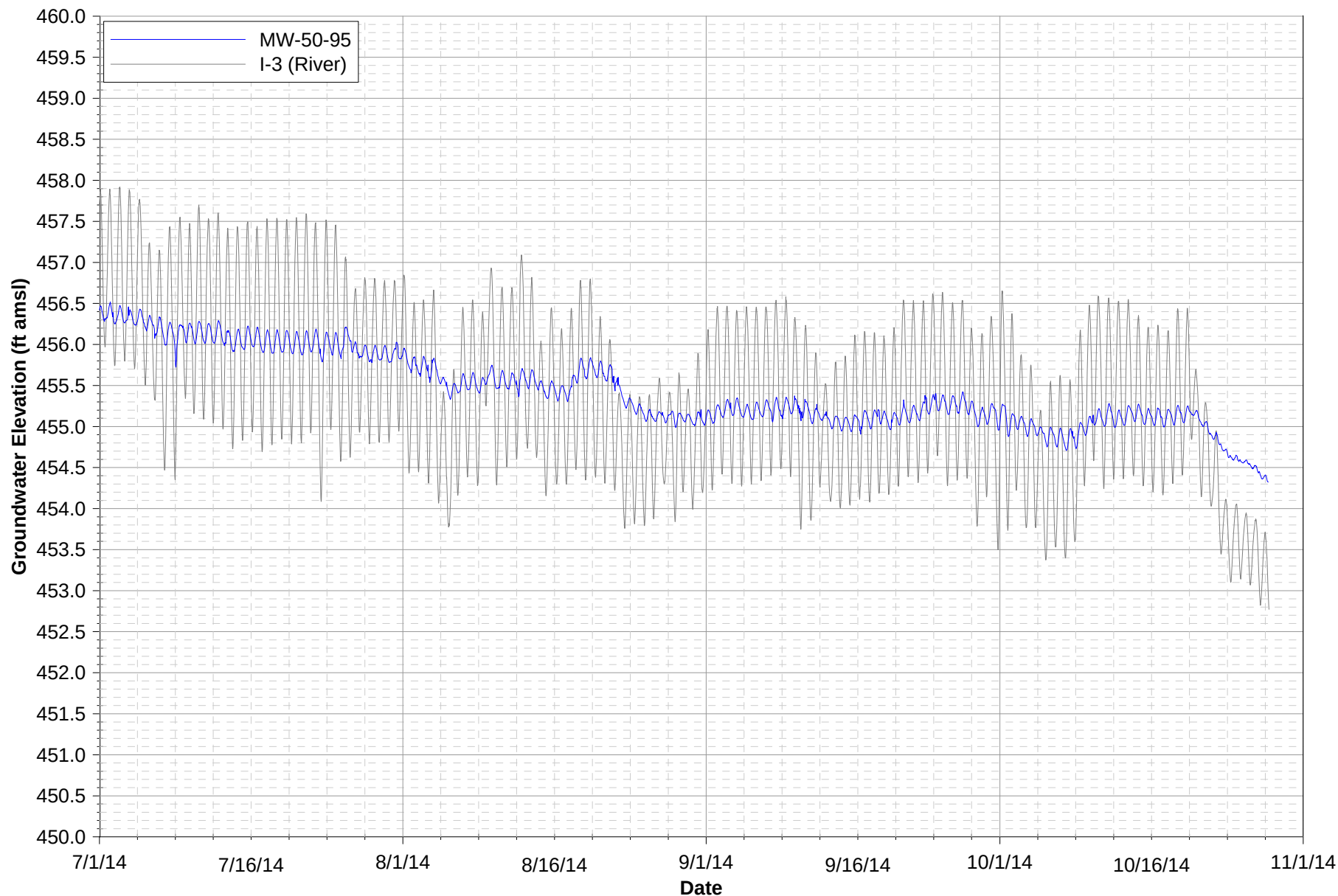


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

**FIGURE F-1S
MW-49 HYDROGRAPH**

THIRD 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

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

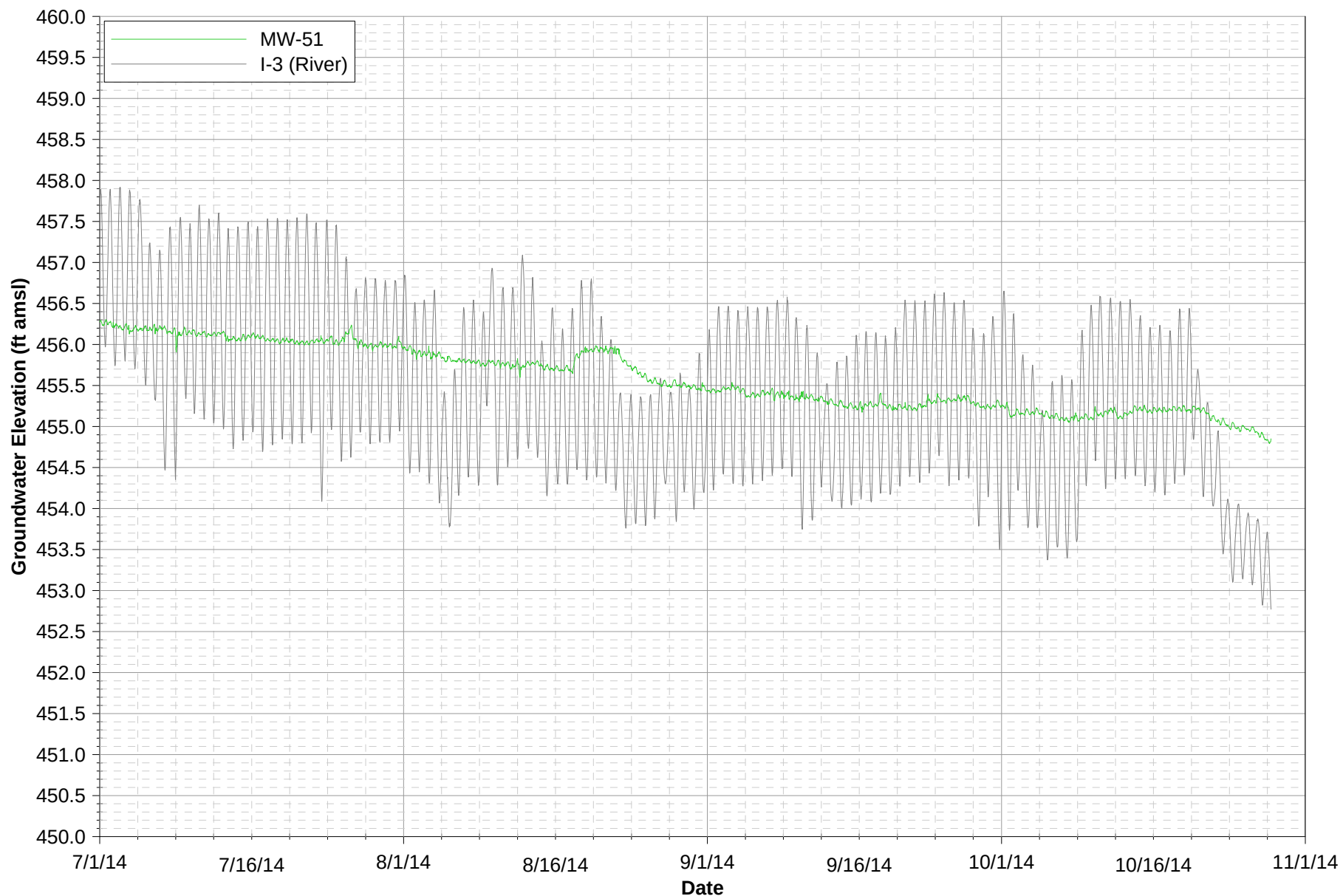
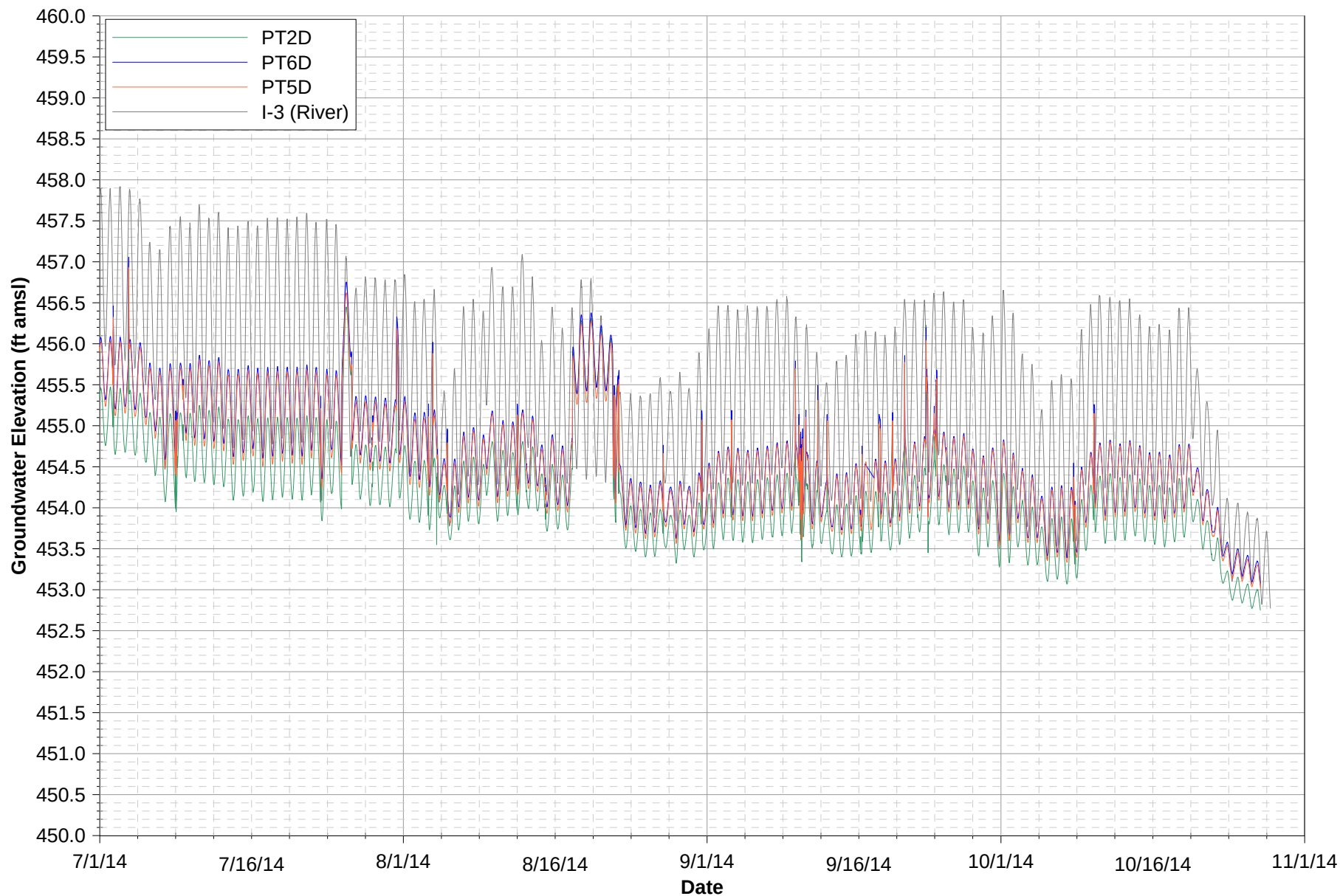


FIGURE F-1U

MW-26 AND MW-51 HYDROGRAPHS

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



Note:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1V

IN SITU PILOT STUDY WELL HYDROGRAPHS

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