Topock Project Executive Abstract

Document Title: Combined Compliance Monitoring Program, Semiannual Groundwater Monitoring Report, Second Half 2014, and Performance Assessment Report, Interim Measures No. 3, Injection Well Field (PGE20150115A) Submitting Agency: DOI Final Document? ☒ Yes ☐ No	Date of Document: January 15, 2015 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) – PG&E
Priority Status: ☐ **HIGH** ☐ **MED** ☒ **LOW** Is this time critical? ☐ Yes ☒ No Type of Document: ☐ Draft ☒ Report ☐ Letter ☐ Memo ☐ Other / Explain:	Action Required: ☒ Information Only ☐ Review & Comment Return to: _____ By Date:_____ ☐ Other / Explain:
What does this information pertain to? ☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) ☐ Corrective Measures Study (CMS)/Feasibility Study (FS) ☐ Corrective Measures Implementation (CMI)/Remedial Action ☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) ☒ Interim Measures ☐ Other / Explain:	Is this a Regulatory Requirement? ☒ Yes ☐ No If no, why is the document needed?
What is the consequence of NOT doing this item? What is the consequence of DOING this item? Submittal of this report is a compliance requirement under DOI's ARARs beginning August 2011.	Other Justification/s: ☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

<u>IM-3 Injection Well Field PAR, December 2014</u>. The purpose of this IM-3 Injection Well Field PAR is to document the performance of injection wells operation and the influence of treated water on aquifer quality through December 2014. Injection of IM-3 treated water began in August 2005. There are no indications of adverse effects to aquifer water quality as a result of the injection. Operating the injection wells reduces the adverse environmental and safety impacts associated with the trucking of treated groundwater to a permitted offsite facility. Reduced truck traffic results in lower vehicle emissions and reduces the chance of accidents.

<u>Topock Compliance Monitoring Program (CMP), Second Half 2014</u>. Purpose of CMP is twofold: (1) to monitor changes in groundwater hydraulics and/or water quality of the aquifer in the injection well area and (2) to ensure that the quality of the aquifer is not adversely affected by the injected water. The monitoring network consists of multiple observation wells (OW series) and compliance wells (CW series) screened in the shallow, middle, and/or deep zones of the alluvial aquifer. The injection of treated groundwater in the area began in 2005. As of the Second Half 2014, wells that exhibit water quality similar to the injected water include the middle- and deep-zone observation wells and certain middle and all deep-zone compliance wells. Only one of the three shallow-zone observation wells (OW-2S) has not yet shown characteristics approaching injected water quality.

This report presents groundwater analytical results and groundwater level data collected from the Second Half 2014 CMP monitoring event conducted in October 2014. During the Second Half 2014 sampling event, no chromium sample result exceeded the WQO trigger level of 28 µg/L; therefore, the contingency plan was not triggered for Cr(VI) or chromium. The next CMP event is

scheduled to occur in April 2015.

Written by: PG&E

Recommendations:
This report is for your information only.

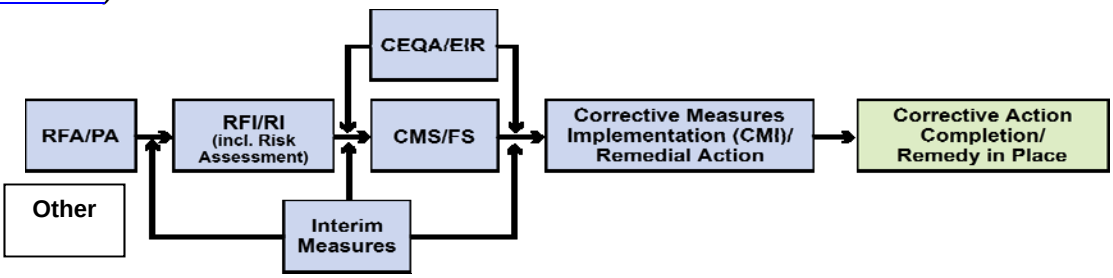
How is this information related to the Final Remedy or Regulatory Requirements:

Submittal of this report is a compliance requirement under DOI ARARs beginning August 2011.

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

Pacific Gas and Electric Company

Yvonne J. Meeks
Manager

Environmental Remediation

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

Location
6588 Ontario Road
San Luis Obispo, Ca 93401

805.234.2257
E-Mail: YJM1@pge.com

January 15, 2015

Ms. Pamela Innis
DOI Topock Remedial Project Manager
United States Department of the Interior
Office of Environmental Policy and Compliance
P.O. Box 2507-D (D-108)
Denver Federal Center, Building 56
Denver, CO 80225-0007

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

Subject: *Combined Compliance Monitoring Program, Semiannual Groundwater Monitoring Report, Second Half 2014, and Performance Assessment Report, Interim Measures No. 3, Injection Well Field, Pacific Gas and Electric Company Topock Compressor Station, Needles, California* **(Document ID: PGE20150115A)**

Dear Ms. Innis and Mr. Yue:

This letter presents the *Combined Compliance Monitoring Program*, *Semiannual Groundwater Monitoring Report, Second Half 2014, and the Performance Assessment Report for the Interim Measures No. 3, Pacific Gas and Electric Company Topock Compressor Station, Needles, California*.

The first performance assessment report (PAR) for the Interim Measure No. 3 (IM-3) injection well field was submitted on November 30, 2006, in accordance with the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) conditional authorization (Condition 18) to begin operating the IM-3 facilities, dated July 15, 2005. In response to the submitted report, DTSC in its January 5, 2007 letter, approved continued operation of the IM-3 injection wells and required Pacific Gas and Electric Company (PG&E) to continue submitting a PAR every 2 years to evaluate the injection well operations and the influence of treated water on aquifer quality.

This PAR documents performance of the injection well operations and the influence of treated water on aquifer quality through December 2014. With agency concurrence, this report is submitted on January 15, 2015 to be consistent with the compliance monitoring report (CMP) already scheduled for submittal on January 15, 2015.

This CMP presents the results of the Second Half 2014 compliance monitoring program groundwater monitoring event and has been prepared in conformance with the United States Department of the Interior August 18, 2011 letter stating that the IM-3 Waste Discharge Requirements are applicable or relevant and appropriate requirements (ARARs).

The current contingency plan specifies the concentrations and values for hexavalent chromium [Cr(VI)], chromium, total dissolved solids (TDS), and pH to be used to determine if contingency plan actions are necessary based on sample results. The water quality objectives concentrations that are used to trigger the contingency plan are Cr(VI) greater than 32.6 micrograms per liter (µg/L), chromium greater than 28.0 µg/L, TDS greater than 10,800 milligrams per liter, and pH outside of the range of 6.2 to 9.2.

No samples exceeded the water quality objectives for Cr(VI), chromium, pH, or TDS during the Second Half 2014 sampling event. The next CMP event is scheduled to occur in April 2015.

Section 5 of this report includes recommendations for modifications to the monitoring and reporting program. Based on stable chemical trends that show breakthrough of treated water at all compliance wells and all but one observation well (OW-2S), discussed in Sections 4.1 and 4.2, and on stable hydraulic trends from well performance (Section 3.2), PG&E proposes the following modifications to the CMP:

- Continue the larger Second Half groundwater sampling event, but discontinue the less extensive First Half groundwater sampling event.
- Continue Second Half reporting due January 15 of each year, as an annual report and discontinue the First Half report due July 15.

The proposed changes above are for groundwater sampling and reporting. The present water level monitoring data collection schedule would continue without change throughout each year.

If you have any questions regarding the PAR or the CMP report, please call me at (805) 546-5243.

Sincerely,

Yvonne Meeks
Topock Remediation Project Manager

cc: Robert Perdue, Water Board
Jose Cortez, Water Board
Christopher Guerre, DTSC

Enclosures: *Combined Compliance Monitoring Program Semiannual Groundwater Monitoring Report, Second Half 2014, and Performance Assessment Report, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California*

Final Report

Combined Compliance Monitoring Program Semiannual Groundwater Monitoring Report, Second Half 2014, and Performance Assessment Report,

Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Document ID: PGE20150115A

Prepared for
United States Department of the Interior

On behalf of
Pacific Gas and Electric Company

January 15, 2015

CH2MHILL®
155 Grand Avenue, Suite 800
Oakland, CA 94612

Combined Compliance Monitoring Program Semiannual Groundwater Monitoring Report, Second Half 2014, and Performance Assessment Report,
Interim Measures No. 3, Injection Well Field,

PG&E Topock Compressor Station,
Needles, California

Prepared for

United States Department of the Interior

Office of Environmental Policy and Compliance

and

California Environmental Protection Agency,
Department of Toxic Substance Control

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January 15, 2015

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

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

REGISTERED PROFESSIONAL ENGINEER
JOHN S. PORCELLA
No. C70148
Exp. 9/30/16
CIVIL
STATE OF CALIFORNIA

John Porcella, P.E.
Project Engineer

Serena Panzar
Professional Geologist, P.G. #8259

PROFESSIONAL GEOLOGIST
SERENA PANZAR
NO. 8259
STATE OF CALIFORNIA

Jay Piper
Project Manager

EN0105151059BAO

Combined Compliance Monitoring Program Semiannual Groundwater Monitoring Report, Second Half 2014, and Performance Assessment Report,
Interim Measures No. 3, Injection Well Field,

PG&E Topock Compressor Station,
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This report was prepared under the supervision of a California Professional Engineer

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

John Porcella, P.E.
Project Engineer

Serena Panzar
Professional Geologist, P.G. #8259

Jay Piper
Project Manager

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Acronyms and Abbreviations

µg/L	micrograms per liter
ARAR	applicable or relevant and appropriate requirement
Cr	chromium
Cr(VI)	hexavalent chromium
CMP	compliance monitoring program
CW	compliance well
DOI	United States Department of the Interior
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
gpm	gallons per minute
IM	Interim Measure
IM-3	Interim Measure No. 3
IW	injection well
mg/L	milligrams per liter
OW	observation well
PAR	performance assessment report
PG&E	Pacific Gas and Electric Company
QAPP	quality assurance project plan
TDS	total dissolved solids
USEPA	United States Environmental Protection Agency
Water Board	California Regional Water Quality Control Board, Colorado River Basin
WDR	Waste Discharge Requirements
WQO	water quality objective

1.0 Introduction

Pacific Gas and Electric Company (PG&E) is implementing an Interim Measure (IM) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The IM is implemented under the oversight of California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) and consists of groundwater extraction for hydraulic control of the plume boundaries near the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment, and injection systems collectively are referred to as Interim Measure No. 3 (IM-3). Currently, the IM-3 facilities include a groundwater extraction system, conveyance piping, a groundwater treatment plant, and an injection well (IW) field for the discharge of the treated groundwater. Figure 1-1 shows the location of the IM extraction, conveyance, treatment, and injection facilities. (All figures are located at the end of this report.) The injection well field comprises two injection wells and a network of monitoring wells.

On July 15, 2005, DTSC conditionally authorized PG&E to begin operating the IM-3 facilities, including the injection well field (DTSC, 2005a). As part of the authorization, DTSC considered the injection of treated water from the IM-3 system as a limited-duration pilot study authorized through January 31, 2007. DTSC further directed that PG&E assess the performance of the injection well field and submit a report by November 30, 2006.

As directed, on November 30, 2006, PG&E submitted the first biennial *Performance Assessment Report IM-3 Injection Well Field, PG&E Topock Compressor Station, Needles, California* (PAR) (CH2M HILL, 2006a), documenting performance of the IM-3 injection well field during the DTSC-mandated temporary operation period. Based on data presented in the November 2006 PAR, in a letter dated January 5, 2007 (DTSC, 2007a), DTSC approved the continued operations of the IM-3 injection wells and required PG&E to continue to submit a PAR every 2 years to evaluate the injection well operations and the influence of treated water on aquifer quality.

This fifth biennial PAR documents performance of the injection well operations and the influence of treated water on aquifer quality through December 2014. DTSC concurred via an email dated November 29, 2012 (DTSC, 2012), with the PG&E proposal to defer the submission of this biennial report until January 15 of each submittal year and to combine this report with the *Compliance Monitoring Program Semiannual Groundwater Monitoring Report, Second Half 2014, Interim Measures No. 3, PG&E Topock Compressor Station, Needles, California*.

The submission of this fifth biennial report meets the requirement of Condition 18 in DTSC's July 15, 2005 and January 5, 2007 letters to assess the performance of the injection well field as a methodology for management of treated water from the IM-3 system beyond the pilot study period. This report briefly describes the background of the project and the IM-3 system. The report also discusses injection system operational performance, injection system maintenance activities, and groundwater quality and hydraulic changes associated with the injection system to provide the rationale for continued subsurface injection of treated groundwater.

1.1 History and Purpose of the Topock Interim Measure

The purpose of the IM at the Topock Compressor Station is to maintain hydraulic control of the groundwater plume boundaries in the Colorado River floodplain until the time that a final corrective action is in place at the site. As defined by DTSC, the performance standard for the 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).

PG&E began implementing the IM at the PG&E Topock site in March 2004. Initially, groundwater was extracted from a monitoring well cluster, MW-20, located on a bench above and to the west of the Colorado River floodplain (commonly referred to as the MW-20 bench). Prior to the construction and operation of the current groundwater treatment and injection system, a batch treatment plant was located on the MW-20 bench, and treated groundwater was transported offsite for disposal at a permitted facility. Groundwater extraction pumping from extraction wells TW-2S and TW-2D began in May 2004, replacing the groundwater extraction from the MW-20 well cluster done earlier in the IM. While this operation was effective in controlling hydraulic gradients in the vicinity of the floodplain, it also generated a large number of truck trips from the site to the permitted disposal facility to manage the entire flow of extracted groundwater, and the treatment capacity was limited to approximately 80 gallons per minute (gpm) due to space limitations on the MW-20 bench. This operation was eventually replaced by the current groundwater extraction well system. Construction of the current IM-3 treatment and injection system began in September 2004 and was completed in July 2005. Groundwater extraction under IM-3 began at well TW-3D in December 2005 and at well PE-1 in early 2006. Of the four extraction wells, two are currently in normal operation (TW-3D and PE-1). The existing groundwater treatment system is a continuous, multistep process that involves removing chromium by chemical reduction, precipitation, and filtration and reducing total dissolved solids (TDS) using reverse osmosis. The treatment plant is designed to treat up to 135 gpm of extracted groundwater. Treatment plant operation yields a treated water (injection) flow rate of over 125 gpm. The remaining flow (up to 15 gpm) becomes a reverse osmosis brine stream that is transported offsite for disposal at a permitted facility. Additional information on the treatment process performance and capacities is contained in the *Interim Measures No. 3 Treatment and Extraction System Operation and Maintenance Plan Rev. 1, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2006b) and the *Construction Completion Report, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2005a).

Treated groundwater is returned to the aquifer through an injection system consisting of two wells: IW-2 and IW-3. Injection of treated groundwater from IM-3 began on July 31, 2005, as authorized by Waste Discharge Requirements (WDR) Order R7-2004-0103 (California Regional Water Quality Control Board, Colorado River Basin Region [Water Board], 2004). Treated groundwater from the Topock IM-3 has been continuously managed through injection since that time.

WDR Order R7-2006-0060 (Water Board, 2006) was issued September 20, 2006 and was the successor to WDR Order No. R7-2004-0103. The Waste Discharge Requirements (WDR Order No. R7-2006-0060) expired on September 20, 2011 and was replaced by the United States Department of the Interior (DOI) enforcement of the WDR as applicable or relevant and appropriate requirements (ARARs), as documented in correspondence between the Water Board, DOI, and PG&E during the summer of 2011, and as further discussed in Section 1.3.

In compliance with ARARs, PG&E collects treated water samples from the IM-3 treatment plant and analyzes the samples for dissolved chromium (Cr), Cr(VI), metals, specific conductance, TDS, turbidity, flow rate, major inorganic cations and anions, and water quality indicator parameters. The results of these analyses are reported quarterly to the DOI and the Water Board, along with other required information and a summary of operations.

1.2 Description of Groundwater Injection Well Field

Treated water from the IM-3 treatment plant is pumped through an aboveground pipeline to the injection well field located nearly 1,500 feet west of the plant. The well field, located on what is referred to as the East Mesa, comprises two injection wells—IW-2 and IW-3. Three observation well (OW) clusters—OW-1, OW-2, and OW-5—surround the injection wells on the East Mesa. Four additional monitoring well clusters, known as the compliance wells (CWs)—CW-1, CW-2, CW-3, and CW-4—surround the East Mesa. The locations of the injection wells, observation well clusters, and the compliance well clusters are shown on Figure 1-2.

Information for the three different well types is summarized in Exhibit 1-1. The injection wells, observation well clusters, and compliance well clusters were installed between December 2004 and February 2005.

EXHIBIT 1-1
Summary of Injection, Observation, and Compliance Wells Design Information and Installation Dates
Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Well Type (IDs)	Description	Work Plan	Installation Date	Installation Report
Injection (IW-2, IW-3)	Six-inch diameter stainless-steel louvered screens connected to mild steel risers using a mechanical coupling device. One hundred and sixty-foot screened interval. Total depth of injection wells: 340 and 330 feet deep, respectively. Two hundred gpm each design injection capacity.	CH2M HILL, 2004a	December 2004	CH2M HILL, 2005c
Observation (OW-1, OW-2, OW-5)	Monitoring well clusters consisting of three individual completions at various depths. Two-inch Schedule 40 polyvinyl chloride casing and screen. Twenty-foot screened interval.	CH2M HILL, 2004b	September to December 2004	CH2M HILL, 2005c
Compliance (CW-1, CW-2, CW-3, CW-4)	Monitoring well clusters consisting of two individual completions at various depths. Two-inch Schedule 40 polyvinyl chloride casing and screen. Fifty-foot screened interval.	CH2M HILL, 2005b	January to February 2005	CH2M HILL, 2005c

The design injection capacity of 200-gpm each for IW-2 and IW-3 provides 50-percent excess capacity above the plant design capacity in each injection well, and the two wells also provide 100-percent injection well redundancy since only one well is in service at a time.

Two types of monitoring wells have been installed in the injection well field. Exhibit 1-2 lists the name, well identifications, and monitoring zone of each type.

EXHIBIT 1-2
Summary of Injection Field Monitoring Wells
Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Group Name	Well IDs	Distance from Injection Wells, feet	Monitoring Zones		
			Shallow	Mid-depth	Deep
Observation Wells	OW-1, OW-2, and OW-5	50 to 100	X	X	X
Compliance Wells	CW-1, CW-2, CW-3, and CW-4	300 to 550		X	X

Source: CH2M HILL, 2005c.

The procedures for maintaining the injection wells are described in the *Interim Measures No. 3 Injection Well Operation and Maintenance Plan, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2005d) and its revision (CH2M HILL, 2006b).

1.3 Compliance Monitoring Program

The *Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area, Topock Compressor Station, Needles, California* (CH2M HILL, 2005e) (herein referred to as the Compliance Monitoring Plan) was submitted to the Water Board and the DTSC on June 17, 2005. The Compliance Monitoring Plan and its addendum (CH2M HILL, 2005f) provide the objectives, proposed monitoring program, data evaluation methods, and reporting requirements for the compliance monitoring program

(CMP). Several modifications of the sampling and reporting procedures have been approved since 2005, as outlined in Exhibit 1-3.

EXHIBIT 1-3
Historical Modifications to the Compliance Monitoring Program
Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Modification	Approval Date	Reference
Modification of reporting requirements	DTSC: June 9, 2006	DTSC, 2006
Reduction of constituents analyzed during quarterly sampling of CMP observation wells	Water Board: January 23, 2007 DTSC: January 22, 2007	Water Board, 2007a DTSC, 2007b CH2M HILL, 2006c
Change from laboratory pH to field-collected pH for reporting	Water Board: October 16, 2007 DTSC: January 22, 2008	Water Board, 2007b DTSC, 2008a
Modification of Cr(VI) analytical methods to extend hold time to 28 days	Water Board: November 13, 2007 DTSC: January 22, 2008	Water Board, 2007c DTSC, 2008a
Modification of sampling and reporting frequency and the field pH trigger range for the CMP contingency plan	Water Board: August 28, 2008 DTSC: December 12, 2008 (pH), September 3, 2009	Water Board, 2008 DTSC, 2008b, 2009
DOI adopts WDRs as ARARs	DOI: August 18, 2011 Water Board: July 26, 2011	DOI, 2011 Water Board, 2011 PG&E, 2011

PG&E is currently performing the CMP, as authorized by the DOI waste discharge ARARs. Specifically, the letter agreement issued July 26, 2011 from the Water Board to DOI (Water Board, 2011) requested:

- DOI concurrence that the WDRs are ARARs under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 response action ongoing at the site.
- DOI confirmation that it will enforce these WDRs pursuant to the Administrative Consent Agreement entered into by DOI and PG&E in 2005 in lieu of the Water Board's adoption of a new Board Order to replace the expiring Board Order that set forth the WDRs.
- DOI concurrence with the roles and responsibilities between DOI and the Water Board for monitoring and enforcement.

In its letter dated August 18, 2011, the DOI provided concurrence and confirmation as requested (DOI, 2011). PG&E confirmed these changes with a letter to the DOI and the Water Board dated September 7, 2011 (PG&E, 2011). These changes add the DOI as the receiving regulatory agency for the CMP reports, with the Water Board continuing to receive report copies. Work described in this report was performed in accordance with the ARARs established in the July 26, 2011 letter (Water Board, 2011).

The ARARs specify effluent limitations, prohibitions, specifications, and provisions for subsurface injection. The monitoring and reporting program contained within the ARARs specifies the requirements for the CMP to monitor the aquifer in the injection well area to ensure that the injection of treated groundwater is not causing an adverse effect on the aquifer water quality.

Operation of the treatment system was conditionally approved on July 15, 2005 (DTSC, 2005a), and injection into IW-2 began on July 31, 2005. Table 1-1 provides a summary of the history of injection for IM-3. (All tables are provided at the end of this report.)

Figure 1-2 shows the locations of the injection wells and the groundwater monitoring wells (OWs and CWs) in the CMP. Table 1-2 provides a summary of information on well construction and sampling methods for all wells in the CMP.

As of October 2014, samples are collected from OWs and CWs according to the following schedule:

- Three OWs (OW-1S, OW-2S, and OW-5S) located near the IM-3 injection well field are sampled semiannually (during the second and fourth quarters) for a limited suite of constituents.
- Six OWs (OW-1M, OW-1D, OW-2M, OW-2D, OW-5M, and OW-5D) are:
  - Sampled annually for a limited suite of constituents during the fourth quarter.
  - Sampled for a full suite of constituents one cluster at a time on a triennial (once every 3 years) schedule. Within each 3-year period, all OW middle and deep wells will be sampled for a full suite of constituents. The triennial sampling will occur during the annual event (fourth quarter).
- Eight CWs are sampled semiannually for a limited suite of constituents and annually (during the fourth quarter) for a full suite of constituents.

For semiannual events, laboratory analyses include TDS, turbidity, specific conductance, a reduced suite of metals, and several inorganic cations and anions. Annual and triennial sampling events for CWs and select OWs include chromium, Cr(VI), metals, specific conductance, TDS, turbidity, and major inorganic cations and anions. Groundwater elevation and field water quality data—including specific conductance, temperature, pH, oxidation-reduction potential, dissolved oxygen, turbidity and salinity—are also measured during each monitoring event (CH2M HILL, 2005e).

This report presents the results of the Second Half 2014 CMP groundwater monitoring event. The Second Half 2014 event was a semiannual event conducted from October 2 through October 8, 2014. The monitoring and sampling activities completed during Second Half 2014 consisted of the following activities:

- Water quality samples were collected from nine observation and eight compliance monitoring wells.
- Groundwater elevations and field water quality data were collected prior to sampling.
- Two duplicate samples were collected at wells CW-3D and OW-5D to assess field sampling and analytical quality control.

Continuous groundwater elevation data were collected using pressure transducers/data loggers at five of the 17 CMP wells and were downloaded monthly during the reporting period. Manual water level measurements were collected at all the CMP wells on August 6, 2014, and October 21, 2014.

The sampling methods, procedures, field documentation of the CMP sampling, water level measurements, and field water quality monitoring were performed in accordance with the *Sampling, Analysis, and Field Procedures Manual, Revision 1, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2005g) and standard operating procedure addendums.

CMP groundwater samples were analyzed by California-certified analytical laboratories: Truesdail Laboratories, Inc. in Tustin, California, and Advanced Technology Laboratories in Las Vegas, Nevada. Analytical methods, sample volumes and containers, sample preservation, and quality control sample requirements were in accordance with the *Sampling, Analysis, and Field Procedures Manual, Revision 1, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2005g) and standard operating procedure addendums. Data validation and management were conducted in accordance with the *PG&E Program Quality Assurance Project Plan* [QAPP] (CH2M HILL, 2012) and the *Addendum to the PG&E Program Quality Assurance Project Plan for the Topock Groundwater Monitoring and Investigation Projects* (CH2M HILL, 2008).

1.3.1 Status of Monitoring Activities

1.3.1.1 Semiannual Monitoring

The next semiannual CMP monitoring event will occur in April during the first half of 2015. This CMP monitoring event will include the sampling and analysis scope presented in Attachment A of DOI's November 18, 2011 letter (DOI, 2011). The groundwater monitoring report for this CMP monitoring event will be submitted by July 15, 2015.

1.3.1.2 Annual Monitoring

The next annual CMP monitoring event will occur in October during the second half of 2015. The groundwater monitoring report for this annual CMP monitoring event will be submitted by January 15, 2016.

2.0 Summary of CMP Second Half 2014 Results

This section is a summary of the results of the CMP groundwater sampling conducted during the Second Half 2014. Figure 1-2 presents the locations of the CMP groundwater wells.

Laboratory data, data quality review, water level measurements, and water quality field parameter data are also presented in this section. The laboratory reports and field data sheets for the Second Half 2014 monitoring event are presented in Appendices A and B, respectively.

2.1 Analytical Results

Nine observation wells and eight compliance wells were sampled during the Second Half 2014 sampling event. Analytical results for Cr(VI), chromium, other metals, and general chemistry parameters are shown in Tables 2-1, 2-2, and 2-3 and are discussed below. Interim action levels/water quality objectives (WQOs) were updated on August 8, 2006 when PG&E submitted a revised contingency plan flowchart for groundwater quality changes associated with the injection system. The contingency plan specifies the WQO concentrations and values for Cr(VI), chromium, TDS, and pH to be used to determine whether contingency plan actions were necessary based on sample results exceeding the WQO trigger values. A modification of the CMP contingency plan pH range was approved by the Water Board and DTSC in 2008 (Water Board, 2008; DTSC, 2008b).

2.1.1 Hexavalent Chromium and Chromium

Table 2-1 shows the Cr(VI) and chromium analytical results for groundwater in the shallow, middle, and deep wells from the Second Half 2014 CMP sampling event. During the Second Half 2014 sampling event, no Cr(VI) sample analytical results exceeded the WQO trigger level for Cr(VI) of 32.6 µg/L. For shallow wells, the maximum detected Cr(VI) concentration was 21.0 µg/L in well OW-2S on October 8, 2014. For the middle wells, the maximum detected Cr(VI) concentration was 6.8J[1] µg/L in well CW-3M on October 7, 2014. For the deep wells, the maximum detected Cr(VI) concentration was 0.91 µg/L in well CW-4D on October 7, 2014.

For shallow wells, the maximum detected chromium concentration was 19.0 µg/L in well OW-2S on October 8, 2014. For the middle wells, the maximum detected chromium concentration was 5.4J µg/L in well CW-3M on October 7, 2014. For the deep wells, no chromium was detected [ND (1.0 µg/L)]. During the Second Half 2014 sampling event, no chromium analytical result exceeded the WQO trigger level of 28 µg/L. Since neither Cr(VI) nor chromium were detected at concentrations greater than the respective WQO trigger levels, the contingency plan was not initiated.

2.1.2 Other Metals and General Chemistry

Table 2-2 presents the other metals and cation analytical results for the CMP groundwater wells sampled during the Second Half 2014. Metals and cations detected in the Second Half 2014 sampling event included arsenic, barium, boron, calcium, total iron, magnesium, molybdenum, potassium, selenium, sodium, and vanadium. In general, concentrations of metals and cations detected during the Second Half 2014 sampling event are similar to those detected in previous sampling events.

Table 2-3 presents other inorganic analyte and anion results from the CMP well samples. During the Second Half 2014, the sampling results from all wells were within the WQOs for TDS (less than 10,800 milligrams per liter [mg/L]) and pH (within 6.2 to 9.2). Sampling results for TDS varied from 1,200 mg/L in well OW-2S to 5,100 mg/L in well CW-3M. Field pH varied from 7.4 in wells CW-1M and CW-4D to 7.9 in wells CW-2D and OW-2S.

[1] See Section 2.2 for more information on the J flag.

Tables 2-2 and 2-3 also include results from a subset of wells (see Section 1.3) being analyzed for contaminants of potential concern, including molybdenum, selenium, and nitrate. In an email dated March 3, 2010, DTSC directed monitoring of these contaminants of potential concern and potential in situ byproducts at select CMP wells (DTSC, 2010).

2.1.3 ARAR Monitoring Requirements

Table C-1 in Appendix C identifies the laboratory that performed each analysis and lists the following information as required by the ARARs (Monitoring 6c; Reporting 7 and 8) for the Second Half 2014 CMP monitoring event:

- Sample location
- Sample identification number
- Sampler name
- Sample date
- Sample time
- Laboratory performing analysis
- Analysis method
- Parameter
- Analysis date
- Laboratory technician
- Result unit
- Sample result
- Reporting limit
- Method detection limit

2.2 Analytical Data Quality Review

The laboratory analytical data generated from the Second Half 2014 CMP monitoring event were independently reviewed by project chemists to assess data quality and identify deviations from analytical requirements. The quality assurance and quality control requirements are outlined in the QAPP and QAPP addendums (CH2M HILL, 2008, 2012). A detailed discussion of data quality for CMP sampling data is presented in the data validation reports, which are kept in the project file and are available upon request.

2.2.1 Matrix Interference

Matrix interference affected the sensitivity for Cr(VI) when using United States Environmental Protection Agency (USEPA) Method E218.6 and result in elevated reporting limits. None of the samples exhibited matrix interference requiring a dilution.

2.2.2 Matrix Spike Samples

Matrix spike and matrix spike duplicate recoveries are used to evaluate the effect of the sample matrix on the recovery of target analytes. A sample is fortified with a known quantity of a target analyte and is carried through the same preparation and analytical procedures as the samples that are not spiked. Matrix spike recoveries outside quality control limits may indicate that the sample's matrix is affecting the method's ability to accurately quantify the target analyte in the associated sample or samples from similar locations. A low matrix spike recovery generally indicates a negative bias in the sample data, and a high matrix spike recovery indicates a potential positive bias in the associated sample data. If duplicate matrix spike analyses are performed, a relative percent difference greater than quality control criteria may further indicate that the sample matrix is affecting the precision of the method for the target analyte that did not meet criteria. Therefore, when the matrix spike does not meet criteria, results are usually considered estimated.

One alkalinity (SM2320B) sample had spike recovery less than the lower control limit. The parent sample results were qualified as estimated and "J" flagged.

Two nitrate/nitrite (SM4500-NO3) samples had spike recoveries greater than the upper control limit. The parent sample results were qualified as estimated and “J” flagged.

Two USEPA 200.8 samples had spike recoveries less than the lower control limit for dissolved copper, dissolved manganese, and dissolved molybdenum; in addition one sample had spike recovery greater than the upper control limit for dissolved barium. The parent sample results were qualified as estimated and “J” flagged.

Two USEPA 200.7 samples had spike recoveries less than the lower control limit, one for dissolved boron and one for dissolved potassium. The parent sample results were qualified as estimated and “J” flagged.

All other matrix spike criteria were met.

2.2.3 Quantitation and Sensitivity

All method and analyte combinations met the project reporting limit objectives.

2.2.4 Holding-time Data Qualification

All USEPA recommended holding-times were met.

2.2.5 Field Duplicates

All field duplicate acceptance criteria were met.

2.2.6 Method Blanks

All method blank acceptance criteria were met.

2.2.7 Equipment Blanks

All equipment blank acceptance criteria were met.

2.2.8 Laboratory Duplicates

All laboratory duplicate acceptance criteria for the analytical methods were met.

2.2.9 Calibration

Initial and continuing calibrations were performed as required by the analytical methods. All calibration criteria were met.

2.2.10 Miscellaneous

The nitrate/nitrite sample from CW-04D had an anomalous initial result of 14 mg/L, as reported by SM4500-NO3. (Historical results vary between 3.5 mg/L and less than 1 mg/L.) Since the initial result was so far outside the historical range, the result from the USEPA 300.0 analysis was also reviewed. Although the USEPA 300.0 analysis was performed outside the USEPA-recommended holding time (for nitrate), the result should be representative of the concentration range. The USEPA 300.0 nitrate concentration was less than 5 mg/L. Because the two methods used on the original sample had such discrepant results, a new sample was collected and analyzed. The results from the resample were 2.7 mg/L from SM4500-NO3 and 2.3 mg/L from the USEPA 300.0 analysis. The result from the initial sample was rejected, and the resample result from the SM4500-NO3 was reported.

2.2.11 Conclusion

For the Second Half 2014 CMP sampling event, the completeness objectives were met for all method and analyte combinations. The analyses and data quality met the QAPP and laboratory method quality control criteria, except as noted above. Overall, the analytical data are considered acceptable for the purpose of the CMP.

3.0 Injection Well Operational Assessment

3.1 Injection Well Performance

The injection well field is designed to accept all of the treated water from the IM-3 treatment plant. This is the primary performance metric. Table 3-1 lists the average injection rate, monthly and cumulative total volume of water injected, and the primary wells in service from August 2005 through December 2014.

The injection well performance has been monitored since the wells were put into service. A summary of operational status of IM-3 injection wells from July 2005 through December 2014 is presented in Table 1-1. Injection well performance is measured in terms of specific injectivity, which is measured in gallons per minute of flow per foot of increased head in the well (water level rise). Over time, the well performance of injection wells typically declines due to plugging of pores from suspended solids in the injectate, precipitation of minerals in the gravel pack, formation and/or the well screen, air entrapment in the formation, biofouling, or a combination of these factors.

Backwashing of the injection wells will continue in an effort to maintain the well performance of the injection wells near desired levels. Manganese oxide precipitation was believed to be the primary cause of injection well plugging throughout the life of both injection wells. Since 2010, treated water manganese reduction and treated water acidification have continued to decrease the risk of well fouling and precipitation of solids in the injection well filter packs and formation. The IM-3 plant continues to operate in a manner that has proven to reduce manganese to low concentration (generally less than 10 µg/L) and decrease the pH to 7.0 by treated water acidification. If there is a drop in well performance, then the wells will either be backwashed more frequently or rehabilitated using Aqua Gard (described below) or more aggressive chemical methods. Figure 3-1 shows the history of IM-3 well performance trends and well maintenance events.

In 2010, equipment was installed in the injection wells so that the Aqua Gard method (a nonintrusive well maintenance method) could be conducted in the future without having to modify the well heads. The Aqua Gard method uses liquid carbon dioxide that is injected into the well. Once injected into the well, the rapid expansion of the carbon-dioxide-phase change from liquid to gas results in an agitation mechanism that loosens geochemical deposits, silt, and biological plugging material (“soft deposits”) that may have reduced well performance. Carbon dioxide injection is then followed by backwashing (or pumping) to remove the material that was loosened during carbon dioxide injection. The Aqua Gard rehabilitation method is intended to be conducted as a routine, proactive step to maintain well performance prior to more substantial capacity loss. Aqua Gard treatments were conducted in both wells in May 2012, June 2013, January 2014, June 2014, and September 2014.

It is important to note that each individual injection well currently has sufficient capacity to inject the entire treatment plant treated water flow. The system has adequate spare capacity, and the maintenance program is implemented to maintain sufficient capacity for operation.

3.2 Effect of Injection on Groundwater Levels

Table 3-2 presents the manual water level measurements and groundwater elevations from snapshots taken during Third and Fourth Quarters 2014 per the DOI ARAR requirements (DOI, 2011). In compliance with Condition No. 2 of DTSC’s 2009 conditional approval letter (DTSC, 2009), confirmation was obtained from the IM-3 Plant Manager that the IM-3 plant was operating normally on both the day before and the day of CMP sample collection, with no backwash or unplanned shutdowns (see Appendix B for field notes).

Water level measurements were collected continuously (measurements collected every half hour) with pressure transducers in select wells (OW-1S, OW-2S, OW-5S, OW-5M, and OW-5D) to produce hydrographs. Figures 3-2A through 3-2G present hydrographs that illustrate groundwater elevation trends and vertical

hydraulic gradients observed over the Second Half 2014 reporting period at specified observation monitoring wells.

Groundwater elevation maps for shallow, middle, and deep wells are provided as Figures 3-3A through 3-3C. A snapshot of water level elevations was used to produce the groundwater elevation contour plots. The measurement date is shown on each figure title.

Table 3-3 presents a summary of the manual water levels and field water quality data measured during the Second Half 2014 monitoring event. A field water quality instrument and flow-through cell were used to measure water quality parameters during well purging and before groundwater sampling.

A discussion of the collected data follows in the sections below.

3.2.1 Groundwater Gradient Characteristics

The monitoring wells in the middle- and deep-zone categories are screened over a wide elevation range: the bottom screen elevations range over 74 feet in the middle zone wells and 59 feet in the deep wells. Because there are natural vertical gradients as well as vertical gradients induced by injection, the groundwater elevations for wells in each category will reflect a mixture of vertical and horizontal gradients in groundwater elevation; therefore, the groundwater contours in Figures 3-3B and 3-3C should be viewed as approximate.

The injection well field is located in the East Mesa area of the Topock site, as shown on Figure 1-2. Overall sitewide water level contour maps for shallow wells are prepared annually under a separate report, with flow consistently being shown to move to the east/northeast across the uplands portions of the site (CH2M HILL, 2014).

The effects of injection in the IM-3 injection well field are superimposed on the more regional Topock site flow system and, as expected, a groundwater mound can be seen around the injection wells. This mound is centered on the active injection wells IW-2 and IW-3. The potentiometric surfaces in prior CMP reports mapped the growth of the groundwater mound over time and show that, after 9.2 years of injection, the mound increased and then stabilized in height at approximately 1 foot or less in elevation above the surrounding water level elevations. Figures 3-3B and 3-3C present groundwater elevation contours for the average groundwater elevation of the mound within the middle and deep wells using October 21, 2014 groundwater elevations. Similarly, Figures 3-4A and 3-4B present water level contour maps for middle and deep wells using October 23, 2012 data. For the past 2 years, the injection rate at IM-3 injection well field has averaged approximately 127 gpm. Figure 3-5A and 3-5B present water-level contour maps for middle and deep wells using November 29, 2010 data. Over the past 4 years of injection, the water level contour patterns are comparable for both middle and deep wells, respectively, indicating that the groundwater levels in the middle and deep zones are currently in near hydraulic steady-state with the current rate of injection. Comparison between these figure sets does not show significant change in water level contours over 4 years of IM-3 operation. It is not anticipated that continued injection at the current rate will result in any further significant changes in groundwater level, flow directions, or velocities in the injection well field.

The groundwater mound associated with injection is broader and flatter in the deep zone. The mound in the middle zone is more localized around the injection wells. This is consistent with the spinner log results from both injection wells, which showed higher permeability in the deep zone. The mound displays approximately 1 foot or less of total height in either middle or deep zones, as measured by the difference between OW and CW groundwater elevations, as shown on Figures 3-3B and 3-3C. This represents a slight increase in the magnitude of the horizontal gradient, although this increase is restricted to the area of the mound itself. Outside of the defined mound area, there is no significant effect of injection on groundwater levels.

The mound is elliptical in shape, with the major axis running in a southwest to northeast direction. The lower gradients (more widely spaced contours) in the direction of the major axis are an indication that the aquifer permeabilities are greater in this direction, indicating that there may be a preferred direction to flow in this area. In aquifers in alluvial fan depositional environments, the permeability is often higher in the

down-fan direction and lower in the cross-fan direction. This is due to the higher degree of connectedness of the sand and gravel layers in the direction of stream flow on the former fans (Fetter, 1994). The orientation of the long axis of the mound near the injection well field is northeast-southwest and generally is consistent with the likely alignment of alluvial fans in the area.

As shown in Table 3-1, the combined injection rates at IW-2 and IW-3 have ranged between 114.3 and 135.1 gpm since December 2012. Groundwater levels have been monitored in all observation and compliance wells since several months before starting injection. Figures 3-2A through 3-2G are hydrographs that illustrate groundwater elevation trends and vertical hydraulic gradients observed since June 2005 at the observation and compliance monitoring wells. Average vertical gradients in the IM-3 injection well field area have been upward at the OW and CW clusters since injection began and also generally upward between each of the depth intervals in those same well clusters. Table 3-4 presents the vertical gradient data calculated using the October 21, 2014 groundwater elevations. The observed gradients from Second Half 2014 and since injection began are consistent with IM-3 design expectations. Because the injection wells are screened in the deeper portions of the aquifer, the injection of treated water into the deep zone of the aquifer tends to increase the head in the deep and middle portions of the aquifer more than in the shallow portion. Groundwater levels in the middle and deep observation and compliance wells respond more quickly to changes in injection rate than shallow water levels. This is partially due to the semiconfined nature of the aquifer in middle and lower zones. Confined and semiconfined aquifers typically have storage coefficients several orders of magnitude smaller than unconfined aquifer systems and therefore respond much more quickly to changes in hydraulic stress. The other reason for this observation is that the vast majority of injected water is flowing into the deep zone, based on spinner log borehole flow profile data collected shortly after the injection well installation. Moreover, the aquifer response of the middle and deep wells to the injected water is generally comparable for all the biennial reporting periods (first biennial reporting period August 2005 through October 2006, second biennial reporting period November 2006 through December 2008, third biennial reporting period January 2009 through December 2010, fourth biennial reporting period January 2011 through December 2012, and fifth biennial reporting period January 2013 through December 2014).

The magnitude of the vertical gradients is similar between clusters and between the depth intervals, indicating that the vertical gradient is generally of the same order of magnitude throughout the injection area. The observed groundwater gradients in the IM-3 injection well field are consistent with expected regional groundwater flow within the southern Mohave Valley.

4.0 Influence of Treated Water on Aquifer Water Quality

4.1 Treatment Plant Effluent Water Quality and Groundwater Quality Before and After Injection

Injection of treated water began on July 31, 2005. Previously under WDR No. R7-2006-0060 for the IM-3 groundwater treatment system and now under the DOI's ARARs, PG&E is required to submit quarterly monitoring reports regarding operation of the system. These reports contain the analytical results of treated water effluent sampling and, as such, the reports are useful in determining the baseline water quality of the treated water being injected into the IM-3 injection well field.

Table 4-1 lists the results of baseline sampling for the observation wells and compliance wells. A full set of nine OW groundwater samples was collected on July 27 and 28, 2005, and a full set of eight CW groundwater samples was collected on September 15, 2005. These samples are considered representative of conditions unaffected by injection and serve to characterize the pre-injection water quality. In comparing these sampling results to the treated injection water sampling results, there are some similarities in the constituent concentrations. For example, most of the pre-injection OW or CW deep well samples (OW-1D, OW-2D, OW-5D, CW-3D, and CW-4D) contain no detectable Cr(VI) or chromium, which is similar to the treated injection water. Most of the well samples show concentrations similar to the treated water for two or three constituents but observable differences in concentration from the treated water for the remaining four or five. By considering the entire suite of seven analytes and focusing on those parameters that show differences, it is relatively easy to distinguish between the pre-injection water quality at the monitoring wells and the treated water effluent quality.

Table 4-1 also provides selected effluent water analytical results from three of the monthly reports: August 29, 2005, October 5, 2010, and October 7, 2014. While there are differences among some parameters in these samples, a number of parameters show relatively consistent concentrations in the effluent. Analytes that are relatively consistent over the injection time period include Cr(VI), chromium, fluoride, molybdenum, nitrate/nitrite as nitrogen, sulfate, and TDS. These seven constituents provide a characterization of the effluent that does not appear to vary greatly over time and can serve as a basis for determining whether a groundwater monitoring well is being affected by injection. In general terms, treated water has the following characteristics (based on review of October 2014 effluent characteristics):

- Cr(VI): typically nondetect (or below 1.0 µg/L)
- Chromium: typically nondetect (1.0 µg/L)
- Fluoride: approximately 2.0 mg/L
- Molybdenum: approximately 20 µg/L
- Nitrate/nitrite as nitrogen: approximately 2.7 mg/L
- Sulfate: approximately 500 mg/L
- TDS: approximately 4,500 mg/L

These treated water quality characteristics are meant to serve as a general guideline and not as a statistically representative summary of the treated water quality over time.

Table 4-2 presents a comparison between the treated water quality and the results from the most recent sampling event (the Second Half 2014 sampling event). These samples were collected after approximately 9.2 years of injection. While the pre-injection OW and CW sample results were significantly different from the treated water quality, a number of the Second Half 2014 sample results show a marked similarity to the treated water results. The following wells display the general characteristics of treated water: OW-1S, OW-1M, OW-1D, OW-2M, OW-2D, OW-5M, OW-5D, CW-1M, CW-2M, CW-4M, CW-1D, CW-2D, CW-3D, and

CW-4D. These wells are at locations and depths where the treated water injection front has largely replaced the local pre-injection groundwater. Well OW-5S has chemical characteristics approaching that of treated water. To date, only shallow observation well OW-2S shows little or no water quality effects due to injection of treated water, indicating that injected water has not yet reached this depth and location.

4.2 Water Quality Trends

Trend data can be used to determine when a rapid change has occurred between sampling events, such as the arrival of the injection front. It can also be used to look at more gradual changes that occur over several sampling events, such as seasonal effects or the interaction of treated water with local groundwater and host aquifer material. Eleven analytes were selected for time-series analysis; these analytes are considered to be most representative of the IM-3 injection well field area and have sufficient detections to make time-series analysis useful. The analytes include chloride, chromium, fluoride, Cr(VI), molybdenum, nitrate/nitrite as nitrogen, pH, sodium, sulfate, TDS, and vanadium. Water quality hydrographs (time-series plots) of these 11 analytes in each observation well during the Second Half 2014 within the IM-3 injection well field are presented in Figures 4-1A through 4-1E.

The graphs are divided into the three depth (shallow, mid, and deep) intervals for the observation wells, followed by the two intervals for the compliance wells. The effluent water quality information is also presented on these figures for comparative purposes. (Starting with First Quarter 2008, pH measurements on groundwater samples were no longer made through laboratory analysis due to the new 15-minute holding time for laboratory measurements with USEPA Method 150.1).

Observation well water quality hydrographs are presented in Figures 4-1A through 4-1C. These hydrographs show the same overall patterns: wells that are identified as affected by treated water injection show a shift in water quality for characteristic parameters, while those identified as being unaffected by injection show no net trends. The water quality change brought on by the arrival of the treated water injection front can be either gradual (OW-5M) or step-wise (OW-2M), with most affected wells showing a pattern of change somewhere between the two. Based on the variability in response, it is inferred that the movement of treated water is nonuniform laterally between wells. This variability in lateral movement can be inferred from differences in the water quality hydrographs in both the mid-depth and deep wells. The OW shallow-depth well OW-2S shows little water quality variation over time. Sodium, chloride, vanadium, and molybdenum are particularly consistent with baseline pre-injection concentrations and show that the local groundwater quality at this shallow-depth location is not being affected by injection of treated water or outside water sources. Since 2010, well OW-5S has shown a gradual change in water quality towards that of the injected water.

Compliance well water quality hydrographs are presented in Figures 4-1D and 4-1E. Wells CW-1M, CW-1D, CW-2D, CW-3D, and CW-4D show trends in TDS, sulfate, nitrate/nitrite as nitrogen, chromium, molybdenum, and Cr(VI) similar to the treated water. Wells CW-1M, CW-2M, and CW-4M show decreasing trends in Cr(VI) and chromium. These changes are attributed to the arrival of treated injection water.

5.0 Summary and Recommendations

The IM-3 groundwater injection system has operated successfully since July 31, 2005 and has been shown to be an effective strategy for management of treated groundwater generated through implementation of the IM at the PG&E Topock Compressor Station. The following summarizes the performance highlights of the injection system.

- **Predicted aquifer response**: The aquifer has responded hydraulically to the injection as expected. The groundwater mound near the injection wells is predominantly in the middle and deep aquifer zones and appears to show the influence of preferential permeability in the deep zone. The magnitude of the mound in the area of the nearby OW wells is approximately 0.9 foot in the deep zone and 0.8 foot in the middle zone based on the Second Half 2014 October snapshot data, and the magnitude dissipates with distance from the injection well. The direction of preferential flow appears to be in a northeast/southwest direction parallel with the depositional grain of the alluvial fan in the area of the injection wells. Preferential flow along the axis of an alluvial fan results from the alignment of sand and gravel layers along the stream channels as the fan is deposited (Fetter, 1994). Sand and gravel grains will tend to align with their long sides in the direction of the flow of water that deposits them off the fan. This alignment results in higher hydraulic conductivity in this direction than in the transverse or vertical directions.
- **No adverse affect to aquifer water quality**: There are no indications of adverse effects to aquifer water quality as a result of the injection. No unexpected or adverse geochemical reactions have been observed. The water quality in the shallow, middle and deep zones is generally improving in areas where the injected water has displaced the native groundwater. Only the shallow well OW-2S has shown little effects of the injection water to date.
- **Successful injection well operation and maintenance**: The injection wells have performed without significant problems for the fifth biennial reporting period, maintaining sufficient injection capacity throughout operation even though injection well performance declined during the life of the wells. Well rehabilitation, including Aqua Gard™ treatment and backwashing implemented at both wells, has improved and sustained the well performance, as shown on Figure 3-1. Moreover, alternate use of both the injection wells has allowed smooth operation of the IM-3 injection well field. Backwashing will be performed regularly at each well to sustain the efficiency and well performance at both injection wells.
- **Improved environment and safer operations**: Operating the injection wells reduces the adverse environmental and safety impacts associated with the trucking of treated groundwater to a permitted offsite facility (offsite disposal of the approximately 601 million gallons injected through December 2014 would have required over 100,000 tanker truck trips). Reduced truck traffic results in lower vehicle emissions and reduces the chance of accidents.
- **Water quality objectives achieved**: During the Second Half 2014 sampling event, no samples exceeded the water quality objectives for Cr(VI), chromium, pH, or TDS.

For these reasons, PG&E plans continued operation of the injection system under DTSC and DOI oversight as an effective method for managing the treated water and as an integral part of IM-3 system operations.

PG&E further recommends that the monitoring and reporting program be modified for 2015 and future years. After more than 9 years of operation, the IM-3 groundwater monitoring reports have shown no adverse effects as a result of the injection of treated water into the aquifer. Breakthrough of treated water has occurred at all but one of the compliance and observation wells (OW-2S, see section 4.2). Groundwater monitoring from the rest of the inner, shallow, middle, and deep zone OW well network and all wells in the outer, middle, and deep CW monitoring network show a change to properties of treated water injected from IM-3. Groundwater elevations in the injection mound are stable with draw-up just under 1 foot (see

Section 3.2). The IM-3 treatment plant has been shown to be reliable, and the effluent water quality has been stable. No adverse geochemical effect has occurred, indicating that the injected water is compatible with the aquifer materials.

The water quality in the OW and CW wells has changed as was expected over the 9 years of operation, and so long as the quality of effluent produced by the IM-3 treatment plant remains stable, the OW and CW well water quality will continue to become more and more similar to the injected water. Therefore, PG&E proposes to reduce the sampling and reporting frequency for the compliance monitoring program. The following modifications to the monitoring and reporting program are proposed beginning in 2015:

- Continue the larger annual Second Half groundwater sampling event, but eliminate the smaller First Half groundwater sampling event.
- Modify the Second Half report into an annual report, still due January 15, and eliminate the First Half report presently due July 15.

Note that the current water level monitoring program and the IM-3 effluent sampling program would continue without modification. These proposed modifications could be implemented in First Quarter 2015.

Finally, because of the approved cessation of continuous (transducer) water level monitoring at well locations CW-1 through CW-4 in 2009, PG&E proposes to discontinue presenting Figures 3-2A to 3-2D in future PAR reports.

6.0 References

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 2005a. Letter to PG&E. "Conditional Approval for the Start Up and Operation of the Interim Measures No. 3 Treatment System and Injection Wells, Pacific Gas & Electric Company, Topock Compressor Station." July 15.

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7.0 Certification

PG&E submitted a signature delegation letter to the DOI and the Water Board on July 9, 2014 (PG&E, 2014). The letter delegated PG&E signature authority to Mr. Kevin Sullivan, Ms. Yvonne Meeks, and Mr. Curt Russell for correspondence regarding ARARs.

Certification Statement:

I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Signature: Yvonne Meeks

Name: Yvonne J. Meeks

Company: Pacific Gas and Electric Company

Title: Topock Project Manager

Date: January 15, 2015

Tables

TABLE 1-1

Operational Status of Interim Measures No. 3 Injection Wells From July 2005 Through December 2014

Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Time Period	Injection Status
July 31, 2005 to Fourth Quarter 2005	Injection occurred at IW-2.
First Quarter 2006	Injection occurred primarily at IW-2 except during intervals of operational testing, when injection was divided equally between IW-2 and IW-3.
Second Quarter 2006	Injection occurred at IW-2.
Third Quarter 2006	In August 2006, IW-2 went offline for routine maintenance, and injection commenced at IW-3.
Fourth Quarter 2006	Injection occurred at IW-3, except during routine maintenance.
First Quarter 2007	Injection occurred at IW-3 and transitioned over to IW-2 on March 8.
Second Quarter 2007	Injection occurred at IW-3 from April 3 through June 20. Injection switched to IW-2 on June 20 and continued through July 20, 2007.
Third Quarter 2007	Injection occurred at IW-3 after July 20. Injection occurred at IW-2 on August 30 for an injection test and then returned to IW-3 after August 31.
Fourth Quarter 2007	Injection occurred at IW-3 and then switched to IW-2 on September 25 for routine maintenance. Injection returned to IW-3 after October 9.
First Quarter 2008	Injection occurred at IW-3 only. From February 5 through February 13, well maintenance activities were conducted at IW-2.
Second Quarter 2008	Injection occurred at IW-3 only. IM-3 system offline from April 21 through April 28 due to routine maintenance. Backwashing was performed at IW-3 on April 9, May 7, May 15, May 22, June 3, and June 4, 2008.
Third Quarter 2008	Injection occurred primarily at IW-3. Injection also occurred at IW-2 for short interval on July 25 and from August 12 – August 31, 2008. Backwashing was performed at IW-3 on June 17, June 27, July 9, July 15, July 17, July 18, August 12, August 13, September 2, and September 3, 2008. Backwashing was performed at IW-2 on September 9 - September 11, 2008.
Fourth Quarter 2008	Injection occurred at IW-3 and then switched to IW-2 on September 23. Injection returned to IW-3 on October 7 and switched back to IW-2 on October 21. Injection primarily occurred at IW-2 until November 11 when it switched to IW-3 until December 3, 2008. Injection continued at IW-2 until December 16, 2008 and occurred concurrently and continued at IW-3 on December 11, 2008.
First Quarter 2009	Injection switched to IW-2 on December 30, 2008. On January 13, 2009 injection transitioned to IW-3. Backwashing events were performed periodically during the intervals when each injection well was offline. Routine and scheduled maintenance occurred December 18, 2008 through January 21, 2009 at which time both wells were offline.
Second Quarter 2009	Injection continued at IW-3 until April 20, 2009. Injection ceased from April 20, 2009 to April 27, 2009 due to routine maintenance after which injection continued at IW-3 until May 26, 2009 when it transitioned to IW-2. Injection continued at IW-2 until June 9, 2009 when it switched to IW-3. Injection returned to IW-2 on June 24, 2009.
Third Quarter 2009	IM-3 injection alternates between the two wells approximately every two weeks. Injection continued at IW-2 until July 8, when it transitioned to IW-3. Injection ceased from July 23 to 27, 2009 when it continued at IW-3 until September 9, 2009. Unplanned downtime occurred from September 9-14, 2009. On September 16, 2009 injection continued at IW-2, except during times of routine maintenance or otherwise mentioned.
Fourth Quarter 2009	Injection occurred at IW-2 until November 25, 2009 when it switched to IW-3. Injection continued at IW-3, except during times of routine maintenance.
First Half 2010	Injection occurred mainly at IW-3 until March 3, 2010. Beginning March 3, 2010, IM-3 injection alternated between the two wells approximately every two weeks until April 20, 2010 for a

TABLE 1-1

Operational Status of Interim Measures No. 3 Injection Wells From July 2005 Through December 2014

Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Time Period	Injection Status
	planned shutdown. On April 22, 2010, injection resumed at IW-3 and alternated between the two wells approximately every two weeks. Backwashing was performed periodically during the intervals when each injection well was offline.
Second Half 2010	Injection occurred primarily at IW-2 with the exception of the following periods when it primarily occurred at IW-3: July 22 - August 25, August 30 - September 7, September 16 - October 15, November 5 -18, and December 17- 31, 2010.
First Half 2011	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: January 27 - February 10, February 23 - March 7, March 30 - April 20, May 6 – June 7, and June 22-28, 2011. Backwashing was performed periodically during the intervals when each injection well was offline. A planned shutdown occurred April 25-29 and June 28-30.
Second Half 2011	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: July 14 through August 3, August 10 through 13, September 11 through 22, October 6 through10; and October 27 Through December 31. Backwashing was performed periodically during the intervals when each injection well was offline.
First Half 2012	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: January 1 through January 6, 2012; February 2 through February 16, 2012; March 2 through April 5, 2012; May 10 through May 21, 2012; May 29 through June 1, 2012, June 14,2012 and June 21 through June 27, 2012.
Second Half 2012	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: July 18 through July 25, 2012; August 1 through August 13, 2012; August 17 through August 22, 2012; August 31 through September 26, 2012; and September 29 through October 9, 2012.
First Half 2013	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: March 5 through March 14, 2013; April 8 through May 22, 2013, June 24 through June 25, 2013, and June 29 through June 30, 2013.
Second Half 2013	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: July 1 - 9, 2013; July 31 through August 12, 2013, October 22 through November 6, 2013, November 26 through December 12, 2013, and December 28 - 31, 2013.
First Half 2014	Injection occurred primarily at IW-2 with the exception of the following periods when it primarily occurred at IW-3: January 6, 2014, January 16 through January 29, 2014, April 17 - 23, 2014, and May 10 through June 22, 2014, and June 25, 2014.
Second Half 2014	Injection occurred primarily at IW-2 with the exception of the following periods when it primarily occurred at IW-3: July 21 - 30, 2014, September 23 - 25, 2014, and November 19 - 24, 2014.

TABLE 1-2

Well Construction and Sampling Summary for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft amsl)	Screen Interval (ft bgs)	Well Casing (inches)	Well Depth (ft btoc)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Pump Depth (ft bgs)	Transducer Status	Remarks
IM Compliance Wells												
CW-01M	East Mesa	566.07	140 - 190	2 (PVC)	190.0	109.1	Temp Redi-Flo AR	2	42	165		
CW-01D	East Mesa	566.46	250 - 300	2 (PVC)	300.2	109.2	Temp Redi-Flo AR	3	98	180		
CW-02M	East Mesa	549.45	152 - 202	2 (PVC)	208.3	92.6	Temp Redi-Flo AR	2	56	195		
CW-02D	East Mesa	549.43	285 - 335	2 (PVC)	355.0	92.1	Temp Redi-Flo AR	3	134	159		
CW-03M	East Mesa	534.10	172 - 222	2 (PVC)	222.0	77.4	Temp Redi-Flo AR	2	74	180		
CW-03D	East Mesa	534.14	270 - 320	2 (PVC)	340.0	76.8	Temp Redi-Flo AR	3	134	143		
CW-04M	East Mesa	518.55	119.5 - 169.5	2 (PVC)	169.8	61.3	Temp Redi-Flo AR	2	56	160		
CW-04D	East Mesa	518.55	233 - 283	2 (PVC)	303.0	61.2	Temp Redi-Flo AR	3	124	134		
IM Observation Wells												
OW-01S	East Mesa	550.21	83.5 - 113.5	2 (PVC)	113.5	93.9	Temp Redi-Flo AR	1	10.2	100	Active	
OW-01M	East Mesa	550.36	165 - 185	2 (PVC)	185.8	93.0	Temp Redi-Flo AR	3	48	109.6		
OW-01D	East Mesa	550.36	257 - 277	2 (PVC)	277.3	92.6	Temp Redi-Flo AR	3	94	111.4		
OW-02S	East Mesa	548.88	71 - 101	2 (PVC)	103.6	92.5	Temp Redi-Flo AR	1	15	100	Active	
OW-02M	East Mesa	548.52	190 - 210	2 (PVC)	210.3	90.9	Temp Redi-Flo AR	2	61	111.4		
OW-02D	East Mesa	549.01	310 - 330	2 (PVC)	340.0	90.9	Temp Redi-Flo AR	2	127	110.3		
OW-05S	East Mesa	551.83	70 - 110	2 (PVC)	110.3	95.0	Temp Redi-Flo AR	1	8	100	Active	
OW-05M	East Mesa	551.81	210 - 250	2 (PVC)	250.3	94.4	Temp Redi-Flo AR	2	80	112.5	Active	
OW-05D	East Mesa	552.41	300 - 320	2 (PVC)	350.0	95.0	Temp Redi-Flo AR	3	131	113.2	Active	

Notes:

amsl	above mean sea level
bgs	below ground surface
btoc	below top of polyvinyl chloride (PVC) casing
gpm	gallons per minute
Redi-Flo AR	adjustable-rate electric submersible pump
Temp	temporary

Depth to water for each well was collected on October 2014.
All wells were purged and sampled using 3 well-volume method.

TABLE 2-1

Chromium Results for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

		Method:	E218.6	E200.8
Location ID	**Sample Date**		**Hexavalent Chromium (µg/L)**	**Chromium (µg/L)**
CW-01M	10/2/2014		1.2	ND (1.0)
CW-01D	10/2/2014		0.69	ND (1.0)
CW-02M	10/2/2014		2.4	1.9
CW-02D	10/2/2014		0.52	ND (1.0)
CW-03M	10/7/2014		6.8 J	5.4 J
CW-03D	10/7/2014		0.63	ND (1.0)
CW-03D	10/7/2014	(FD)	0.67	ND (1.0)
CW-04M	10/7/2014		4.4	3.7
CW-04D	10/7/2014		0.91	ND (1.0)
OW-01S	10/7/2014		9.8	9.4
OW-01M	10/7/2014		1.1	ND (1.0)
OW-01D	10/7/2014		0.45	ND (1.0)
OW-02S	10/8/2014		21.0	19.0
OW-02M	10/8/2014		0.86	ND (1.0)
OW-02D	10/8/2014		0.32	ND (1.0)
OW-05S	10/8/2014		15.0	14.0
OW-05M	10/8/2014		0.82	ND (1.0)
OW-05D	10/8/2014		0.53	ND (1.0)
OW-05D	10/8/2014	(FD)	0.54	ND (1.0)

Notes:

FD field duplicate
J concentration or RL (reporting limit) estimated by laboratory or data validation
ND parameter not detected at the listed reporting limit
µg/L micrograms per liter

Hexavalent Chromium and Chromium are field filtered.

TABLE 2-2

Metals Results for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

	Method:	Dissolved E200.7, E200.8																								
Location ID	**Sample Date**	**Aluminum**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Cobalt**	**Copper**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**	**Boron**	**Calcium**	**Iron [a]**	**Iron[b]**	**Potassium**	**Magnesium**	**Sodium**
		µg/L																		mg/L						
CW-01M	10/2/2014	ND (500)	ND (0.5)	1.2	26.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	22.0	ND (1.0)	3.3	ND (0.5)	ND (2.5)	2.4	ND (10)	0.92	140	ND (0.02)	ND (0.5)	14.0	13.0	1600
CW-01D	10/2/2014	ND (500)	ND (0.5)	1.2	27.0 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)J	ND (5.0)	ND (0.5)J	ND (0.2)	21.0 J	ND (1.0)	3.4	ND (0.5)	ND (2.5)	2.4	ND (10)	0.93	130	ND (0.02)	ND (0.5)	13.0	16.0	1600
CW-02M	10/2/2014	ND (500)	ND (0.5)	1.9	70.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	18.0	ND (1.0)	2.6	ND (0.5)	ND (2.5)	3.5	ND (10)	1.10	110	ND (0.02)	ND (0.5)	13.0	9.70	1700
CW-02D	10/2/2014	ND (500)	ND (0.5)	3.3	13.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	15.0	ND (1.0)	3.1	ND (0.5)	ND (2.5)	4.5	ND (10)	0.91	65.0	ND (0.02)	ND (0.5)	12.0	3.90	1700
CW-03M	10/7/2014	ND (500)	ND (0.5)	1.0	47.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	25.0	ND (1.0)	1.3	ND (0.5)	ND (2.5)	2.5	ND (10)	1.20	170	0.11	ND (0.5)	14.0	15.0	1600
CW-03D	10/7/2014	ND (500)	ND (0.5)	1.4	14.0	ND (2.5)	ND (0.5)	ND (0.5)	ND (1.0)J	ND (5.0)	ND (0.5)J	ND (0.2)	16.0 J	ND (1.0)	2.7	ND (0.5)	ND (2.5)	2.5	ND (10)	0.96	64.0	ND (0.02)	ND (0.5)	11.0	4.80	1500
CW-03D	10/7/2014 FD	ND (500)	ND (0.5)	1.4	15.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	17.0	ND (1.0)	2.8	ND (0.5)	ND (2.5)	2.7	ND (10)	0.94	63.0	ND (0.02)	ND (0.5)	11.0	4.70	1600
CW-04M	10/7/2014	ND (500)	ND (0.5)	1.9	97.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	9.6	ND (1.0)	2.1	ND (0.5)	ND (2.5)	3.3	ND (10)	0.90	150	ND (0.02)	ND (0.5)	13.0	13.0	1400
CW-04D	10/7/2014	ND (500)	ND (0.5)	2.9	18.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	22.0	ND (1.0)	2.6	ND (0.5)	ND (2.5)	3.4	ND (10)	1.00	97.0	ND (0.02)	ND (0.5)	12.0	7.30	1600
OW-01S	10/7/2014	---	---	0.79	---	---	---	---	---	---	ND (0.5)	---	9.7	---	2.1	---	---	---	---	---	---	---	---	---	---	750
OW-01M	10/7/2014	---	---	2.3	---	---	---	---	---	---	ND (0.5)	---	20.0	---	3.0	---	---	---	---	---	---	---	---	---	---	1600
OW-01D	10/7/2014	---	---	1.1	---	---	---	---	---	---	ND (0.5)	---	24.0	---	2.8	---	---	---	---	---	---	---	---	---	---	1600
OW-02S	10/8/2014	---	---	---	---	---	---	---	---	---	---	---	37.0	---	---	---	---	---	---	0.63 J	---	---	---	---	---	410
OW-02M	10/8/2014	---	---	---	---	---	---	---	---	---	---	---	19.0	---	---	---	---	---	---	---	---	---	---	---	---	1500
OW-02D	10/8/2014	---	---	---	---	---	---	---	---	---	---	---	25.0	---	---	---	---	---	---	---	---	---	---	---	---	1500
OW-05S	10/8/2014	---	---	0.61	---	---	---	---	---	---	ND (0.5)	---	12.0	---	1.4	---	---	---	---	---	---	---	---	---	---	620
OW-05M	10/8/2014	ND (500)	ND (0.5)	0.71	37.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	23.0	ND (1.0)	2.9	ND (0.5)	ND (2.5)	1.5	ND (10)	0.95	120	0.033	ND (0.5)	14.0	19.0	1500
OW-05D	10/8/2014	ND (500)	ND (0.5)	4.3	20.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	25.0	ND (1.0)	2.8	ND (0.5)	ND (2.5)	3.3	ND (10)	0.87	100	ND (0.02)	ND (0.5)	14.0 J	23.0	1500
OW-05D	10/8/2014 FD	ND (500)	ND (0.5)	4.4	21.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)	ND (5.0)	ND (0.5)	ND (0.2)	27.0	ND (1.0)	2.8	ND (0.5)	ND (2.5)	3.4	ND (10)	0.93	100	ND (0.02)	ND (0.5)	15.0	25.0	1500

NOTES:

FD field duplicate
ND parameter not detected at the listed reporting limit
mg/L milligrams per liter
µg/L micrograms per liter
--- data not collected or available
J concentration estimated by laboratory or data validation

[a] Total Iron

[b] Dissolved Iron

TABLE 2-3

Other Inorganics Results for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

	Method:	E120.1	Field	SM2540C	SM2130B	E300.0	E300.0	E300.0	E353.2	SM2320B	SM4500NH3D
Location ID	**Sample Date**	**Specific Conductance (µmhos/cm)**	**pH (pH units)**	**Total Dissolved Solids (mg/L)**	**Turbidity (NTU)**	**Chloride (mg/L)**	**Fluoride (mg/L)**	**Sulfate (mg/L)**	**Nitrate/Nitrite as Nitrogen (mg/L)**	**Alkalinity, total as CaCo3 (mg/L)**	**Ammonia as Nitrogen (mg/L)**
CW-01M	10/2/2014	7000	7.4	4200	0.120	1900	4.30	470	2.60	60.0	ND (0.5)
CW-01D	10/2/2014	6900	7.6	4200	0.130	2000	4.20	490	3.40	52.0	ND (0.5)
CW-02M	10/2/2014	7000	7.8	3800	0.110	2000	5.00	490	2.50	58.0	ND (0.5)
CW-02D	10/2/2014	7000	7.9	3900	0.110	1900	4.60	470	2.40	54.0	ND (0.5)
CW-03M	10/7/2014	7500	7.6	5100	0.440	2400	5.90	460	1.90	53.0 J	ND (0.5)
CW-03D	10/7/2014	7000	7.8	4000	0.600 J	2000	5.90	480	2.80 J	58.0	ND (0.5)
CW-03D	10/7/2014 (FD)	6800	FD	4100	0.300 J	2000	5.70	480	3.20	61.0	ND (0.5)
CW-04M	10/7/2014	6500	7.6	4200	0.320	1900	4.20	460	2.70 J	51.0	ND (0.5)
CW-04D	10/7/2014	6700	7.8	4000	0.200	2000	5.60	480	---	40.0	ND (0.5)
CW-04D	12/23/2014	---	---	---	---	---	---	---	2.70	---	---
OW-01S	10/7/2014	4500	7.6	3400	3.000	1400	3.20	290	3.00	---	---
OW-01M	10/7/2014	6900	7.6	4400	0.390	2000	4.80	480	3.20	---	---
OW-01D	10/7/2014	6700	7.6	4200	0.690	2000	4.70	470	2.70	---	---
OW-02S	10/8/2014	2100	7.9	1200	2.300	530	4.70	100	3.70	---	---
OW-02M	10/8/2014	6800	7.5	4400	0.470	2100	4.40	470	3.10	---	---
OW-02D	10/8/2014	6900	7.7	4000	0.270	2100	4.80	470	2.80	---	---
OW-05S	10/8/2014	3900	7.7	2700	8.200	1200	2.40	210	2.80	---	---
OW-05M	10/8/2014	6800	7.7	4000	0.250	2100	4.60	480	2.70	60.0	ND (0.5)
OW-05D	10/8/2014	6800	7.7	4200	ND (0.1)	2100	4.60	480	2.90	67.0	ND (0.5)
OW-05D	10/8/2014 (FD)	6900	FD	4200	ND (0.1)	2100	4.60	480	2.60	62.0	ND (0.5)

NOTES:

ND	parameter not detected at the listed reporting limit
FD	field duplicate
µmhos/cm	micro-mhos per centimeter
NTU	Nephelometric Turbidity Unit
mg/L	milligrams per liter
---	data not collected or available
J	concentration estimated by laboratory or data validation

TABLE 3-1
Injection Rates and Volumes
Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Date	Average Injection Rate (gpm)	Monthly Total (gallons)	Cumulative Total (gallons)	Primary Injection Well in Service
August-05	58.8	2,626,360	2,626,360	IW-2
September-05	67.2	2,904,094	5,530,454	IW-2
October-05	80.6	3,597,275	9,127,729	IW-2
November-05	74.5	3,216,979	12,344,708	IW-2
December-05	103.5	4,622,252	16,966,960	IW-2
January-06	113.5	5,067,560	22,034,520	IW-2
February-06	121.4	4,896,522	26,931,042	IW-2
March-06	121.1	5,405,223	32,336,265	IW-2
April-06	116.7	5,039,655	37,375,920	IW-2
May-06	118.9	5,305,831	42,681,751	IW-2
June-06	116.9	5,050,593	47,732,344	IW-2
July-06	119.2	5,322,857	53,055,201	IW-2
August-06	121.6	5,429,628	58,484,829	IW-3
September-06	121	5,229,047	63,713,876	IW-3
October-06	122.6	5,473,384	69,187,260	IW-3
November-06	122.1	5,275,516	74,462,776	IW-3
December-06	124.1	5,542,012	80,004,788	IW-3
January-07	123.5	5,510,915	85,515,703	IW-3
February-07	126	5,079,402	90,595,105	IW-3
March-07	123.8	5,525,669	96,120,774	IW-2
April-07	96.5	4,169,396	100,290,170	IW-3
May-07	126.8	5,658,656	105,948,826	IW-3
June-07	127.3	5,499,332	111,448,158	IW-3
July-07	122.1	5,448,764	116,896,922	IW-2
August-07	125.8	5,614,418	122,511,340	IW-3
September-07	128.1	5,531,784	128,043,124	IW-3
October-07	128.1	5,717,776	133,760,900	IW-3
November-07	124.1	5,361,317	139,122,217	IW-3
December-07	124.6	5,560,689	144,682,906	IW-3
January-08	123.1	5,492,958	150,175,864	IW-3
February-08	126.5	5,283,674	155,459,538	IW-3
March-08	124.3	5,550,583	161,010,121	IW-3
April-08	93.5	4,040,973	165,051,094	IW-3

TABLE 3-1
Injection Rates and Volumes
Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Date	Average Injection Rate (gpm)	Monthly Total (gallons)	Cumulative Total (gallons)	Primary Injection Well in Service
May-08	124.2	5,542,847	170,593,941	IW-3
June-08	128.6	5,553,857	176,147,798	IW-3
July-08	127.4	5,685,501	181,833,299	IW-3
August-08	127.7	5,702,022	187,535,321	IW-2
September-08	120.2	5,193,691	192,729,012	IW-3
October-08	125.7	5,613,447	198,342,459	IW-2
November-08	128.4	5,548,109	203,890,568	IW-3
December-08	124.2	5,542,252	209,432,820	IW-3
January-09	123.6	5,517,257	214,950,079	IW-3
February-09	131.5	5,303,429	220,253,508	IW-3
March-09	125.9	5,618,103	225,871,612	IW-3
April-09	101.2	4,372,758	230,244,370	IW-3
May-09	122.8	5,482,349	235,726,719	IW-3
June-09	125.5	5,420,397	241,147,116	IW-2
July-09	83.4	3,725,059	244,872,175	IW-3
August-09	127.3	5,680,943	250,553,118	IW-3
September-09	93.7	4,046,699	254,599,817	IW-2
October-09	131.1	5,853,536	260,453,352	IW-2
November-09	130.5	5,639,433	266,092,786	IW-2
December-09	120.5	5,377,155	271,469,941	IW-3
January-10	126.3	5,637,472	277,107,412	IW-3
February-10	124.8	5,031,840	282,139,252	IW-3
March-10	126.0	5,625,524	287,764,777	IW-3
April-10	112.0	4,839,690	292,604,467	IW-3
May-10	131.8	5,882,290	298,486,757	IW-3
June-10	123.9	5,354,115	303,840,872	IW-3
July-10	120.8	5,390,898	309,231,770	IW-2
August-10	118.8	5,302,122	314,533,892	IW-3
September-10	131.2	5,667,255	320,201,147	IW-3
October-10	126.8	5,658,794	325,859,940	IW-2
November-10	130.3	5,629,913	331,489,853	IW-2
December-10	129.4	5,774,967	337,264,820	IW-3
January-11	126.5	5,647,947	342,912,767	IW-3

TABLE 3-1
Injection Rates and Volumes
Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Date	Average Injection Rate (gpm)	Monthly Total (gallons)	Cumulative Total (gallons)	Primary Injection Well in Service
February-11	129.2	5,208,707	348,121,474	IW-2
March-11	128.8	5,747,411	353,868,885	IW-3
April-11	113.5	4,903,434	358,772,319	IW-2
May-11	130.5	5,825,578	364,597,897	IW-2
June-11	121.2	5,236,904	369,834,802	IW-2
July-11	125.0	5,580,178	375,414,979	IW-2
August-11	114.7	5,120,270	380,535,249	IW-3
September-11	130.0	5,614,683	386,149,933	IW-3
October-11	128.8	5,748,120	391,898,052	IW-3
November-11	129.7	5,603,492	397,501,544	IW-2
December-11	129.6	5,784,322	403,285,866	IW-2
January-12	130.8	5,837,548	409,123,414	IW-3
February-12	130.1	5,432,832	414,556,246	IW-2
March-12	128.8	5,747,601	420,303,847	IW-2
April-12	115.2	4,975,734	425,279,582	IW-3
May-12	133.3	5,951,440	431,231,022	IW-3
June-12	134.2	5,795,380	437,026,402	IW-3
July-12	133.4	5,954,462	442,980,863	IW-3
August-12	114.0	5,091,104	448,071,968	IW-2
September-12	130.9	5,654,269	453,726,237	IW-2
October-12	132.1	5,896,425	459,622,662	IW-3
November-12	131.6	5,686,609	465,309,270	IW-3
December-12	130.9	5,841,981	471,151,251	IW-3
January-13	131.2	5,855,164	477,006,415	IW-3
February-13	130.9	5,279,234	482,285,649	IW-3
March-13	134.5	6,005,382	488,291,032	IW-3
April-13	117.4	5,073,222	493,364,254	IW-2
May-13	134.2	5,989,613	499,353,867	IW-2
June-13	128.0	5,528,925	504,882,792	IW-3
July-13	128.9	5,755,955	510,638,747	IW-3
August-13	114.3	5,101,661	515,740,408	IW-3
September-13	131.9	5,697,317	521,437,725	IW-3
October-13	135.1	6,031,939	527,469,664	IW-3

TABLE 3-1
Injection Rates and Volumes
Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Date	Average Injection Rate (gpm)	Monthly Total (gallons)	Cumulative Total (gallons)	Primary Injection Well in Service
November-13	129.6	5,597,036	533,066,700	IW-3
December-13	133.9	5,977,834	539,044,534	IW-2
January-14	133.1	5,943,725	544,988,259	IW-2
February-14	132.1	5,327,968	550,316,227	IW-2
March-14	130.6	5,828,858	556,145,086	IW-2
April-14	115.7	4,997,542	561,142,628	IW-2
May-14	133.9	5,978,013	567,120,640	IW-3
June-14	122.3	5,282,957	572,403,598	IW-3
July-14	129.1	5,765,249	578,168,847	IW-2
August-14	116.0	5,177,316	583,346,163	IW-2
September-14	131.8	5,693,165	589,039,328	IW-2
October-14	133.9	5,978,467	595,017,795	IW-2
November-14	131.0	5,659,761	600,677,556	IW-2
December-14	132.2	5,902,346	606,579,902	IW-2

Source: The injection flow rate is measured by flow meters mounted in the piping leading into IW-2 and IW-3. Data are logged in the IM No. 3 control system, from which this information is reported.

TABLE 3-2

Manual Water Level Measurements and Elevations, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location ID	Well Depth (feet btoc)	Measuring Point Elevation (feet amsl)	Monitoring Date & Time		Water Level Measurement (feet btoc)	Salinity (%)	Groundwater/Water Elevation Adjusted for Salinity (feet amsl)
CW-01M	190.0	566.07	06-Aug-14	11:06 AM	108.46	0.50	457.55
			21-Oct-14	12:38 PM	109.06	0.50	456.95
CW-01D	300.2	566.46	06-Aug-14	11:08 AM	108.54	0.50	457.81
			21-Oct-14	12:40 PM	109.19	0.50	457.16
CW-02M	208.3	549.45	06-Aug-14	11:14 AM	92.05	0.51	457.32
			21-Oct-14	12:44 PM	92.57	0.51	456.80
CW-02D	355.0	549.43	06-Aug-14	11:17 AM	91.59	0.50	457.60
			21-Oct-14	12:47 PM	92.12	0.50	457.07
CW-03M	222.0	534.10	06-Aug-14	11:20 AM	76.91	0.62	457.21
			21-Oct-14	12:51 PM	77.39	0.62	456.73
CW-03D	340.0	534.14	06-Aug-14	11:22 AM	76.27	0.51	457.64
			21-Oct-14	12:54 PM	76.77	0.51	457.14
CW-04M	169.8	518.55	06-Aug-14	11:29 AM	60.80	0.49	457.68
			21-Oct-14	1:03 PM	61.34	0.49	457.14
CW-04D	303.0	518.55	06-Aug-14	11:32 AM	60.62	0.50	457.72
			21-Oct-14	1:01 PM	61.21	0.50	457.13
OW-01S	113.5	550.21	06-Aug-14	11:39 AM	92.94	0.37	457.25
			21-Oct-14	1:09 PM	93.51	0.37	456.67
OW-01M	185.8	550.36	06-Aug-14	11:41 AM	92.72	0.47	457.55
			21-Oct-14	1:11 PM	93.02	0.47	457.25
OW-01D	277.3	550.36	06-Aug-14	11:44 AM	92.38	0.49	457.82
			21-Oct-14	1:14 PM	92.56	0.49	457.64
OW-02S	103.6	548.88	06-Aug-14	11:48 AM	91.58	0.15	457.27
			21-Oct-14	1:18 PM	92.13	0.15	456.71
OW-02M	210.3	548.52	06-Aug-14	11:50 AM	90.86	0.45	457.52
			21-Oct-14	1:20 PM	90.90	0.45	457.48
OW-02D	340.0	549.01	06-Aug-14	11:53 AM	90.79	0.51	458.01
			21-Oct-14	1:23 PM	90.86	0.51	457.95
OW-05S	110.3	551.83	06-Aug-14	11:56 AM	94.41	0.29	457.40
			21-Oct-14	1:27 PM	94.97	0.29	456.82
OW-05M	250.3	551.81	06-Aug-14	11:59 AM	93.25	0.50	458.56
			21-Oct-14	1:30 PM	94.38	0.50	457.32
OW-05D	350.0	552.41	06-Aug-14	12:02 PM	94.01	0.55	458.53
			21-Oct-14	1:32 PM	94.99	0.55	457.30

TABLE 3-2

Manual Water Level Measurements and Elevations, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Notes:

amsl above mean sea level
btoc below top of polyvinyl chloride (PVC) casing
% percentage

Salinity used to adjust water level to freshwater equivalent. Salinity values have been averaged in accordance with the Performance Monitoring Program.

TABLE 3-3

Field Parameter and Manual Water Level Measurements for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location ID	Sampling Date	Specific Conductance (µmhos/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Salinity (%)	Depth To Water (feet btoc)
CW-01M	10/2/2014	7,828	29.50	7.4	-104	7.64	1	0.51	109.11
CW-01D	10/2/2014	7,770	28.40	7.6	-129	6.82	1	0.50	109.26
CW-02M	10/2/2014	7,670	30.40	7.8	-82	7.42	1	0.50	92.52
CW-02D	10/2/2014	7,651	30.40	7.9	-92	7.29	1	0.49	92.14
CW-03M	10/7/2014	9,120	30.20	7.6	-68	4.36	0.2	0.59	77.51
CW-03D	10/7/2014	7,933	30.60	7.8	-40	7.07	0.1	0.51	76.90
CW-04M	10/7/2014	7,642	29.90	7.6	-61	6.58	0.3	0.49	61.51
CW-04D	10/7/2014	7,984	30.50	7.8	-60	7.53	0.3	0.52	61.40
OW-01S	10/7/2014	5,335	29.60	7.6	-55	7.64	1	0.35	93.55
OW-01M	10/7/2014	8,018	28.60	7.6	-63	7.80	1	0.52	93.06
OW-01D	10/7/2014	7,940	27.80	7.6	-69	7.98	1	0.51	92.75
OW-02S	10/8/2014	2,274	29.10	7.9	14	8.13	2	0.15	92.22
OW-02M	10/8/2014	7,936	29.60	7.5	7	8.53	0.4	0.51	91.00
OW-02D	10/8/2014	7,940	28.70	7.7	10	7.37	1	0.51	91.08
OW-05S	10/8/2014	4,480	29.00	7.7	-22	6.54	0.4	0.29	95.06
OW-05M	10/8/2014	7,865	28.10	7.7	-20	7.00	0.4	0.51	94.48
OW-05D	10/8/2014	7,849	28.60	7.7	-27	6.49	0.3	0.51	95.07

Notes:

µmhos/cm	micro-mhos per centimeter
°C	degree centigrade
ORP	oxidation reduction potential
mV	millivolts
mg/L	milligrams per liter
NTU	Nephelometric Turbidity Unit
%	percentage
btoc	below top of polyvinyl chloride (PVC) casing

Salinity is calculated using the specific conductance field measurement, the last measurement before sampling.

TABLE 3-4

Vertical Gradients within the OW and CW Clusters

Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Well Pairs	Vertical Gradient (ft/ft)a
CW-01D to CW-01M	0.0019
CW-02D to CW-02M	0.0020
CW-03D to CW-03M	0.0042
CW-04D to CW-04M	-0.0001
OW-01M to OW-01S	0.0076
OW-01D to OW-01M	0.0042
OW-02M to OW-02S	0.0068
OW-02D to OW-02M	0.0039
OW-05M to OW-05S	0.0036
OW-05D to OW-05M	-0.0002

[a] Positive value signifies an upward gradient.

Gradients calculated using October 21, 2014 groundwater levels.

TABLE 4-1

Treated Water Quality Compared to OW and CW Pre-injection Water Quality

Combined CMP Semiannual Groundwater Monitoring Report, Second Half 2014, and
PAR, Interim Measures No. 3, Injection Well Field, PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)	Fluoride (mg/L)	Dissolved Molybdenum (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	TDS (mg/L)
Treated Water	8/29/2005	ND (1.0)	ND (2.1)	1.95	8.3	3.70	450	3,620
Treated Water	10/5/2010	0.31	ND (1.0)	2.05	17.6	2.89	497	4,190
Treated Water	10/7/2014	ND (0.2)	ND (1.0)	1.48	20.8	2.69	497	4,440
OW-01S	7/28/2005	19.4	23.5	2.45	17.2	3.2	114	1,320
OW-01M	7/27/2005	16.3	18.9	2.31	27	1.01	311	3,450
OW-01D	7/27/2005	ND(1.0)	ND(1.3)	1.14	46.1	0.321	441	6,170
OW-02S	7/28/2005	15.3	14.8	3.79	35.6	3.81	126	1,090
OW-02M	7/28/2005	5.4	5.7	2.19	32.4	0.735	342	4,380
OW-02D	7/28/2005	ND(1.0)	ND(1.2)	0.966	51.2	0.1	616	9,550
OW-05S	7/28/2005	23.4	25.6	2.3	17.1	3.55	105	1,060
OW-05M	7/28/2005	8.6	8.8	2.74	35.4	0.621	417	5,550
OW-05D	7/28/2005	ND(1.0)	ND(1.2)	1.11	57	0.151	480	8,970
CW-01M	9/15/2005	18.1	17.8	2.34	21.6	1.11	318	2,990
CW-01D	9/15/2005	ND(1.0)	1.6	0.951	32.1	0.972	379	6,230
CW-02M	9/15/2005	15.8	15.5	2.3	23.1	0.908	342	3,500
CW-02D	9/15/2005	ND(1.0)	1.6	0.982	41.6	0.28	601	8,770
CW-03M	9/15/2005	8.8	8.1	2.57	24.2	0.642	464	4,740
CW-03D	9/15/2005	ND(1.0)	ND(1.0)	1.4	29.2	0.304	672	9,550
CW-04M	9/15/2005	19.2	19	1.5	12.3	1.18	240	3,310
CW-04D	9/15/2005	ND(1.0)	ND(1.0)	1.01	26	0.188	534	7,470

NOTES:

ND = Not detected at the listed reporting limit.
mg/L = milligrams per liter.
µg/L = micrograms per liter.

Hexavalent chromium samples were analyzed using method 7199 in 2005 and then by method E218.6.

Chromium samples were analyzed using method 6020A for samples collected on 7/28/2005, by method 6010B for samples collected on 9/15/2005, by method 6020B for samples collected on 8/29/2005 and by method E200.8 for all other chromium samples.

Chromium samples of the treated water were unfiltered.

TABLE 4-2

Treated Water Quality Compared to Second Half 2014 Sampling Event Water Quality

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)	Fluoride (mg/L)	Molybdenum (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
Treated Water	10/2/2012	0.21	ND (1.0)	2.10	20.4	3.00	497	4,350
Treated Water	10/1/2013	ND (0.2)	ND (1.0)	2.10	23.5	2.92	512	4,410
Treated Water	10/7/2014	ND (0.2)	ND (1.0)	1.48	20.8	2.69	497	4,440
CW-01M	10/2/2014	1.2	ND (1.0)	4.30	22.0	2.60	470	4,200
CW-01D	10/2/2014	0.69	ND (1.0)	4.20	21.0 J	3.40	490	4,200
CW-02M	10/2/2014	2.4	1.9	5.00	18.0	2.50	490	3,800
CW-02D	10/2/2014	0.52	ND (1.0)	4.60	15.0	2.40	470	3,900
CW-03M	10/7/2014	6.8 J	5.4 J	5.90	25.0	1.90	460	5,100
CW-03D	10/7/2014	0.63	ND (1.0)	5.90	16.0 J	2.80 J	480	4,000
CW-03D	10/7/2014 (FD)	0.67	ND (1.0)	5.70	17.0	3.20	480	4,100
CW-04M	10/7/2014	4.4	3.7	4.20	9.6	2.70 J	460	4,200
CW-04D	10/7/2014	0.91	ND (1.0)	5.60	22.0	---	480	4,000
CW-04D	12/23/2014	---	---	---	---	2.70	---	---
OW-01S	10/7/2014	9.8	9.4	3.20	9.7	3.00	290	3,400
OW-01M	10/7/2014	1.1	ND (1.0)	4.80	20.0	3.20	480	4,400
OW-01D	10/7/2014	0.45	ND (1.0)	4.70	24.0	2.70	470	4,200
OW-02S	10/8/2014	21.0	19.0	4.70	37.0	3.70	100	1,200
OW-02M	10/8/2014	0.86	ND (1.0)	4.40	19.0	3.10	470	4,400
OW-02D	10/8/2014	0.32	ND (1.0)	4.80	25.0	2.80	470	4,000
OW-05S	10/8/2014	15.0	14.0	2.40	12.0	2.80	210	2,700
OW-05M	10/8/2014	0.82	ND (1.0)	4.60	23.0	2.70	480	4,000
OW-05D	10/8/2014	0.53	ND (1.0)	4.60	25.0	2.90	480	4,200
OW-05D	10/8/2014 (FD)	0.54	ND (1.0)	4.60	27.0	2.60	480	4,200

TABLE 4-2

Treated Water Quality Compared to Second Half 2014 Sampling Event Water Quality

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Notes:

---	not sampled or required for this event
FD	field duplicate
J	concentration or RL (reporting limit) estimated by laboratory or data validation
ND	parameter not detected at the listed reporting limit
mg/L	milligrams per liter
µg/L	micrograms per liter

All hexavalent chromium samples were analyzed with Method E218.6.

All chromium and molybdenum samples were analyzed with Method E200.8. Chromium and molybdenum samples were field filtered, except for the treated water.

Fluoride and sulfate samples were analyzed with Method E300.0.

All nitrate/nitrite as nitrogen samples were analyzed with Method SM4500NO3E, except for treated water which used Method E300.0.

All total dissolved solid samples were analyzed with Method SM2540C.

Figures

N

0 550 1,100 Feet

1 inch = 550 feet

LEGEND

- Property Line
- Existing IM Extraction Well
- Existing IM Injection Well
- Influent Treatment Facility Pipeline (below ground)
- Effluent Treatment Facility Pipeline (above ground)

Notes: Location map shows Interim Measures No.3 (IM-3) facilities as of of January 2006. Aerial photography taken November 2011.

FIGURE 1-1
SITE LOCATION AND INTERIM MEASURES NO. 3 TREATMENT SYSTEM

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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Document Path: \\Zinfandel\proj\PacificGasElectricCo\TopockProgram\GIS\MapFiles\2014\IM3\FIG1-1_IM3_Facilities.mxd

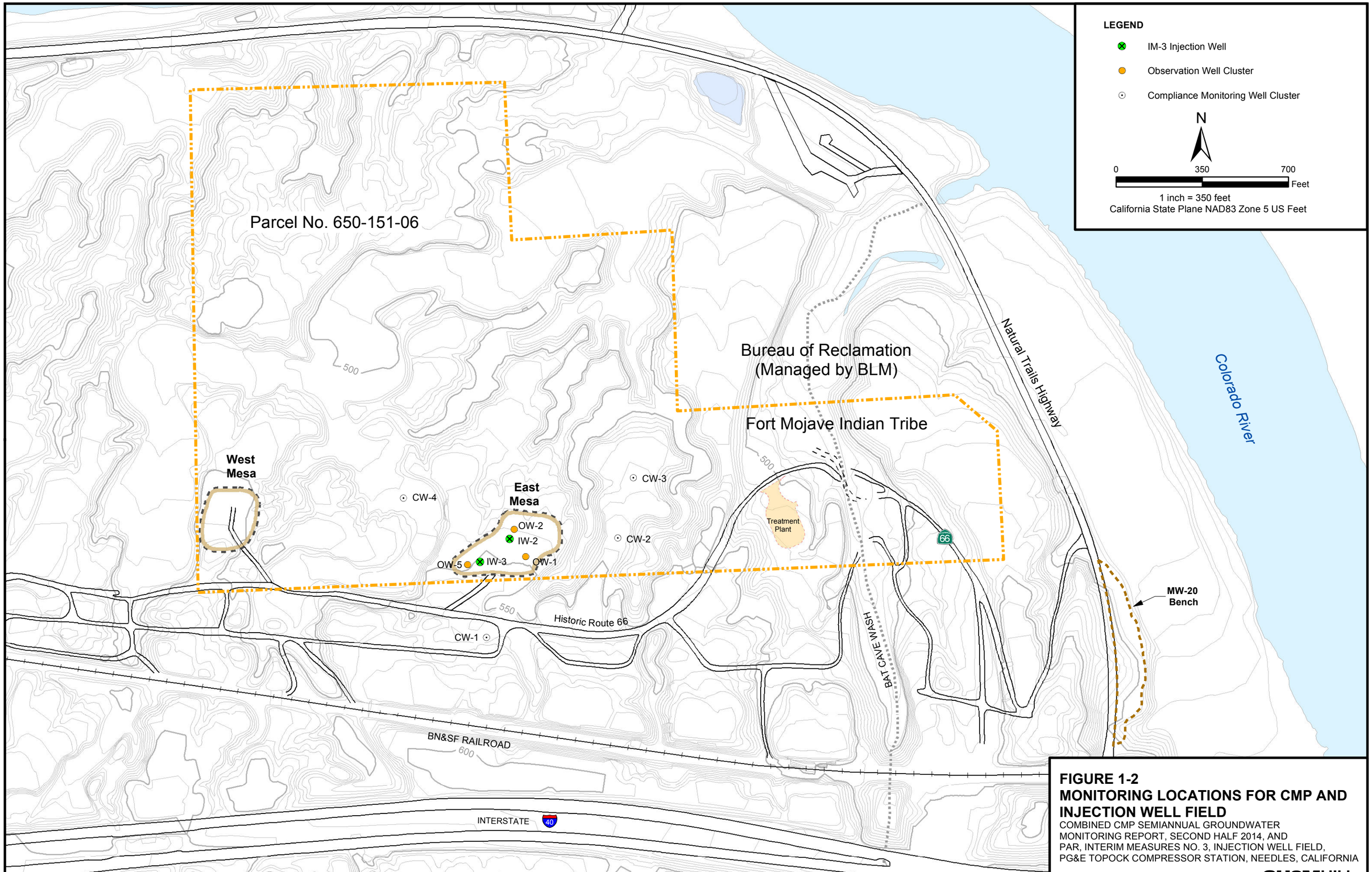

FIGURE 1-2
MONITORING LOCATIONS FOR CMP AND INJECTION WELL FIELD
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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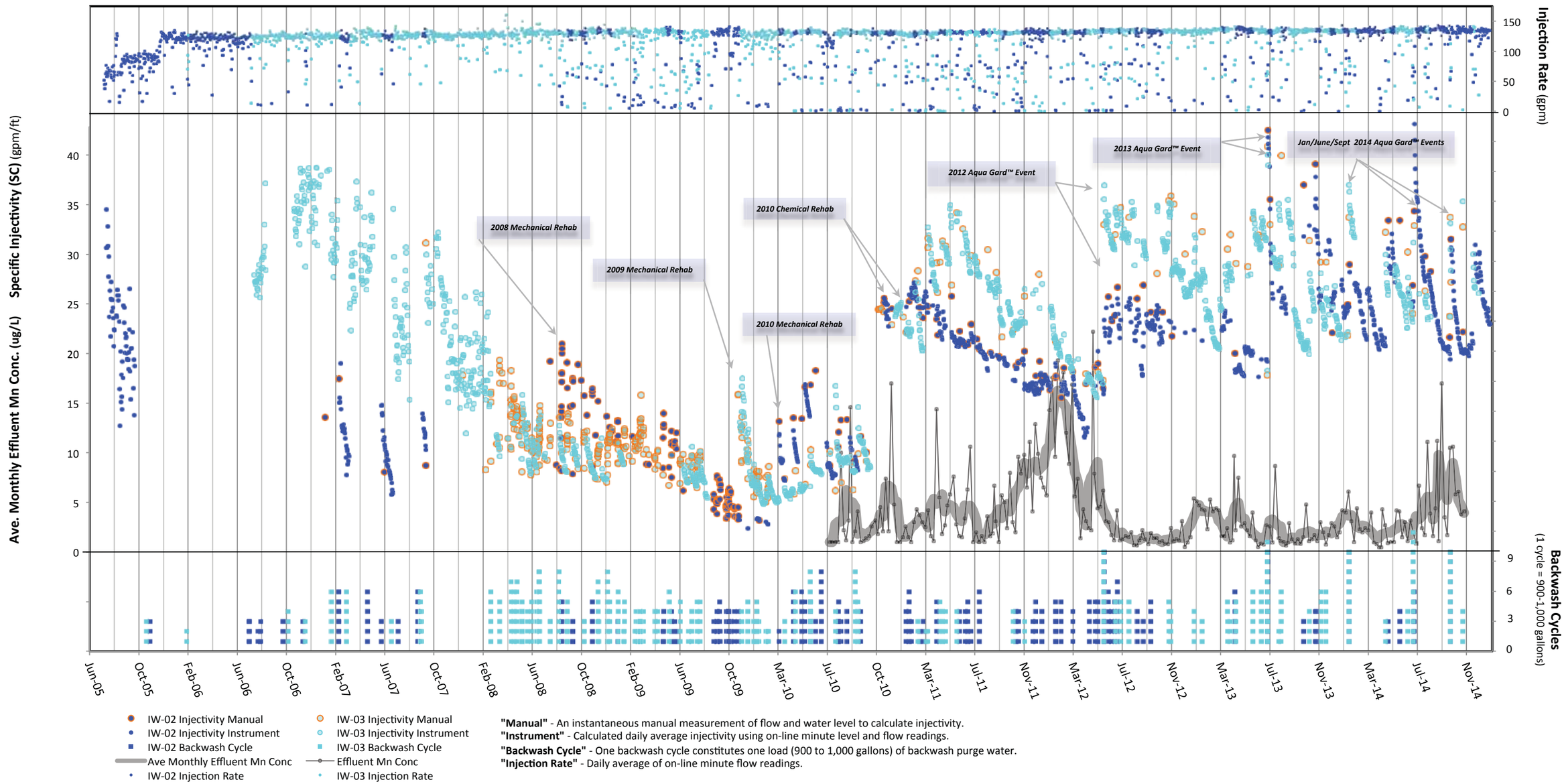

"Manual" - An instantaneous manual measurement of flow and water level to calculate injectivity.
"Instrument" - Calculated daily average injectivity using on-line minute level and flow readings.
"Backwash Cycle" - One backwash cycle constitutes one load (900 to 1,000 gallons) of backwash purge water.
"Injection Rate" - Daily average of on-line minute flow readings.

FIGURE 3-1
IM-3 OPERATION DATA
INJECTION WELL PERFORMANCE
AUGUST 2005 – DECEMBER 2014

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT,
SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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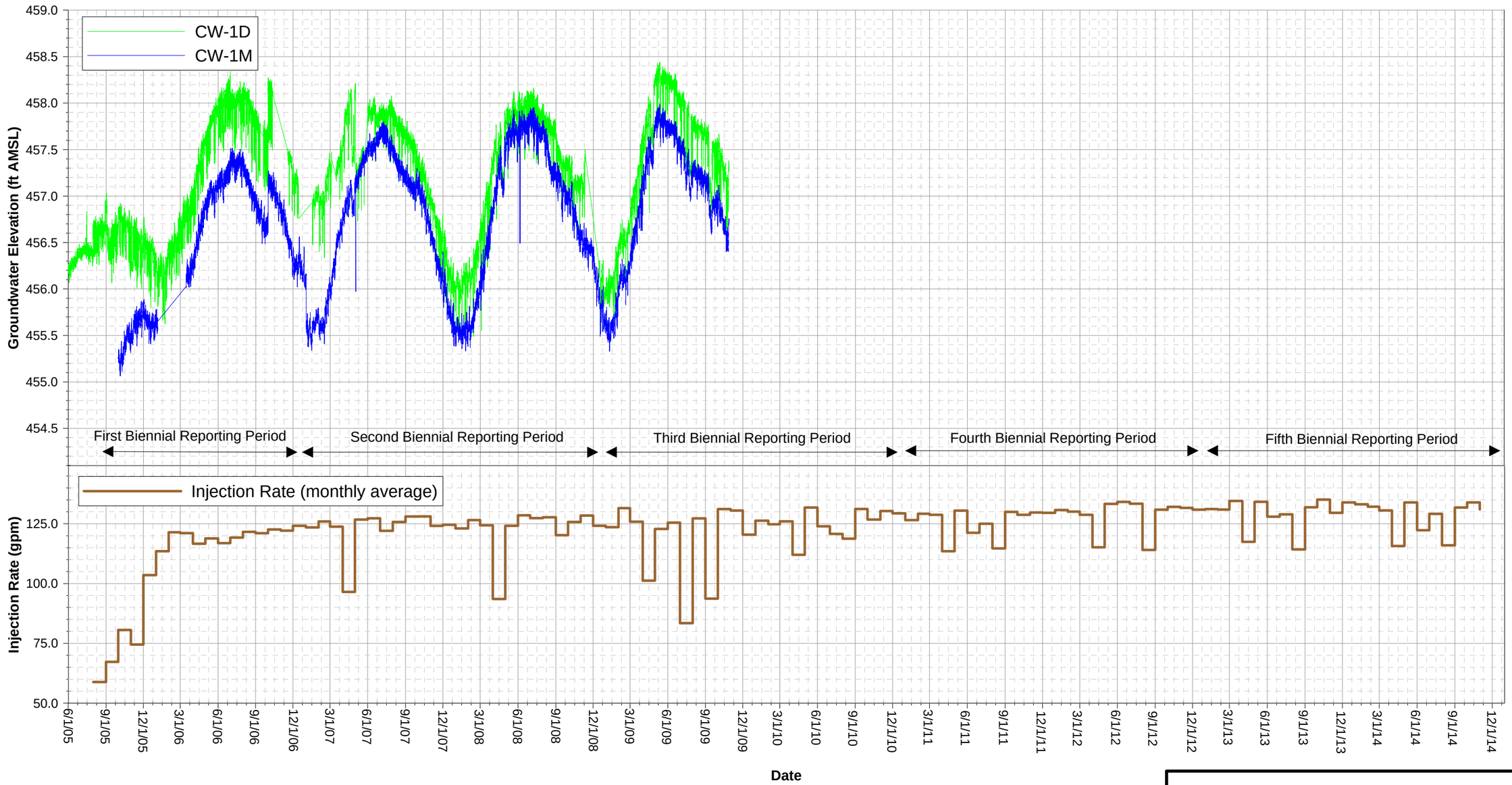

Note: Data subject to review.
See Table 1-1 and Table 3-1 for primary injection wells in service for the reporting period.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at CW-1D and CW-1M.

This Figure will not be included in the next CMP-PAR report since there is no new transducer data.

FIGURE 3-2A
CW-1 HYDROGRAPHS AND IW INJECTION RATE
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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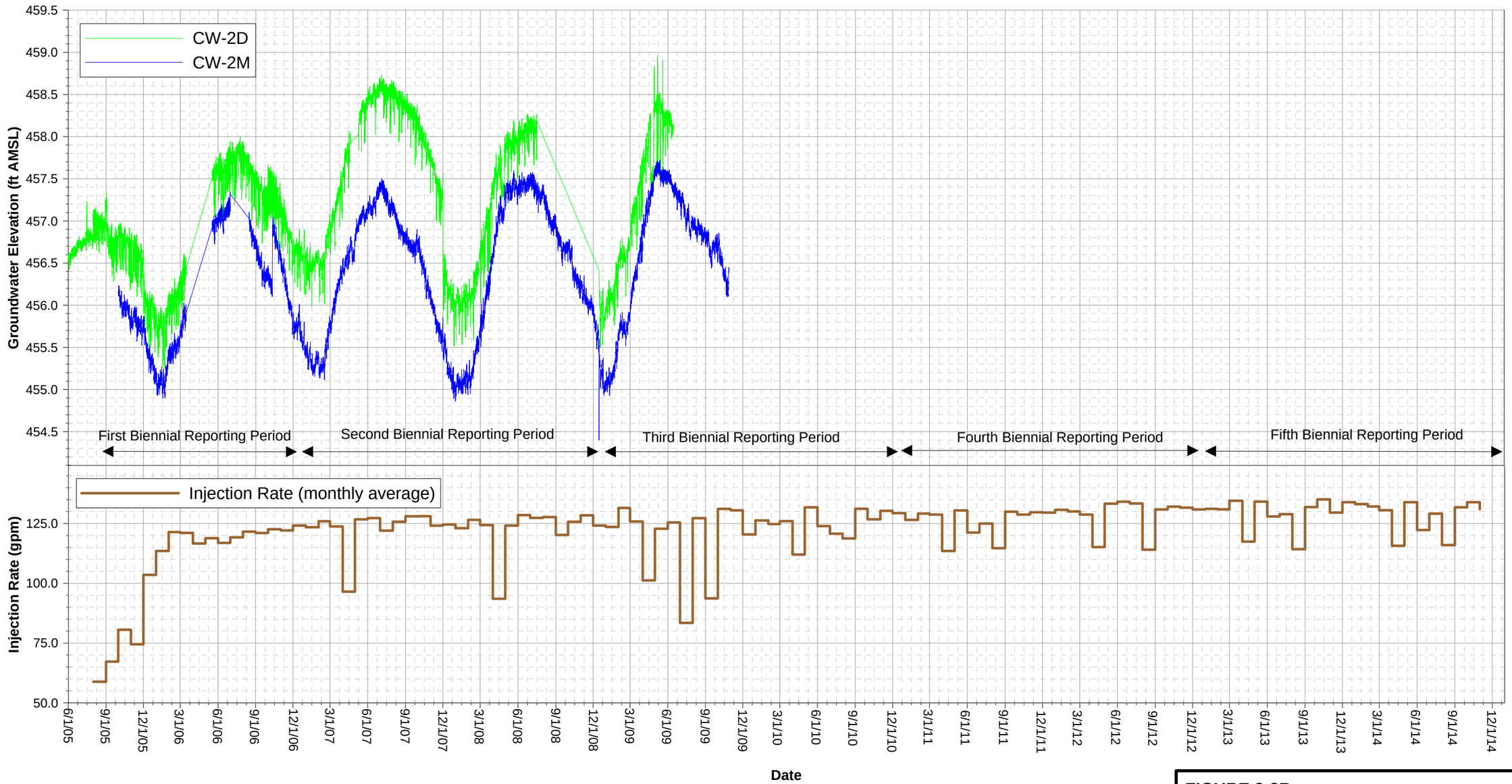

Note: Data subject to review.
See Table 1-1 and Table 3-1 for primary injection wells in service for the reporting period.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at CW-2D and CW-2M.

This Figure will not be included in the next CMP-PAR report since there is no new transducer data.

FIGURE 3-2B
CW-2 HYDROGRAPHS AND IW INJECTION RATE
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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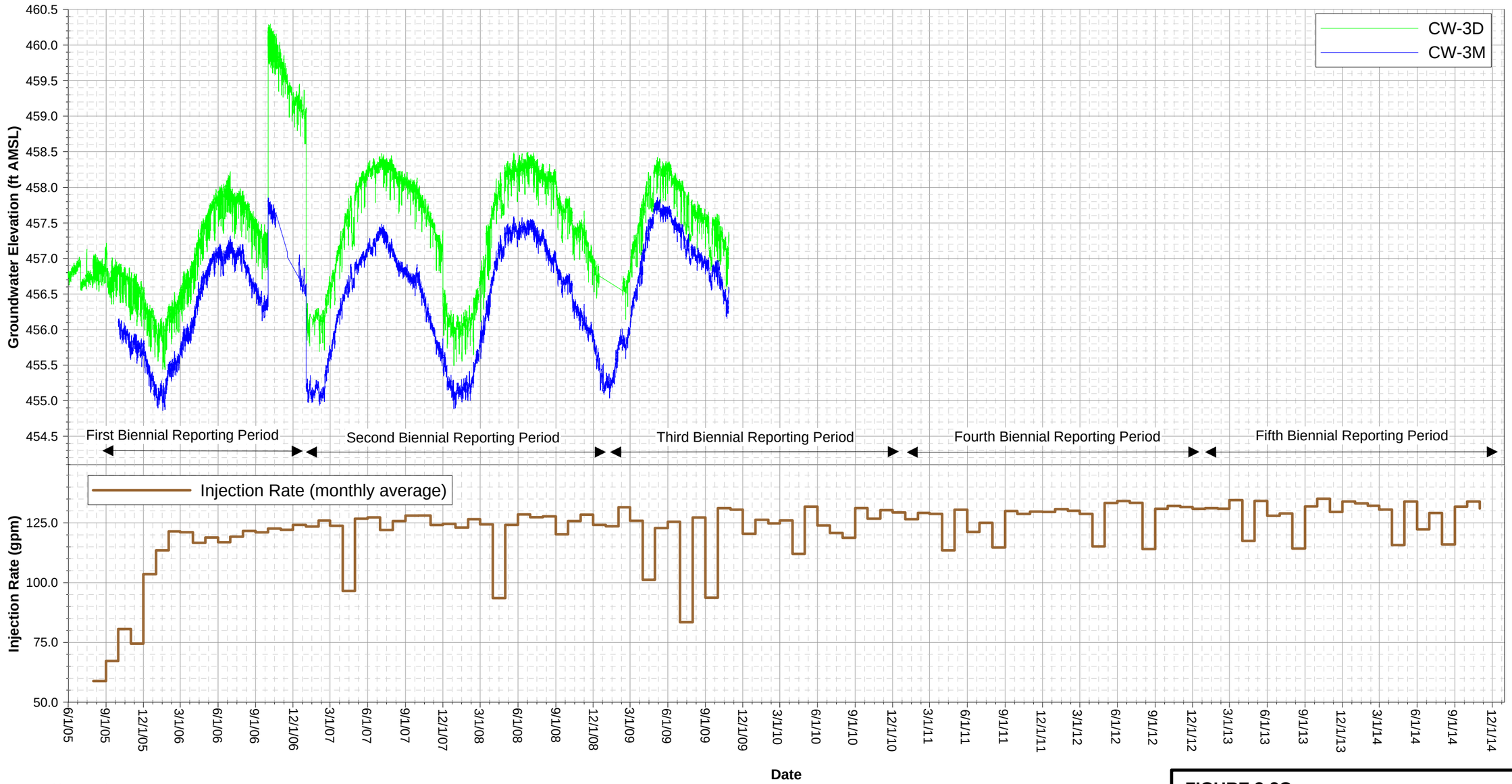

Note: Data subject to review.
See Table 1-1 and Table 3-1 for primary injection wells in service for the reporting period.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at CW-3D and CW-3M.

This Figure will not be included in the next CMP-PAR report since there is no new transducer data.

FIGURE 3-2C
CW-3 HYDROGRAPHS AND IW INJECTION RATE
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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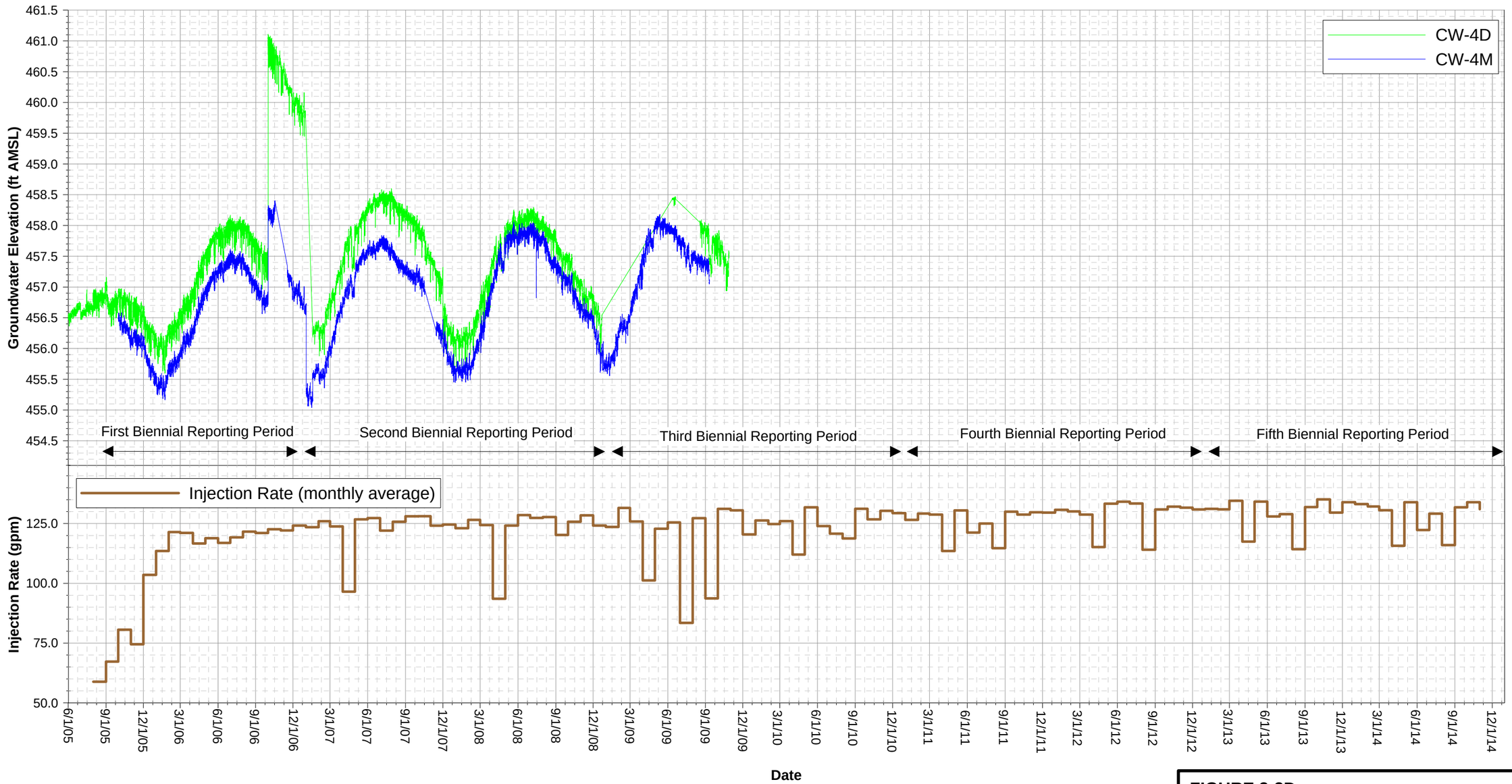

Note: Data subject to review.
See Table 1-1 and Table 3-1 for primary injection wells in service for the reporting period.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at CW-4D and CW-4M.

This Figure will not be included in the next CMP-PAR report since there is no new transducer data.

FIGURE 3-2D
CW-4 HYDROGRAPHS AND IW INJECTION RATE
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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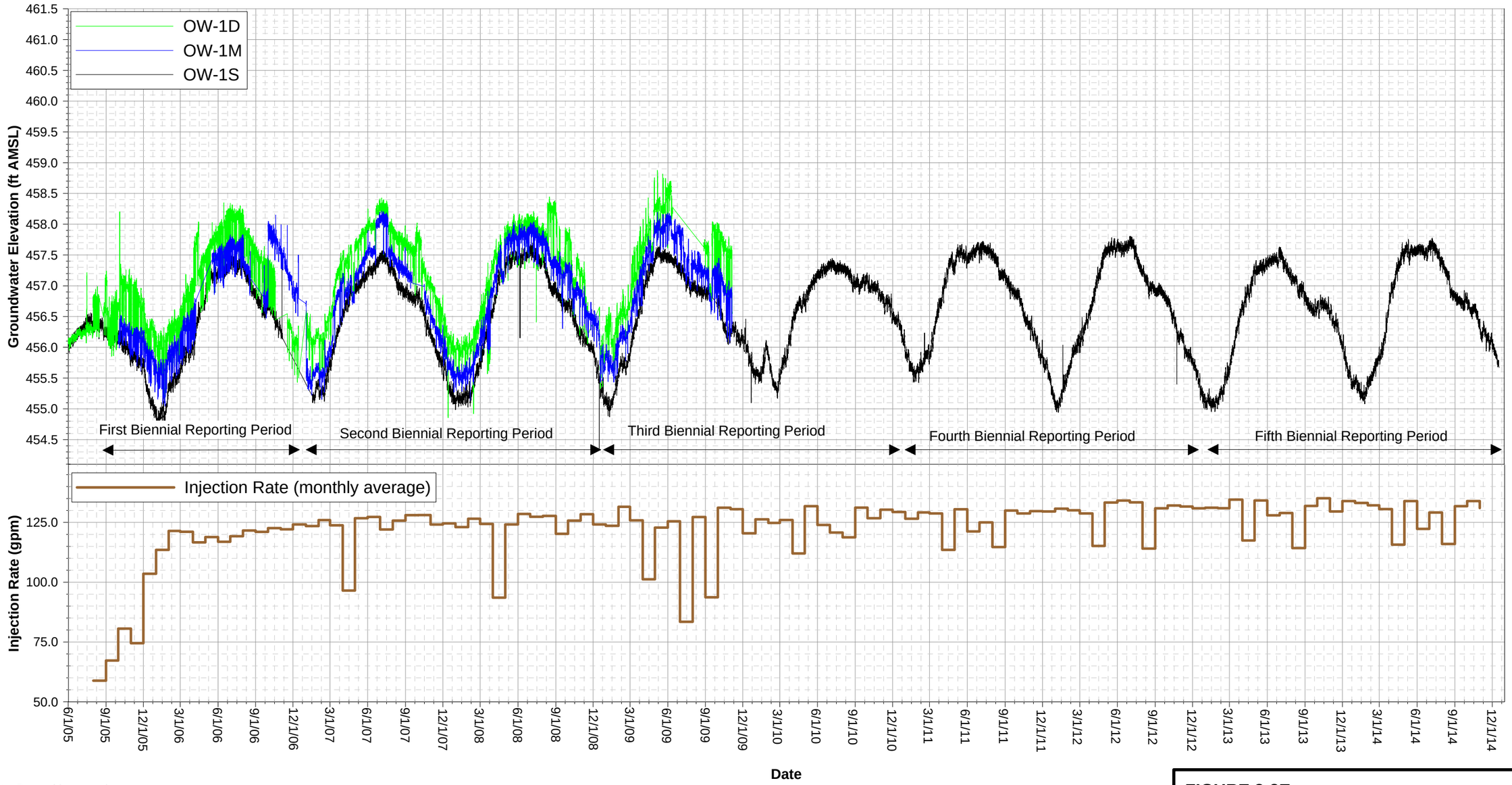

Note: Data subject to review.
See Table 1-1 and Table 3-1 for primary injection wells in service for the reporting period.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at OW-1D and OW-1M.

FIGURE 3-2E
OW-1 HYDROGRAPHS AND IW INJECTION RATE
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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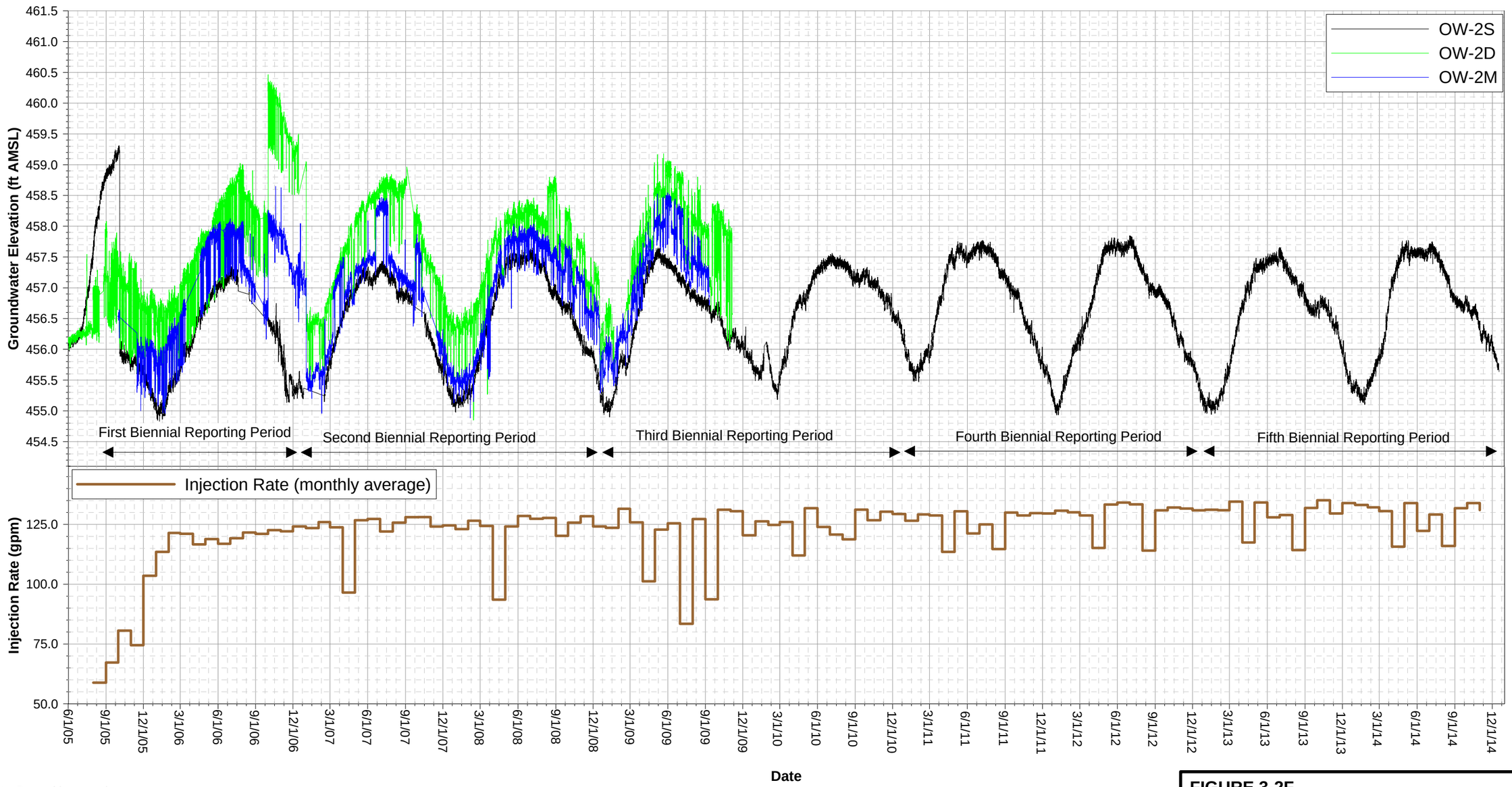

Note: Data subject to review.
See Table 1-1 and Table 3-1 for primary injection wells in service for the reporting period.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at OW-2D and OW-2M.

FIGURE 3-2F
OW-2 HYDROGRAPHS AND IW INJECTION RATE
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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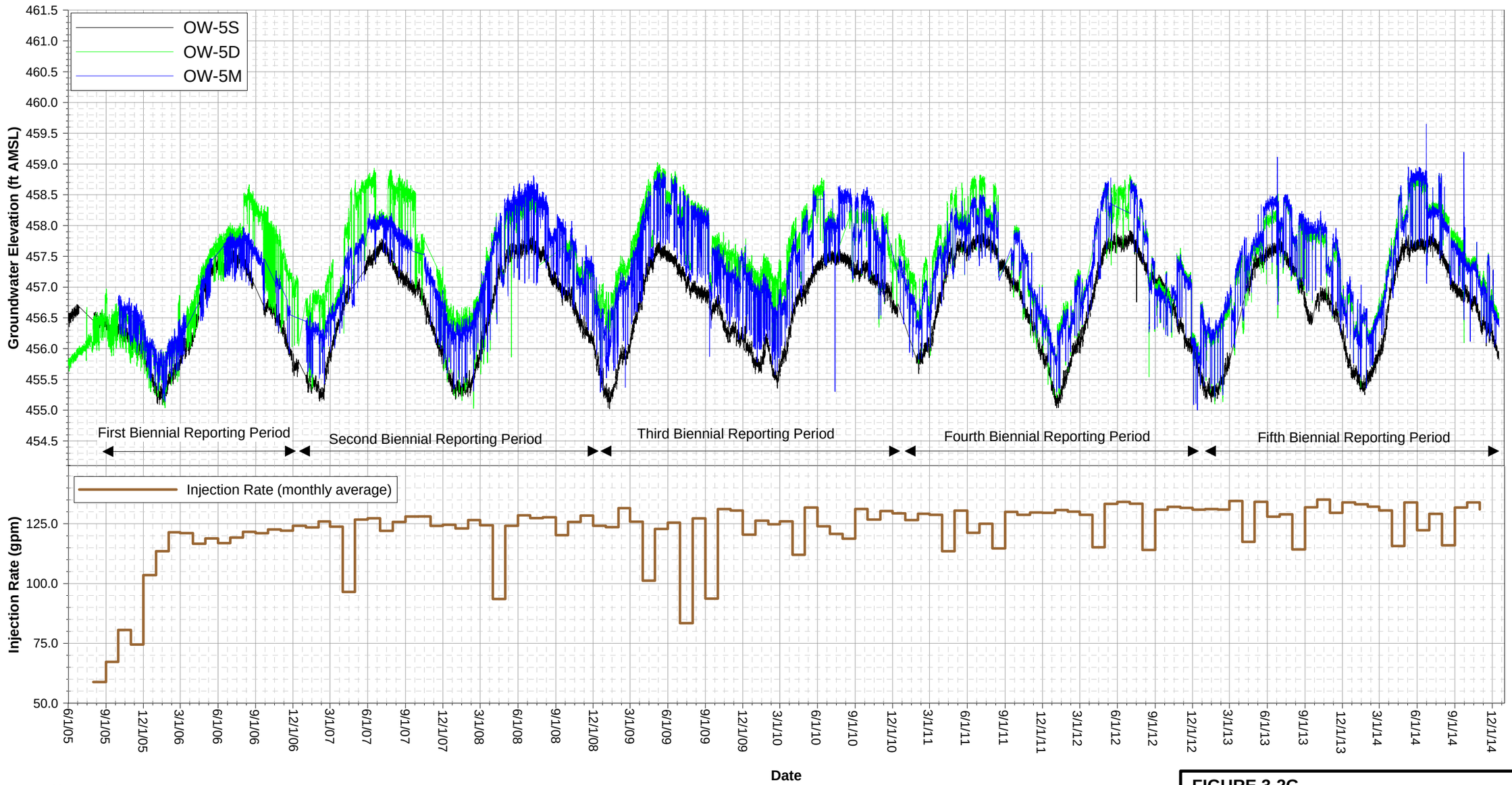

Note: Data subject to review.
See Table 1-1 and Table 3-1 for primary injection wells in service for the reporting period.

OW-5M Data unavailable from May 17, 2012 through July 2, 2012 due to transducer malfunction.

FIGURE 3-2G
OW-5 HYDROGRAPHS AND IW INJECTION RATE
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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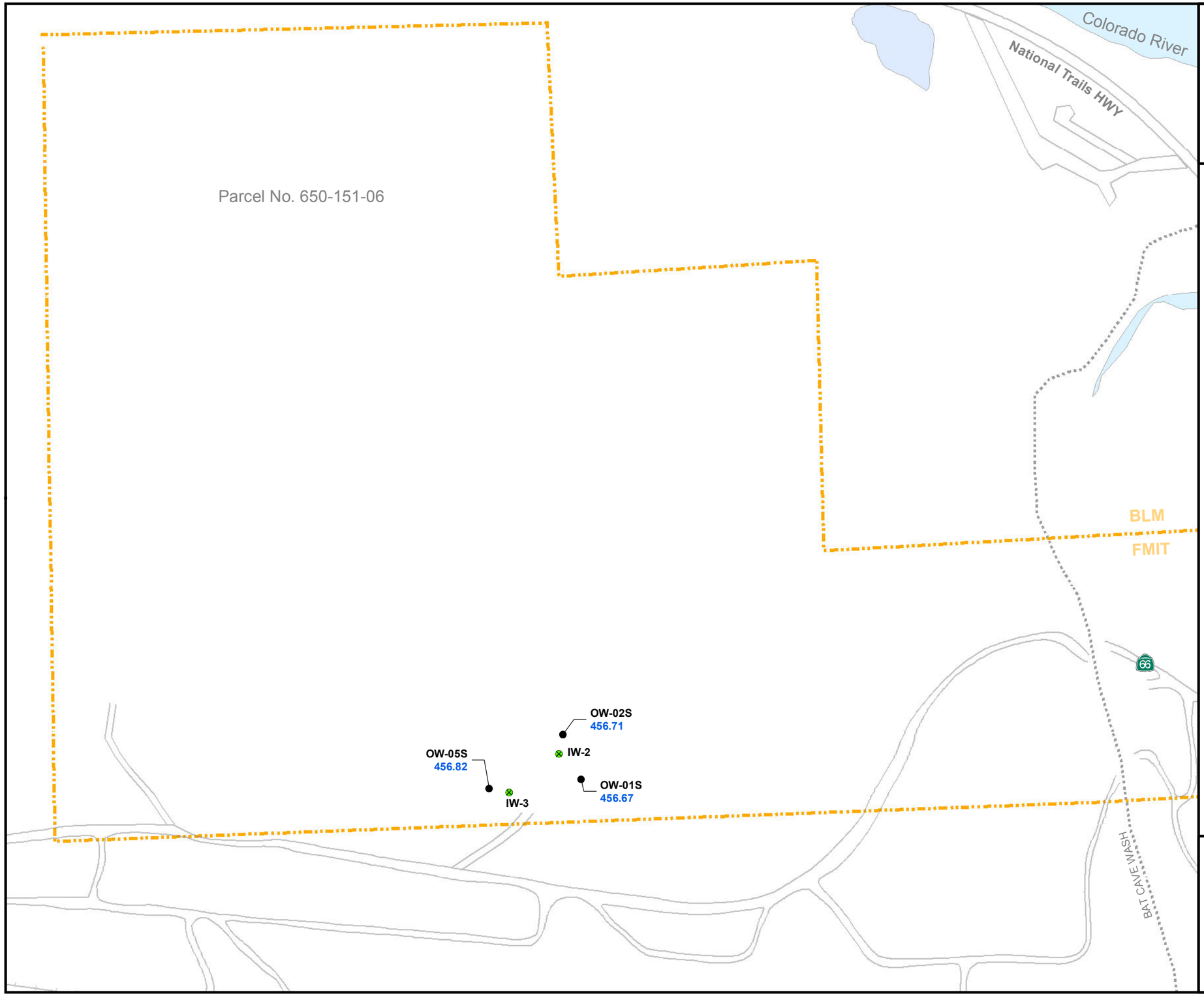

N

0 250 500 Feet

1 inch = 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance, and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Shallow Wells in IM-3 Injection Area

OW-05S 457.63 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).

Notes:
Data posted and contoured from monthly average heads measured with tranducers at 30 minute intervals.

FIGURE 3-3A
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR SHALLOW WELLS, OCTOBER 21, 2014

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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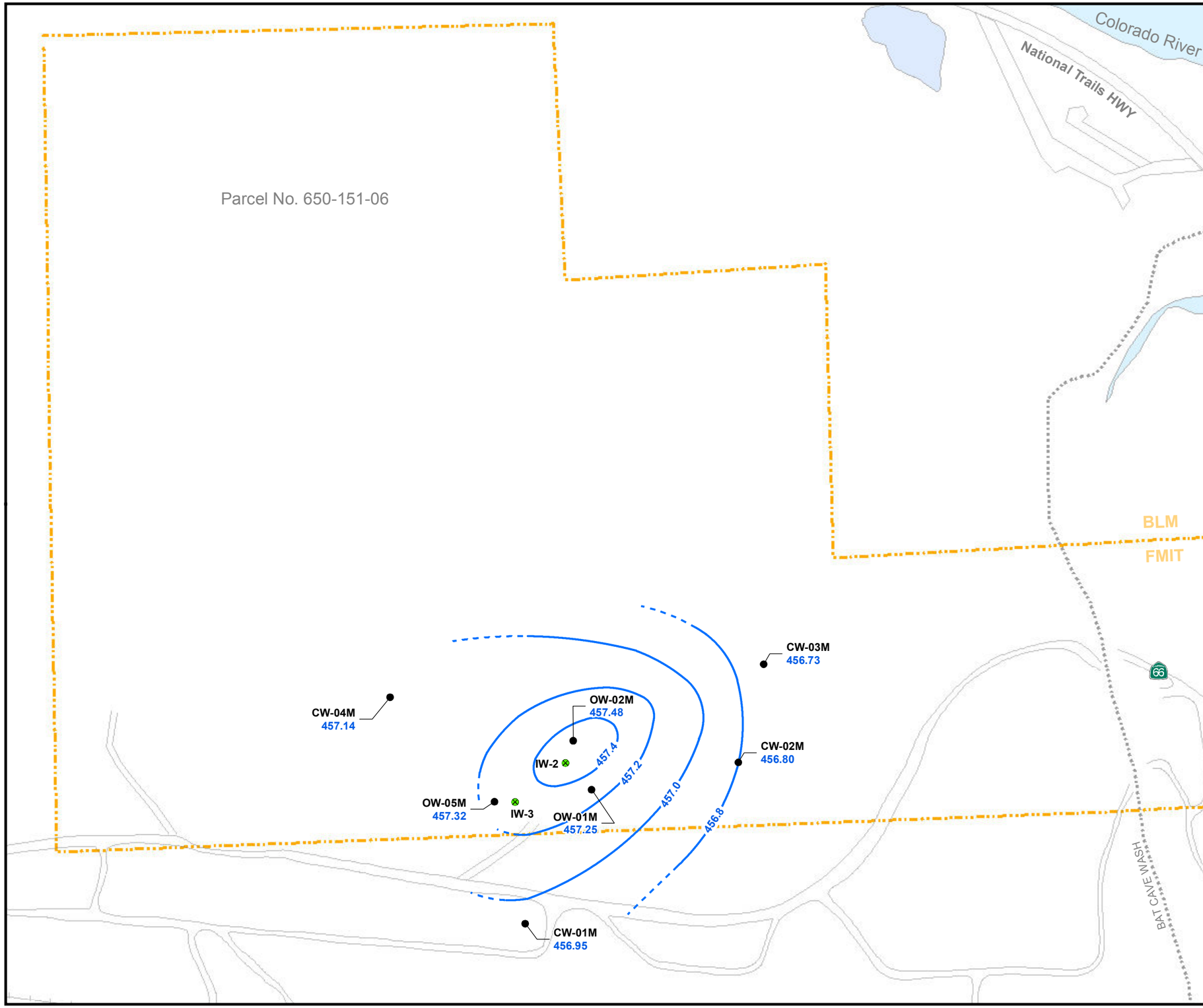

N

0 250 500 Feet

1 inch = 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance, and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Mid-depth Wells in IM-3 Injection Area

OW-05M 457.39 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).

Groudwater elevation contour in feet above MSL (0.2 foot interval). Dashed where inferred.

Notes:
Average monthly groundwater elevations are calculated with pressure transducer data measured at 30 minute intervals.

FIGURE 3-3B
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR MID-DEPTH WELLS, OCTOBER 21, 2014

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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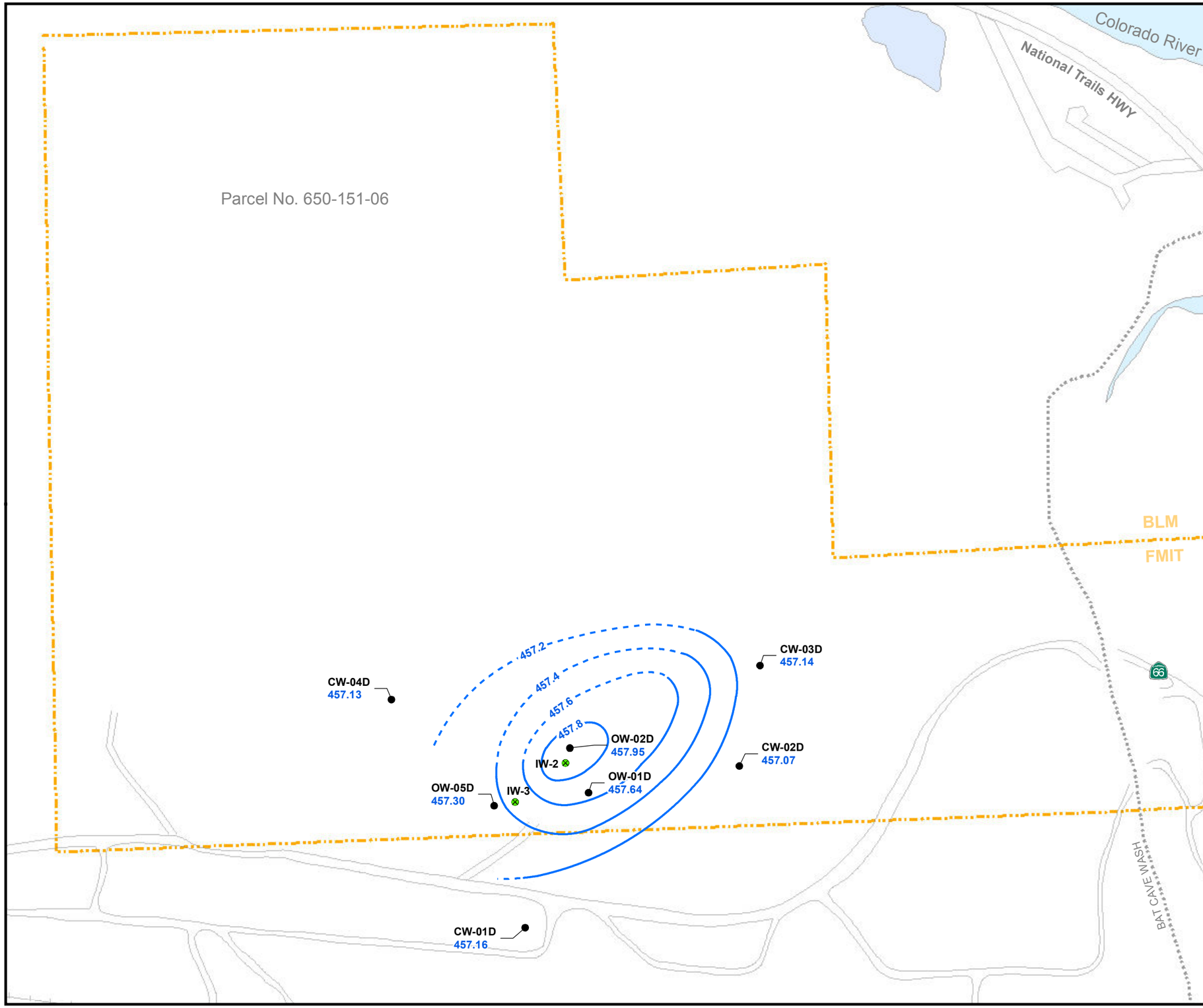

N

0 250 500 Feet

1 inch = 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance, and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Deep Wells in IM-3 Injection Area

OW-05D 458.38 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).

Groudwater elevation contour in feet above MSL (0.2 foot interval). Dashed where inferred.

Notes:
Average monthly groundwater elevations are calculated with pressure transducer data measured at 30 minute intervals.

FIGURE 3-3C
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR DEEP WELLS, OCTOBER 21, 2014

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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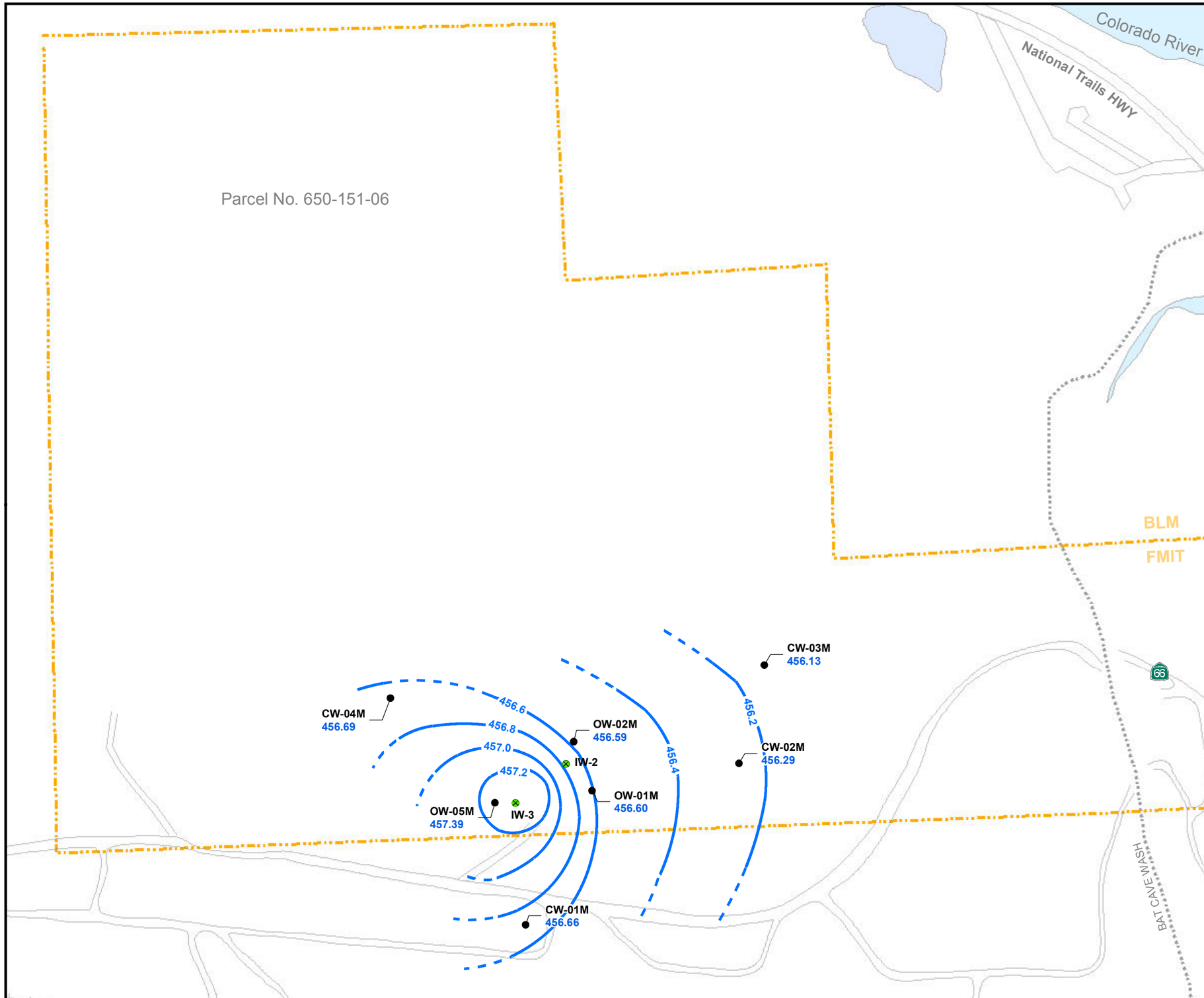

N

0 250 500 Feet

1 inch = 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance, and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Mid-depth Wells in IM-3 Injection Area

OW-05M 457.39 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).

Groudwater elevation contour in feet above MSL (0.2 foot interval). Dashed where inferred.

Notes:
Average monthly groundwater elevations are calculated with pressure transducer data measured at 30 minute intervals.

FIGURE 3-4A
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR MID-DEPTH WELLS, OCTOBER 23, 2012

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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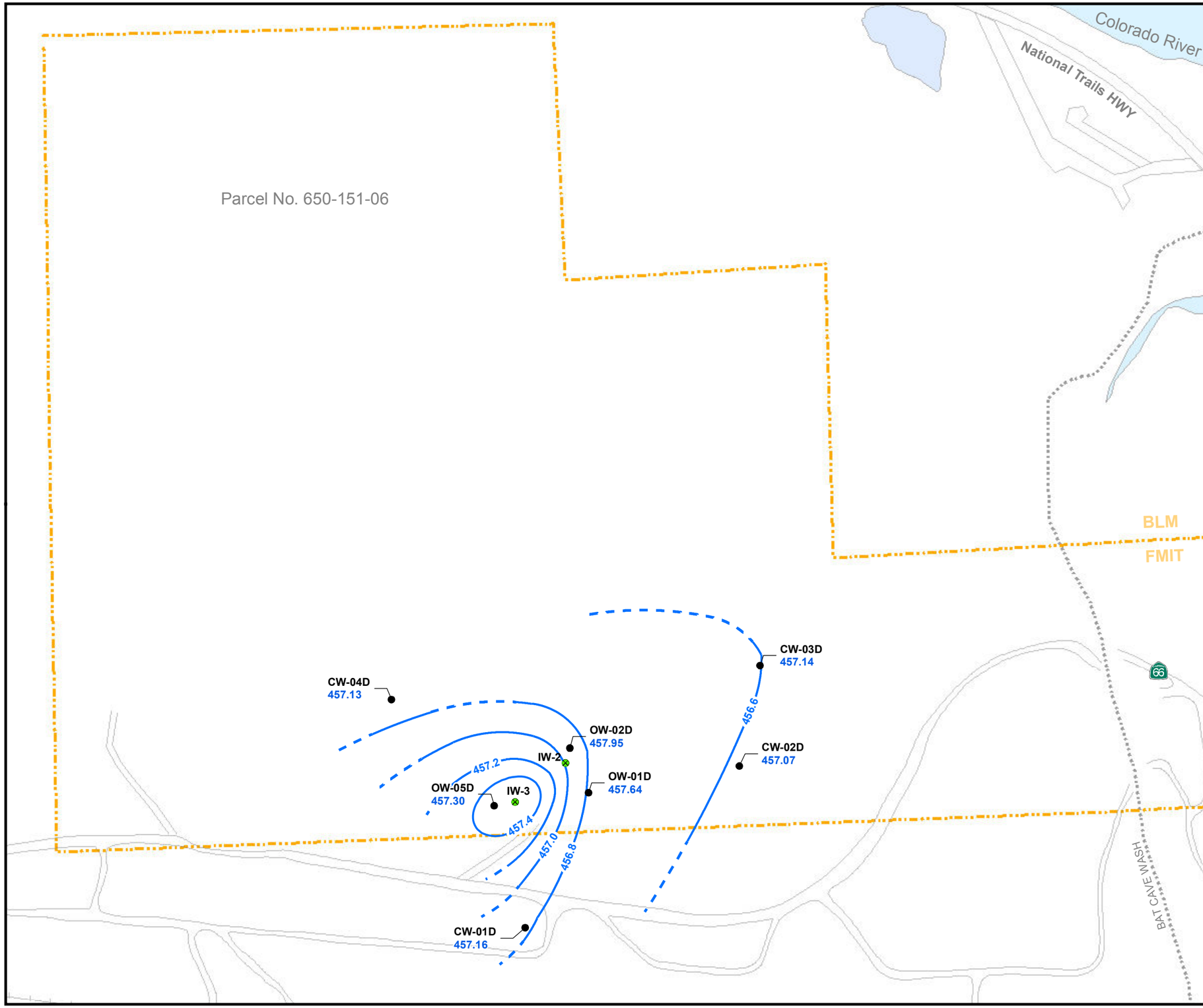

N

0 250 500 Feet

1 inch = 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance, and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Deep Wells in IM-3 Injection Area

OW-05D 458.38 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).

Groudwater elevation contour in feet above MSL (0.2 foot interval). Dashed where inferred.

Notes:
Average monthly groundwater elevations are calculated with pressure transducer data measured at 30 minute intervals.

FIGURE 3-4B
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR DEEP WELLS, OCTOBER 23, 2012

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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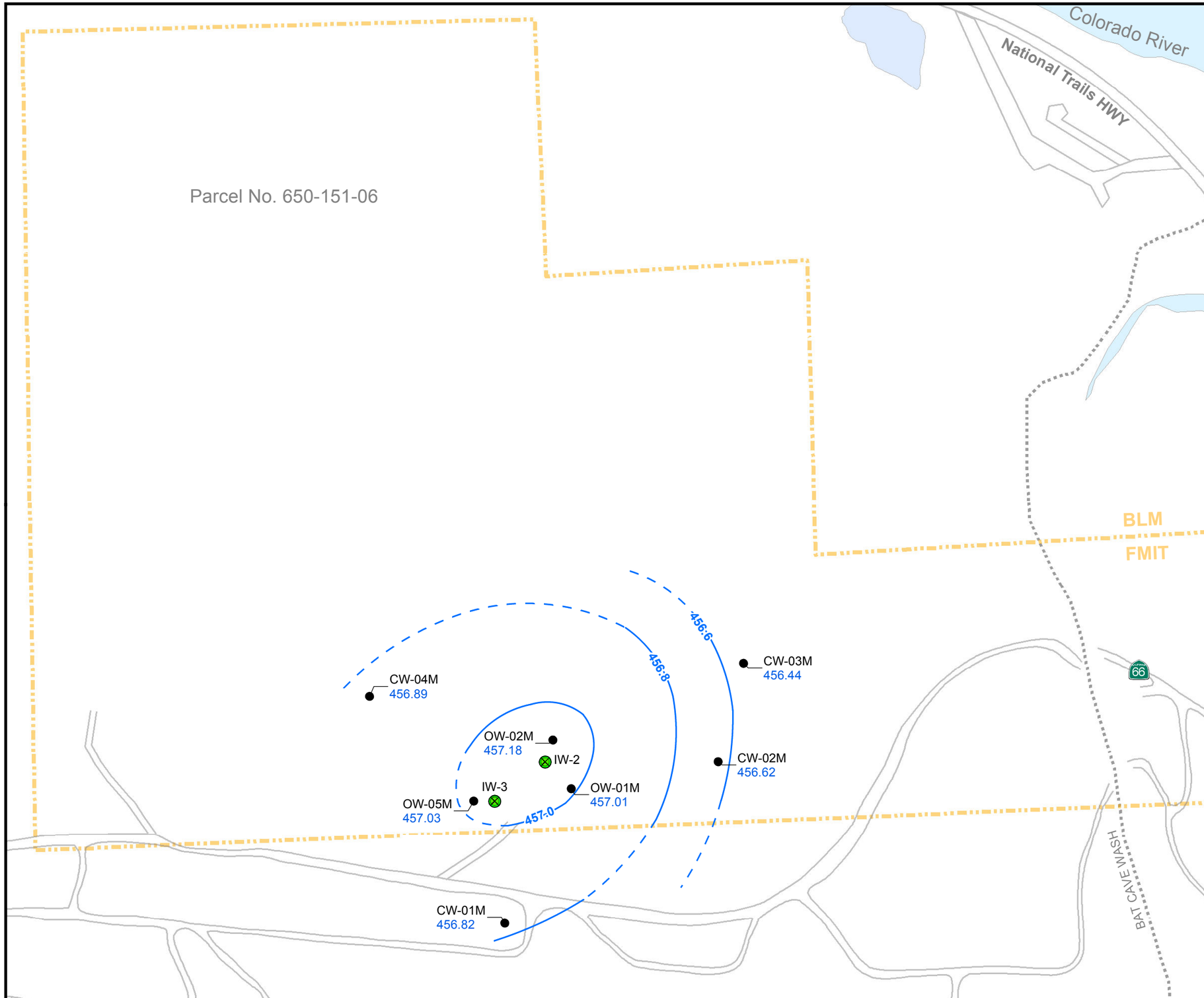

N

0 250 500 Feet

1 inch = 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

IM-3 Injection Well

Groundwater Monitoring, Compliance, and Observation Well

Groundwater Elevations for Mid-Depth Wells in IM-3 Injection Area

OW-05M 457.03 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)

Groundwater elevation contour in feet above MSL (0.2 foot interval), dashed where inferred

Notes:
Data posted and contoured from monthly average heads measured with tranducers at 30 minute intervals.

FIGURE 3-5A
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR MID-DEPTH WELLS, NOVEMBER 29, 2010

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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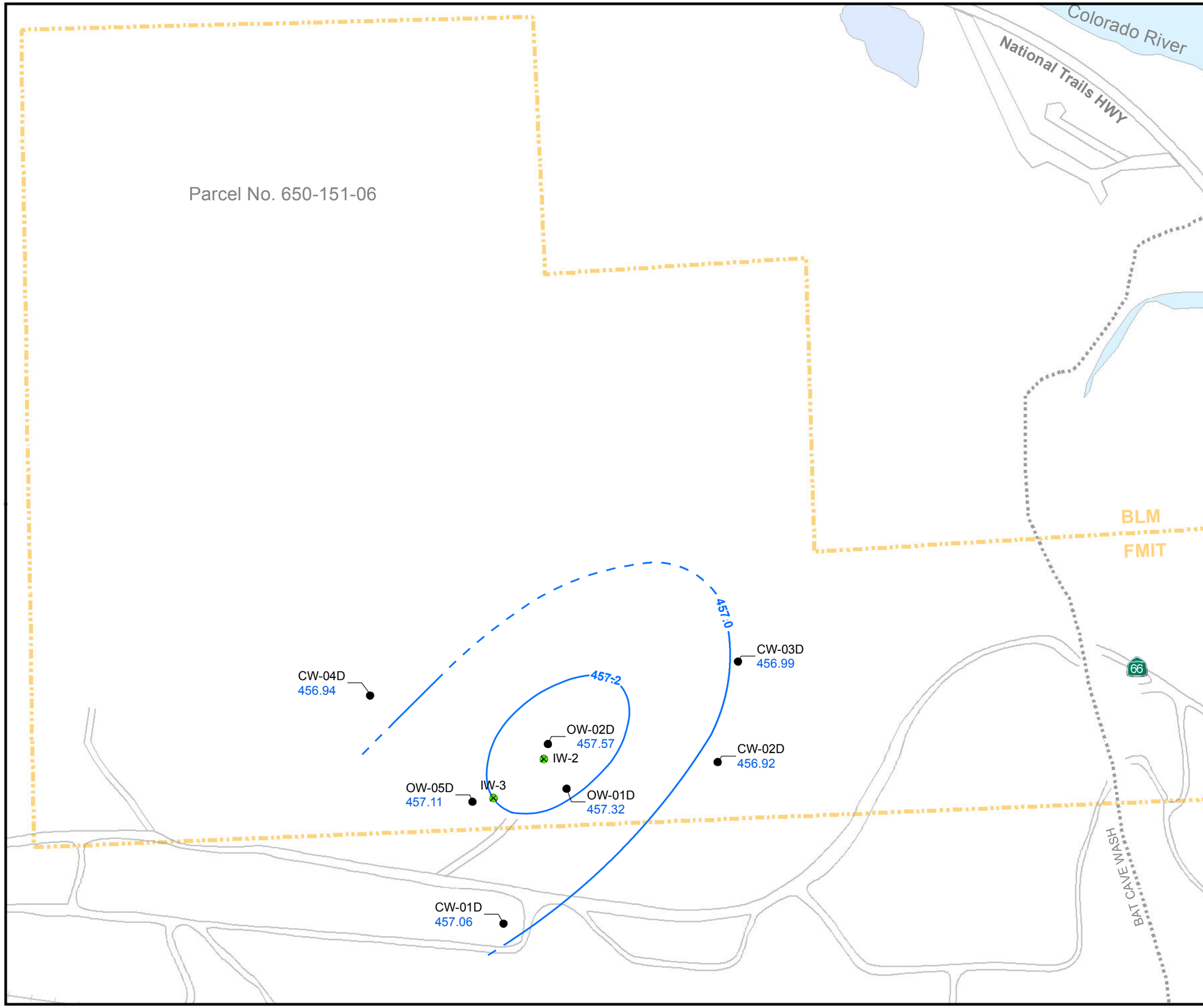

N

0 250 500 Feet

1 inch = 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance, and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Deep Wells in IM-3 Injection Area

OW-05D 458.34 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)

Groundwater elevation contour in feet above MSL (0.2 foot interval), dashed where inferred

Notes:
Data posted and contoured from monthly average heads measured with tranducers at 30 minute intervals.

FIGURE 3-5B
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR DEEP WELLS, NOVEMBER 29, 2010

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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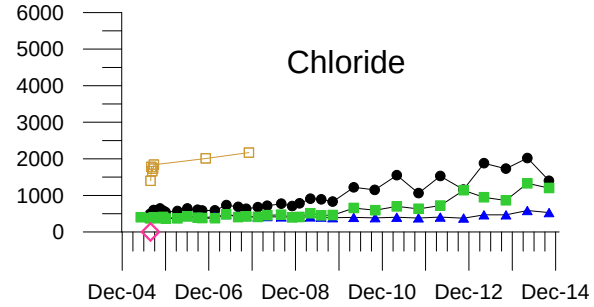
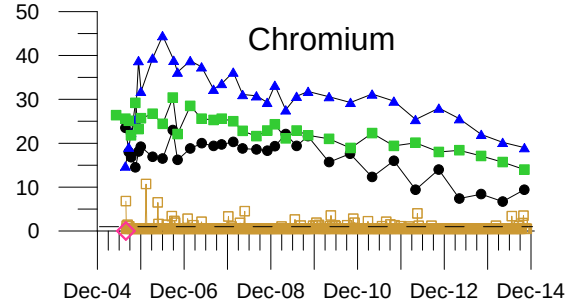
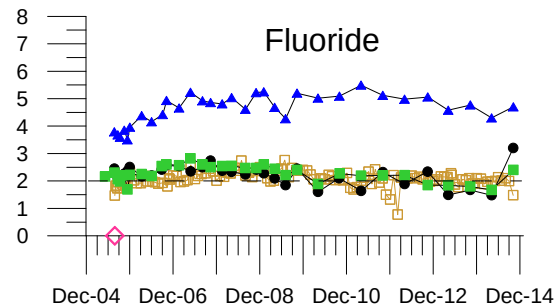
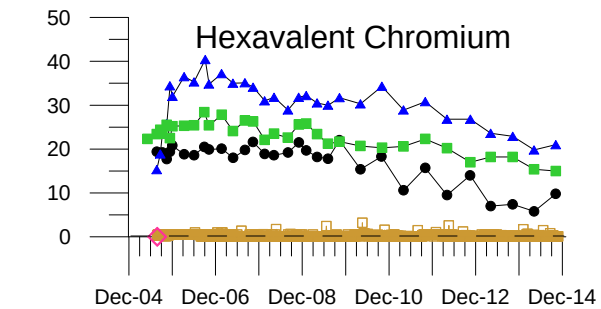
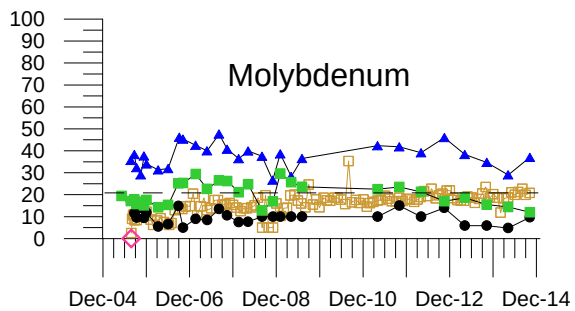
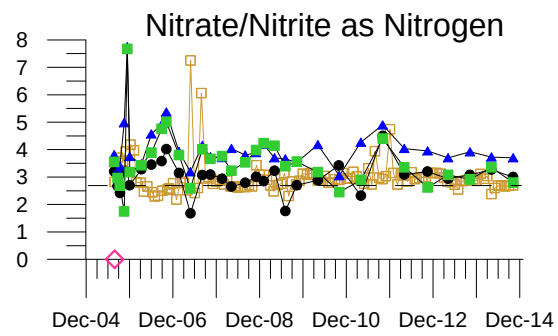


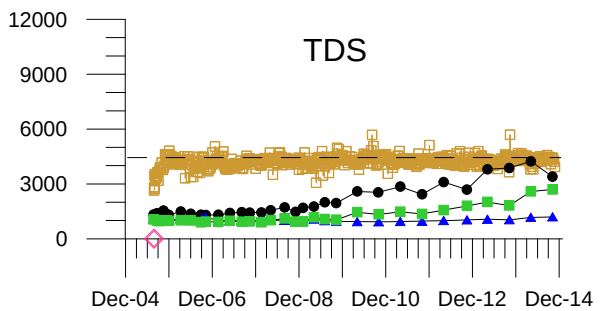


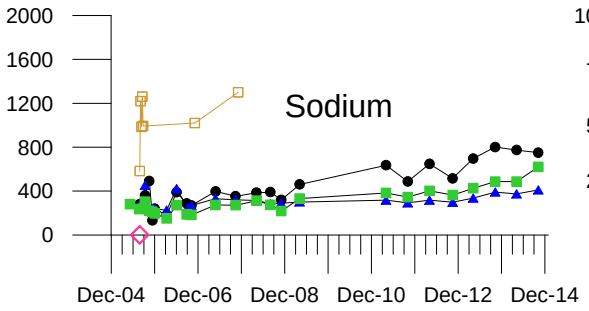


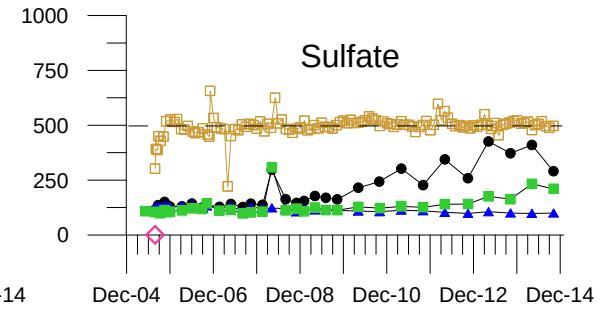


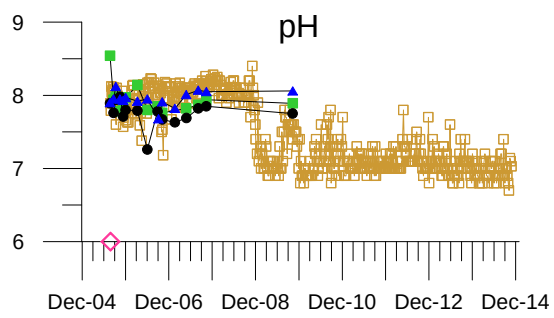


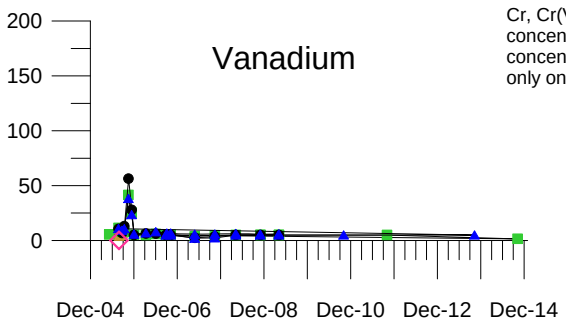












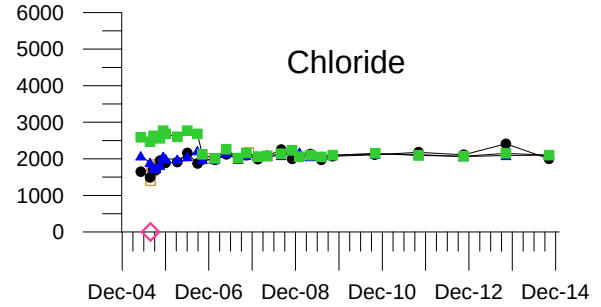
Cr, Cr(VI), molybdenum, and vanadium concentration units in µg/L. Other analyte concentration units in mg/L. Treated water only on select analytes.

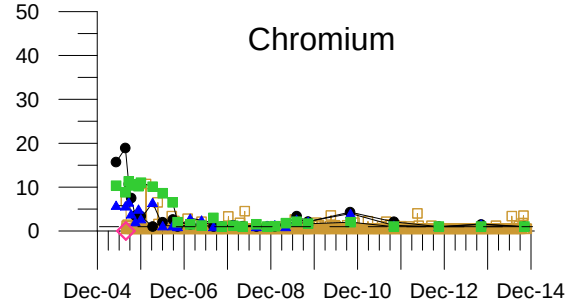
- OW-1S
- OW-2S
- OW-5S
- System Start Up (7/31/2005)
- Treated Water
- Average 2014 Treated Water

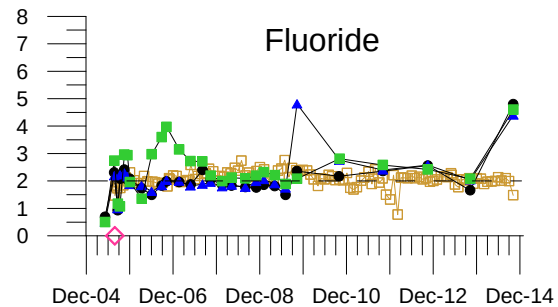
FIGURE 4-1A
OW-1S, OW-2S, and OW-5S
WATER QUALITY HYDROGRAPHS

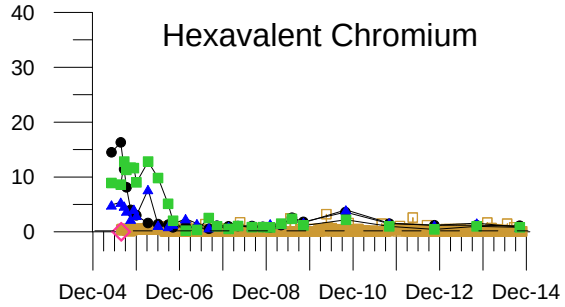
COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

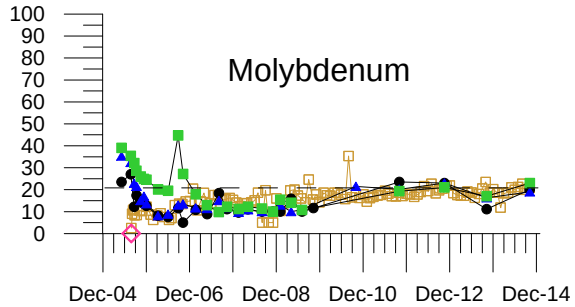
CH2MHILL

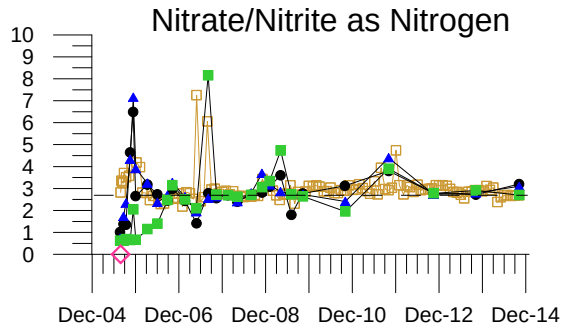


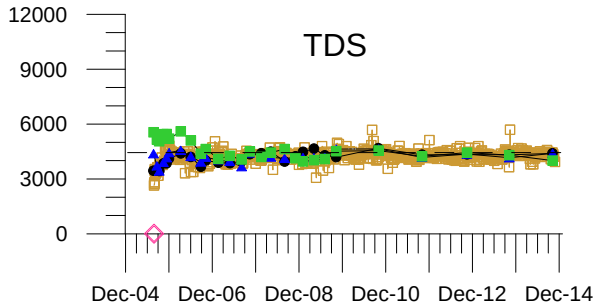


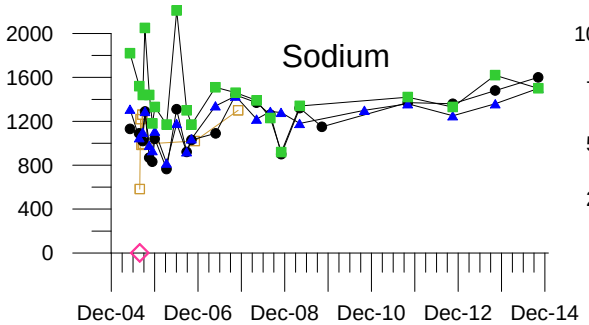


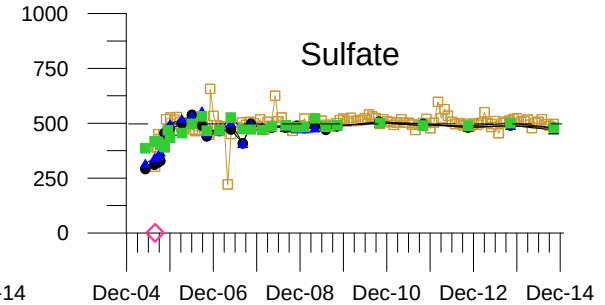


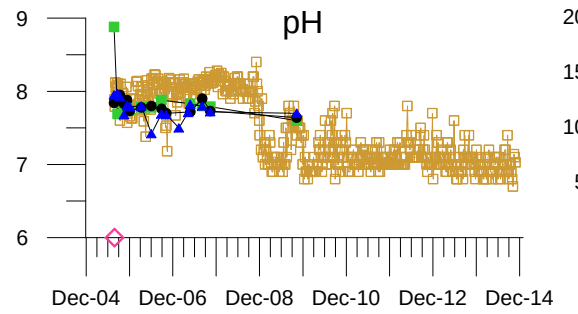


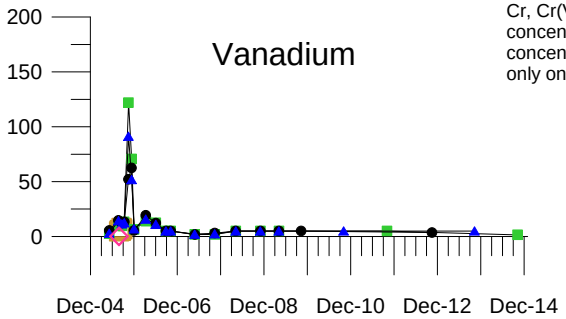












Cr, Cr(VI), molybdenum, and vanadium concentration units in µg/L. Other analyte concentration units in mg/L. Treated water only on select analytes.

- OW-1M
- OW-2M
- OW-5M
- System Start Up (7/31/2005)
- Treated Water
- Average 2014 Treated Water

FIGURE 4-1B
OW-1M, OW-2M, and OW-5M
WATER QUALITY HYDROGRAPHS

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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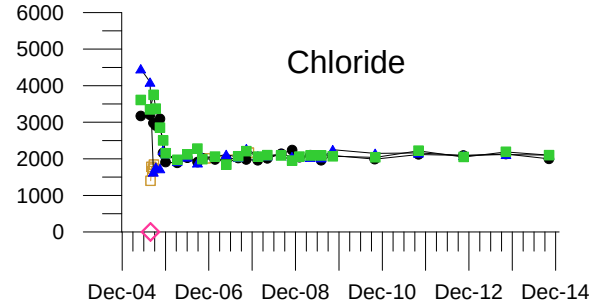

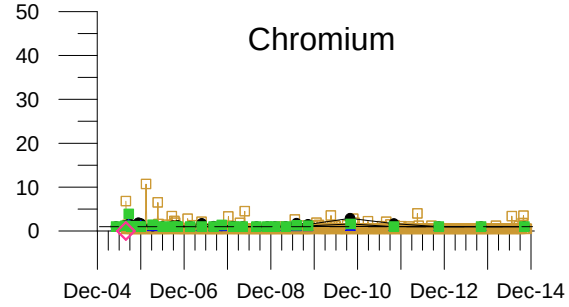

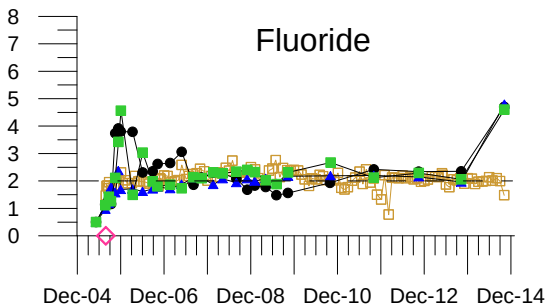

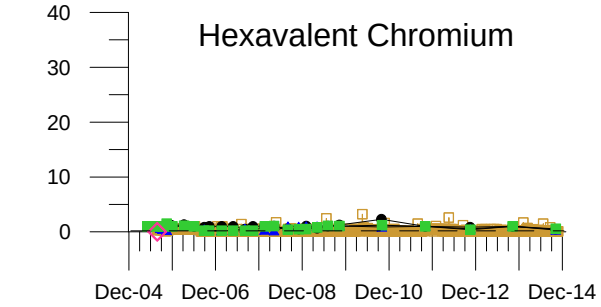

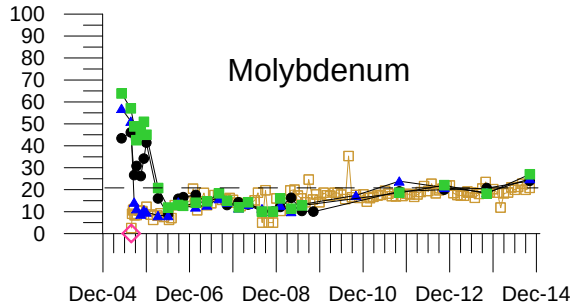

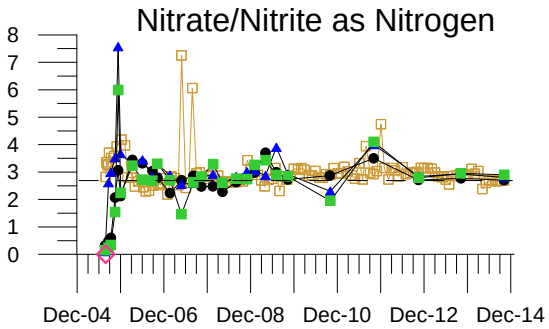

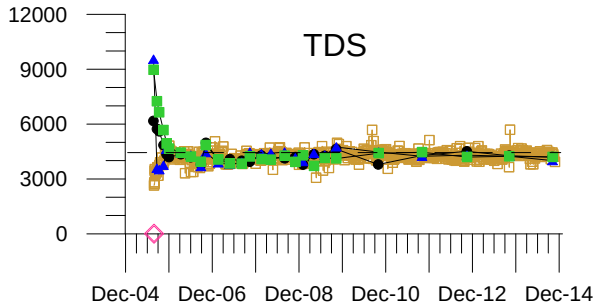

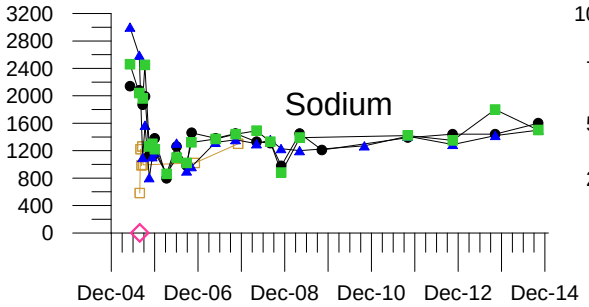

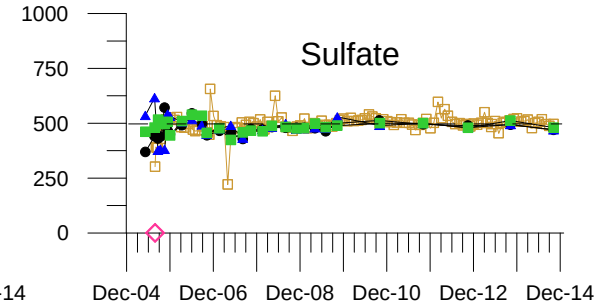

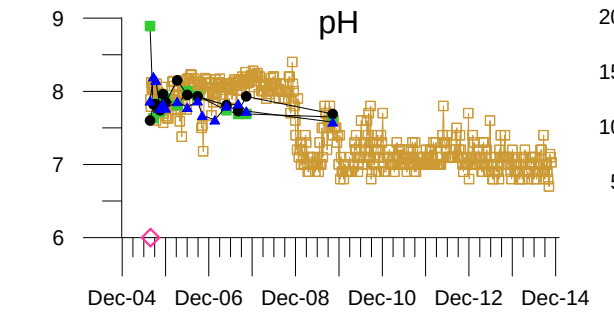

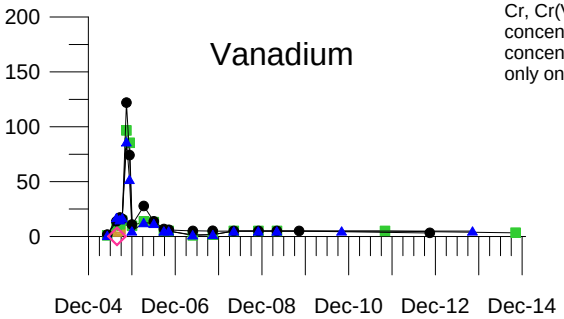

Cr, Cr(VI), molybdenum, and vanadium concentration units in µg/L. Other analyte concentration units in mg/L. Treated water only on select analytes.

- OW-1D
- OW-2D
- OW-5D
- System Start Up (7/31/2005)
- Treated Water
- Average 2014 Treated Water

FIGURE 4-1C
OW-1D, OW-2D, and OW-5D
WATER QUALITY HYDROGRAPHS

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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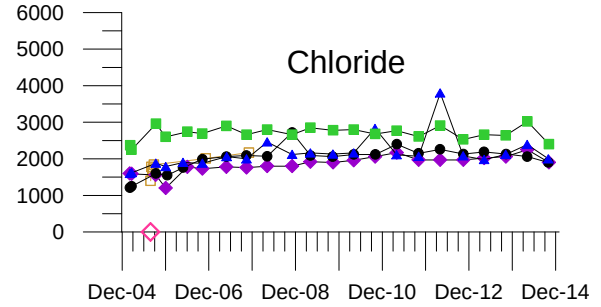
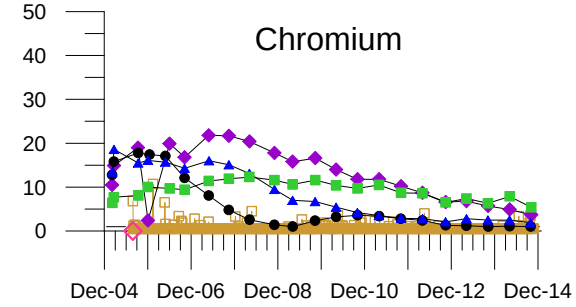
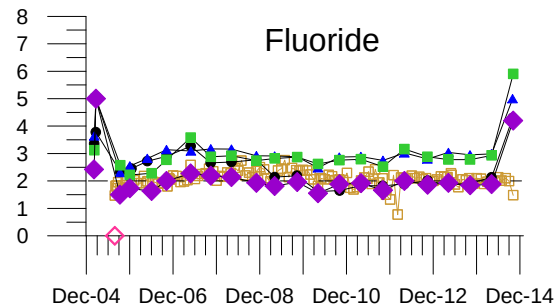
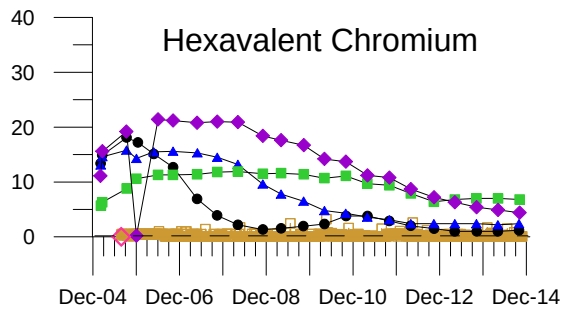
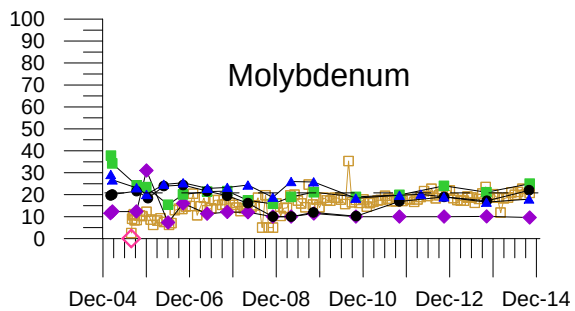
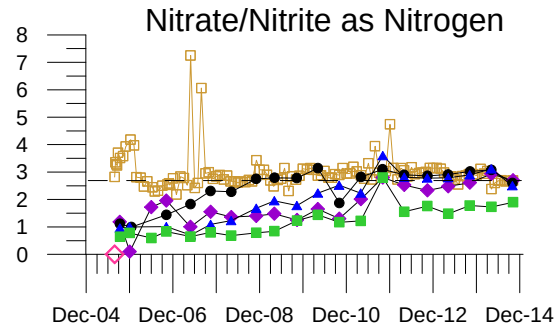


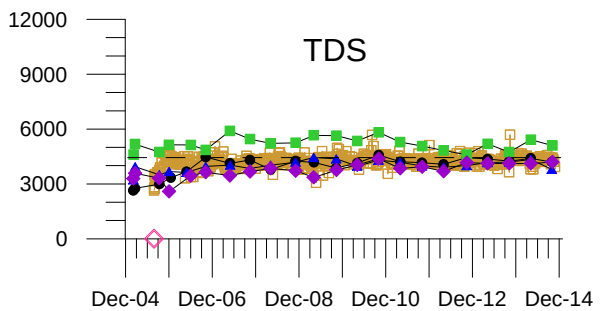


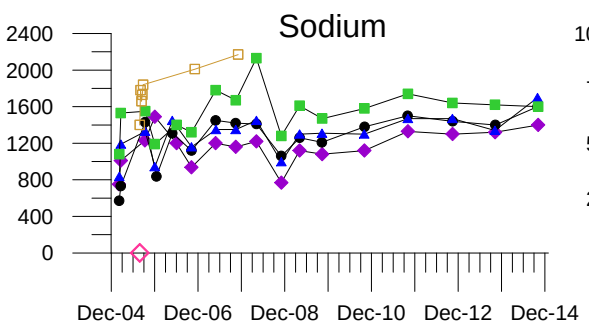


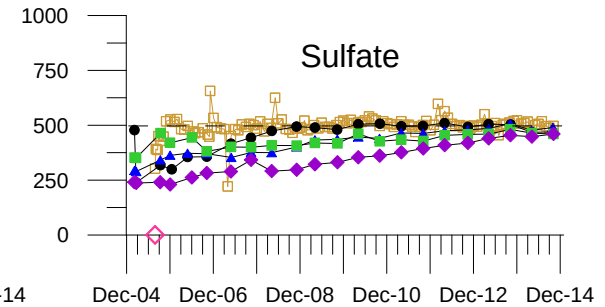


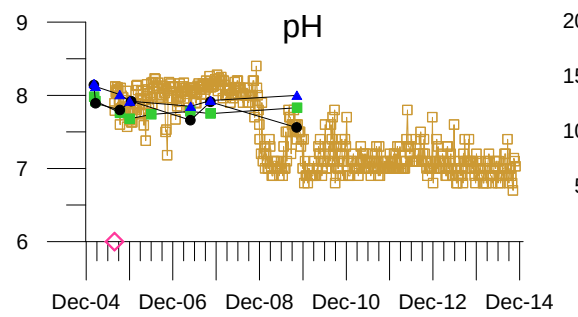


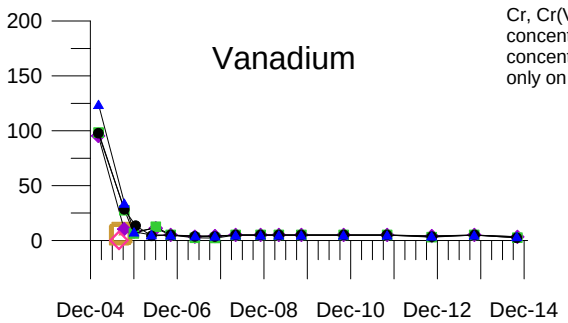












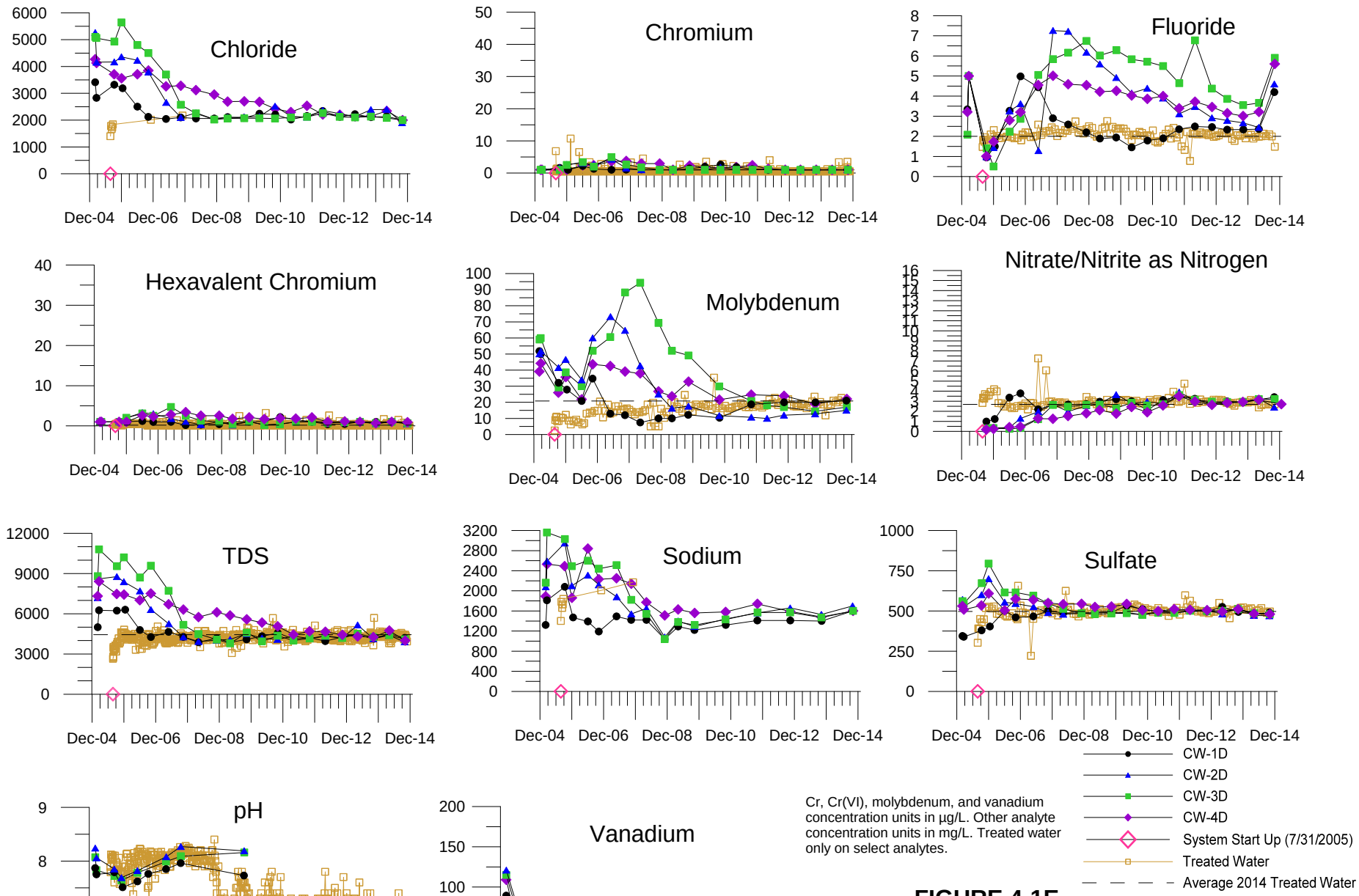
Cr, Cr(VI), molybdenum, and vanadium concentration units in µg/L. Other analyte concentration units in mg/L. Treated water only on select analytes.

- CW-1M
- CW-2M
- CW-3M
- CW-4M
- System Start Up (7/31/2005)
- Treated Water
- Average 2014 Treated Water

FIGURE 4-1D
CW-1M, CW-2M, CW-3M, and CW-4M WATER QUALITY HYDROGRAPHS

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Cr, Cr(VI), molybdenum, and vanadium concentration units in µg/L. Other analyte concentration units in mg/L. Treated water only on select analytes.

FIGURE 4-1E
CW-1D, CW-2D, CW-3D, and CW-4D WATER QUALITY HYDROGRAPHS

COMBINED CMP SEMIANNUAL GROUNDWATER MONITORING REPORT, SECOND HALF 2014, AND PAR, INTERIM MEASURES NO. 3, INJECTION WELL FIELD, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Appendix A
Laboratory Reports, Second Half 2014
(provided on CD-ROM only)

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

October 22, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2014-CMP-032, GROUNDWATER MONITORING PROJECT, TLI NO.: 815062

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-CMP-032 groundwater-monitoring project for Ammonia as N. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody October 9, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 815062
Date Received: October 9, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815062-001	CW-01D-032	SM4500NH3D	NONE	10/2/2014	11:00	Ammonia-N	ND	mg/L	0.500
815062-002	CW-01M-032	SM4500NH3D	NONE	10/2/2014	11:26	Ammonia-N	ND	mg/L	0.500
815062-003	CW-02D-032	SM4500NH3D	NONE	10/2/2014	14:40	Ammonia-N	ND	mg/L	0.500
815062-004	CW-02M-032	SM4500NH3D	NONE	10/2/2014	15:20	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

004

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

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EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

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

Laboratory No. 815062

Printed 10/22/2014

Samples Received on 10/9/2014 9:30:00 AM

Field ID	Lab ID	Collected	Matrix
CW-01D-032	815062-001	10/02/2014 11:00	Water
CW-01M-032	815062-002	10/02/2014 11:26	Water
CW-02D-032	815062-003	10/02/2014 14:40	Water
CW-02M-032	815062-004	10/02/2014 15:20	Water

Ammonia Nitrogen by SM4500-NH3D Batch 10NH314A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815062-001 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815062-002 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815062-003 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815062-004 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.24	8.00	90.5	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.39	8.00	92.4	90 - 110

Matrix Spike — Lab ID = 815060-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.01	10.0(10.0)	90.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.53	6.00	109	90 - 110

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

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.CM

Printed 10/22/2014

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.58	6.00	92.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.60	6.00	93.3	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

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815062/1450135

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

08-Oct-14

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
N013514-001F / CW-01D-032	Water	10/2/2014 11:00:00 AM	16OZP	1		
N013514-002F / CW-01M-032	Water	10/2/2014 11:26:00 AM	16OZP	1		
N013514-003F / CW-02D-032	Water	10/2/2014 2:40:00 PM	16OZP	1		
N013514-004F / CW-02M-032	Water	10/2/2014 3:20:00 PM	16OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: ~~N13415A~~ N13514A For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: ~~5day TAT~~ Normal TAT

Please analyze for Ammonia by SM4500. CH2MHill Samples. Send report to Shawn Duffy. Bill ASSET laboratories.

MBC 10/9/2014

GSO# 525831648

		Date/Time			Date/Time
Relinquished by:	JPGuimawid	10/08/14 17:00	**Received by:**		
Relinquished by:			**Received by:**		

014

915062/1450135

CHAIN-OF-CUSTODY RECORD

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

08-Oct-14

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
N013514-001F / CW-01D-032	Water	10/2/2014 11:00:00 AM	16OZP	1		
N013514-002F / CW-01M-032	Water	10/2/2014 11:26:00 AM	16OZP	1		
N013514-003F / CW-02D-032	Water	10/2/2014 2:40:00 PM	16OZP	1		
N013514-004F / CW-02M-032	Water	10/2/2014 3:20:00 PM	16OZP	1		

ALERT !!
Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#: N13415A For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: 6day TAT
Please analyze for Ammonia by SM4500. CH2MHill Samples. Send report to Shawn Duffy. Bill ASSET laboratories.

GSO# 525831648

		Date/Time			Date/Time
Relinquished by:	JPGumawid	10/08/14 17:00	**Received by:**	[illegible]	10.9.14 9:30
Relinquished by:			**Received by:**		

015

Sean Condon

From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Thursday, October 09, 2014 3:31 PM
To: Sean Condon
Subject: Revised COC
Attachments: N013514_SubCOC_TR.pdf

Hi Sean,

Please see amended sub-COC for the samples you got today for Ammonia.
Please change the TAT to normal and I also make changes on the PO number.

Thanks,

Marlon Cartin
Project Manager
California: 11060 Artesia Blvd., Ste. C, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 Ext. 406 | F: 702.307.2691 | M: 702.882.3289
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WORK ORDER

Printed: 10/22/2014 3:05:05PM

14J0135

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Project Manager: Sean Condon
Project Number: [none]

Report To:
Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: 702-307-2659
Fax: 702-307-2691

Invoice To:
Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone :702-307-2659
Fax: 702-307-2691

Date Due: 10/20/2014 16:30 (7 day TAT)

Received By: Alexander Wood
Date Received: 10/09/2014 09:30

Logged In By: Alexander Wood
Date Logged In: 10/09/2014 09:45

Samples Received at: **3.2°C**

Chain of Custody re	Yes	Samples intact?	Yes
Letter (if sent) matc	No	Custody seals (if an	No
Requested analyses	Yes	Analyses within hol	Yes
Samples received in	Yes		

Analysis	Due	TAT	Expires	Comments
14J0135-01 CW-01D-032 [Water] Sampled 10/02/2014 11:00 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/20/2014 12:00	7	10/30/2014 11:00	
14J0135-02 CW-01M-032 [Water] Sampled 10/02/2014 11:26 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/20/2014 12:00	7	10/30/2014 11:26	
14J0135-03 CW-02D-032 [Water] Sampled 10/02/2014 14:40 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/20/2014 12:00	7	10/30/2014 14:40	
14J0135-04 CW-02M-032 [Water] Sampled 10/02/2014 15:20 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/20/2014 12:00	7	10/30/2014 15:20	

Reviewed By

10/22/14
Date

TRUESDAIL LABORATORIES, INC.

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www.truesdail.com

October 22, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2014-CMP-032, GROUNDWATER MONITORING PROJECT, TLI NO.: 815063

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2014-CMP-032 groundwater-monitoring project for Ammonia as N. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody October 10, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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

Laboratory No.: 815063
Date Received: October 10, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815063-001	CW-03D-032	SM4500NH3D	NONE	10/7/2014	8:22	Ammonia-N	ND	mg/L	0.500
815063-002	CW-03M-032	SM4500NH3D	NONE	10/7/2014	9:22	Ammonia-N	ND	mg/L	0.500
815063-003	CW-04D-032	SM4500NH3D	NONE	10/7/2014	11:26	Ammonia-N	ND	mg/L	0.500
815063-004	CW-04M-032	SM4500NH3D	NONE	10/7/2014	12:15	Ammonia-N	ND	mg/L	0.500
815063-005	OW-70-032	SM4500NH3D	NONE	10/7/2014	8:00	Ammonia-N	ND	mg/L	0.500
815063-006	OW-05D-032	SM4500NH3D	NONE	10/8/2014	9:05	Ammonia-N	ND	mg/L	0.500
815063-007	OW-05M-032	SM4500NH3D	NONE	10/8/2014	9:52	Ammonia-N	ND	mg/L	0.500
815063-008	OW-71-032	SM4500NH3D	NONE	10/8/2014	8:00	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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REPORT

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

Laboratory No. 815063

Printed 10/22/2014

Samples Received on 10/10/2014 9:30:00 AM

Field ID	Lab ID	Collected	Matrix
CW-03D-032	815063-001	10/07/2014 08:22	Water
CW-03M-032	815063-002	10/07/2014 09:22	Water
CW-04D-032	815063-003	10/07/2014 11:26	Water
CW-04M-032	815063-004	10/07/2014 12:15	Water
OW-70-032	815063-005	10/07/2014 08:00	Water
OW-05D-032	815063-006	10/08/2014 09:05	Water
OW-05M-032	815063-007	10/08/2014 09:52	Water
OW-71-032	815063-008	10/08/2014 08:00	Water

Ammonia Nitrogen by SM4500-NH3D Batch 10NH314A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815063-001 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815063-002 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815063-003 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815063-004 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815063-005 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815063-006 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815063-007 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND
815063-008 Ammonia as N	mg/L	10/16/2014	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.24	8.00	90.5	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.CM Printed 10/22/2014

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.39	8.00	92.4	90 - 110

Matrix Spike — Lab ID = 815060-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.01	10.0(10.0)	90.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.53	6.00	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.58	6.00	92.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.60	6.00	93.3	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

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ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

915063 / 14J0158

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

09-Oct-14

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3C		
N013574-001F / CW-03D-032	Water	10/7/2014 8:22:00 AM	16OZP	1		
N013574-002F / CW-03M-032	Water	10/7/2014 9:22:00 AM	16OZP	1		
N013574-003F / CW-04D-032	Water	10/7/2014 11:26:00 AM	16OZP	1		
N013574-004F / CW-04M-032	Water	10/7/2014 12:15:00 PM	16OZP	1		
N013574-008F / OW-70-032	Water	10/7/2014 8:00:00 AM	16OZP	1		
N013574-012F / OW-05D-032	Water	10/8/2014 9:05:00 AM	16OZP	1		
N013574-013F / OW-05M-032	Water	10/8/2014 9:52:00 AM	16OZP	1		
N013574-015F / OW-71-032	Water	10/8/2014 8:00:00 AM	16OZP	1		

ALERT !!
Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N13574A For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analyze for Ammonia by SM4500. CH2MHill Samples. For questions, please contact Shawn Duffy at (530)941-9227.

Please send report to CH2M Hill

GSO# 525847850

		Date/Time			Date/Time
Relinquished by:	JPZumawit	10/09/14 @ 17:00	Received by:		10-10-14 9:30
Relinquished by:			Received by:		

015

WORK ORDER

Printed: 10/22/2014 3:05:28PM

14J0158

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Project Manager: Sean Condon
Project Number: [none]

Report To:
Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: 702-307-2659
Fax: 702-307-2691

Invoice To:
Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone :702-307-2659
Fax: 702-307-2691

Date Due: 10/21/2014 16:30 (7 day TAT)

Received By: Alexander Wood
Date Received: 10/10/2014 09:30

Logged In By: Alexander Wood
Date Logged In: 10/10/2014 09:50

Samples Received at: **2.6°C**

Chain of Custody re	Yes	Samples intact?	Yes
Letter (if sent) matc	No	Custody seals (if an	No
Requested analyses	Yes	Analyses within hol	Yes
Samples received in	Yes		

Analysis	Due	TAT	Expires	Comments
14J0158-01 CW-03D-032 [Water] Sampled 10/07/2014 08:22 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/21/2014 12:00	7	11/04/2014 08:22	
14J0158-02 CW-03M-032 [Water] Sampled 10/07/2014 09:22 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/21/2014 12:00	7	11/04/2014 09:22	
14J0158-03 CW-04D-032 [Water] Sampled 10/07/2014 11:26 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/21/2014 12:00	7	11/04/2014 11:26	
14J0158-04 CW-04M-032 [Water] Sampled 10/07/2014 12:15 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/21/2014 12:00	7	11/04/2014 12:15	
14J0158-05 OW-70-032 [Water] Sampled 10/07/2014 08:00 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/21/2014 12:00	7	11/04/2014 08:00	
14J0158-06 OW-05D-032 [Water] Sampled 10/08/2014 09:05 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/21/2014 12:00	7	11/05/2014 09:05	
14J0158-07 OW-05M-032 [Water] Sampled 10/08/2014 09:52 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/21/2014 12:00	7	11/05/2014 09:52	

WORK ORDER

Printed: 10/22/2014 3:05:28PM

14J0158

Truesdail Laboratories, Inc

Client:	**Advanced Technology Laboratories-NV**	**Project Manager:**	**Sean Condon**
Project:	**ATL-NV**	**Project Number:**	**[none]**

Analysis	Due	TAT	Expires	Comments
14J0158-08 OW-71-032 [Water] Sampled 10/08/2014 08:00 (GMT-08:00) Pacific Time (US &				
Ammonia E	10/21/2014 12:00	7	11/05/2014 08:00	

Reviewed By

10/22/14
Date

October 20, 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.: N013514

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 02, 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.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

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

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

Sincerely,

Nancy Libucao for

Jose Tenorio Jr.
Laboratory Director

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

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail- Tustin,CA.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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

Analytical Comments for EPA 200.8_Dissolved:

Dilution was necessary on some analytes for samples N013514-001, N013514-002, N013514-003 and N013514-004 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria.

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

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Date: *16-Oct-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.CM
Lab Order: N013514
Contract No: 2014-CMP-032

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N013514-001A	CW-01D-032	Water	10/2/2014 11:00:00 AM	10/2/2014	10/16/2014
N013514-001B	CW-01D-032	Water	10/2/2014 11:00:00 AM	10/2/2014	10/16/2014
N013514-001C	CW-01D-032	Water	10/2/2014 11:00:00 AM	10/2/2014	10/16/2014
N013514-001D	CW-01D-032	Water	10/2/2014 11:00:00 AM	10/2/2014	10/16/2014
N013514-001E	CW-01D-032	Water	10/2/2014 11:00:00 AM	10/2/2014	10/16/2014
N013514-001F	CW-01D-032	Water	10/2/2014 11:00:00 AM	10/2/2014	10/16/2014
N013514-002A	CW-01M-032	Water	10/2/2014 11:26:00 AM	10/2/2014	10/16/2014
N013514-002B	CW-01M-032	Water	10/2/2014 11:26:00 AM	10/2/2014	10/16/2014
N013514-002C	CW-01M-032	Water	10/2/2014 11:26:00 AM	10/2/2014	10/16/2014
N013514-002D	CW-01M-032	Water	10/2/2014 11:26:00 AM	10/2/2014	10/16/2014
N013514-002E	CW-01M-032	Water	10/2/2014 11:26:00 AM	10/2/2014	10/16/2014
N013514-002F	CW-01M-032	Water	10/2/2014 11:26:00 AM	10/2/2014	10/16/2014
N013514-003A	CW-02D-032	Water	10/2/2014 2:40:00 PM	10/2/2014	10/16/2014
N013514-003B	CW-02D-032	Water	10/2/2014 2:40:00 PM	10/2/2014	10/16/2014
N013514-003C	CW-02D-032	Water	10/2/2014 2:40:00 PM	10/2/2014	10/16/2014
N013514-003D	CW-02D-032	Water	10/2/2014 2:40:00 PM	10/2/2014	10/16/2014
N013514-003E	CW-02D-032	Water	10/2/2014 2:40:00 PM	10/2/2014	10/16/2014
N013514-003F	CW-02D-032	Water	10/2/2014 2:40:00 PM	10/2/2014	10/16/2014
N013514-004A	CW-02M-032	Water	10/2/2014 3:20:00 PM	10/2/2014	10/16/2014
N013514-004B	CW-02M-032	Water	10/2/2014 3:20:00 PM	10/2/2014	10/16/2014
N013514-004C	CW-02M-032	Water	10/2/2014 3:20:00 PM	10/2/2014	10/16/2014
N013514-004D	CW-02M-032	Water	10/2/2014 3:20:00 PM	10/2/2014	10/16/2014
N013514-004E	CW-02M-032	Water	10/2/2014 3:20:00 PM	10/2/2014	10/16/2014
N013514-004F	CW-02M-032	Water	10/2/2014 3:20:00 PM	10/2/2014	10/16/2014
N013514-005A	OW-80-032	Water	10/2/2014 3:45:00 PM	10/2/2014	10/16/2014

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141003A**	QC Batch: **R95138**			PrepDate			Analyst: **RB**
Specific Conductance	6900	0.10	0.10		umhos/cm	1	10/3/2014

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141003A**	QC Batch: **R95138**			PrepDate			Analyst: **RB**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	10/3/2014

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141003A**	QC Batch: **R95138**			PrepDate			Analyst: **RB**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	10/3/2014

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141003A**	QC Batch: **R95138**			PrepDate			Analyst: **RB**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	10/3/2014

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N013514-001DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **95138**
Client ID: **ZZZZZZ** Batch ID: **R95138** TestNo: **EPA 120.1** Analysis Date: **10/3/2014** SeqNo: **1844415**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6940.000	0.10						6930	0.144	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141006B**	QC Batch: **46653**			PrepDate	**10/6/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	10/6/2014 08:04 AM

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141006B**	QC Batch: **46653**			PrepDate	**10/6/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	10/6/2014 08:04 AM

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141006B**	QC Batch: **46653**			PrepDate	**10/6/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	3900	50	50		mg/L	1	10/6/2014 08:04 AM

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141006B**	QC Batch: **46653**				PrepDate	**10/6/2014**	Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	3800	50	50		mg/L	1	10/6/2014 08:04 AM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **MB-46653** SampType: **MBLK** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/6/2014** RunNo: **95177**
Client ID: **PBW** Batch ID: **46653** TestNo: **SM2540C** Analysis Date: **10/6/2014** SeqNo: **1846141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **LCS-46653** SampType: **LCS** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/6/2014** RunNo: **95177**
Client ID: **LCSW** Batch ID: **46653** TestNo: **SM2540C** Analysis Date: **10/6/2014** SeqNo: **1846142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1036.000	10	1000	0	104	80	120				

Sample ID **N013514-001DDUP** SampType: **DUP** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/6/2014** RunNo: **95177**
Client ID: **ZZZZZZ** Batch ID: **46653** TestNo: **SM2540C** Analysis Date: **10/6/2014** SeqNo: **1846144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4265.000	50						4245	0.470	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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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-001

Client Sample ID: CW-01D-032
Collection Date: 10/2/2014 11:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141007D**	QC Batch: **46651**			PrepDate	**10/7/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/7/2014 05:22 PM
Boron	0.93	0.019	0.10		mg/L	1	10/7/2014 05:22 PM
Calcium	130	0.058	0.50		mg/L	1	10/8/2014 04:16 PM
Iron	ND	0.0013	0.50		mg/L	1	10/7/2014 05:22 PM
Magnesium	16	0.011	0.10		mg/L	1	10/7/2014 05:22 PM
Potassium	13	0.062	0.50		mg/L	1	10/8/2014 11:23 AM
Sodium	1600	12	50		mg/L	100	10/8/2014 12:38 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141007D**	QC Batch: **46651**			PrepDate	**10/7/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/7/2014 06:14 PM
Boron	0.92	0.019	0.10		mg/L	1	10/7/2014 06:14 PM
Calcium	140	0.058	0.50		mg/L	1	10/8/2014 04:41 PM
Iron	ND	0.0013	0.50		mg/L	1	10/7/2014 06:14 PM
Magnesium	13	0.011	0.10		mg/L	1	10/7/2014 06:14 PM
Potassium	14	0.062	0.50		mg/L	1	10/8/2014 11:32 AM
Sodium	1600	12	50		mg/L	100	10/8/2014 12:04 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141007D**	QC Batch: **46651**			PrepDate	**10/7/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/7/2014 06:19 PM
Boron	0.91	0.019	0.10		mg/L	1	10/7/2014 06:19 PM
Calcium	65	0.058	0.50		mg/L	1	10/8/2014 04:47 PM
Iron	ND	0.0013	0.50		mg/L	1	10/7/2014 06:19 PM
Magnesium	3.9	0.011	0.10		mg/L	1	10/7/2014 06:19 PM
Potassium	12	0.062	0.50		mg/L	1	10/8/2014 11:37 AM
Sodium	1700	12	50		mg/L	100	10/8/2014 12:08 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141007D**	QC Batch: **46651**			PrepDate	**10/7/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/7/2014 06:25 PM
Boron	1.1	0.019	0.10		mg/L	1	10/7/2014 06:25 PM
Calcium	110	0.058	0.50		mg/L	1	10/8/2014 04:51 PM
Iron	ND	0.0013	0.50		mg/L	1	10/7/2014 06:25 PM
Magnesium	9.7	0.011	0.10		mg/L	1	10/7/2014 06:25 PM
Potassium	13	0.062	0.50		mg/L	1	10/8/2014 11:42 AM
Sodium	1700	12	50		mg/L	100	10/8/2014 12:11 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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Date: *16-Oct-14*

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID **MB-46651** SampType: **MBLK** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **PBW** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/7/2014** SeqNo: **1846586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.50									
Boron	ND	0.10									
Iron	ND	0.50									
Magnesium	ND	0.10									

Sample ID **LCS1-46651** SampType: **LCS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **LCSW** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/7/2014** SeqNo: **1846587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.517	0.50	10.00	0	95.2	85	115				
Boron	4.838	0.10	5.000	0	96.8	85	115				
Iron	0.103	0.50	0.1000	0	103	85	115				
Magnesium	10.247	0.10	10.00	0	102	85	115				

Sample ID **N013514-001C-MS1** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/7/2014** SeqNo: **1846591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.582	0.50	10.00	0	95.8	75	125				
Boron	6.236	0.10	5.000	0.9280	106	75	125				
Iron	0.108	0.50	0.1000	0	108	75	125				
Magnesium	25.956	0.10	10.00	15.53	104	75	125				

Sample ID **N013514-001C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/7/2014** SeqNo: **1846592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.598	0.50	10.00	0	96.0	75	125	9.582	0.169	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: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID **N013514-001C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/7/2014** SeqNo: **1846592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	6.265	0.10	5.000	0.9280	107	75	125	6.236	0.461	20	
Iron	0.108	0.50	0.1000	0	108	75	125	0.1080	0	20	
Magnesium	26.084	0.10	10.00	15.53	106	75	125	25.96	0.494	20	

Sample ID **MB-46651** SampType: **MBLK** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95204**
Client ID: **PBW** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	0.217	0.50									
Sodium	0.228	0.50									

Sample ID **LCS2-46651** SampType: **LCS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95204**
Client ID: **LCSW** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	20.964	0.50	20.00	0	105	85	115				
Sodium	21.777	0.50	20.00	0	109	85	115				

Sample ID **N013514-004C-MS1** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95204**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	35.111	0.50	20.00	13.05	110	75	125				

Sample ID **N013514-004C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95204**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847440**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1698.319	50	20.00	1667	155	75	125	1745	2.71	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		

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID **N013514-004C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95204**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	35.136	0.50	20.00	13.05	110	75	125	35.11	0.0718	20	

Sample ID **N013514-004C-MS1** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95204**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847445**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1745.042	50	20.00	1667	388	75	125				S

Sample ID **MB-46651** SampType: **MBLK** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95215**
Client ID: **PBW** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.50									

Sample ID **LCS1-46651** SampType: **LCS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95215**
Client ID: **LCSW** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10.817	0.50	10.00	0	108	85	115				

Sample ID **N013514-001C-MS1** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95215**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	140.733	0.50	10.00	132.5	82.8	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: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID	**N013514-001C-MSD**	SampType:	**MSD**	TestCode:	**200.7_WD1**	Units:	**mg/L**	Prep Date:	**10/7/2014**	RunNo:	**95215**	
Client ID:	**ZZZZZZ**	Batch ID:	**46651**	TestNo:	**EPA 200.7**			Analysis Date:	**10/8/2014**	SeqNo:	**1847555**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	138.397	0.50	10.00	132.5	59.5	75	125	140.7	1.67	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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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-001

Client Sample ID: CW-01D-032
Collection Date: 10/2/2014 11:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141006A**	QC Batch: **46652**			PrepDate	**10/6/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/6/2014 12:51 PM
Arsenic	1.2	0.027	0.10		µg/L	1	10/6/2014 12:51 PM
Barium	27	0.15	5.0		µg/L	5	10/6/2014 01:14 PM
Beryllium	ND	0.010	0.50		µg/L	1	10/6/2014 12:51 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/6/2014 12:51 PM
Chromium	ND	0.030	1.0		µg/L	1	10/6/2014 12:51 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/6/2014 12:51 PM
Copper	ND	0.040	1.0		µg/L	1	10/8/2014 07:28 AM
Lead	ND	0.053	5.0		µg/L	5	10/8/2014 07:33 AM
Manganese	ND	0.026	0.50		µg/L	1	10/6/2014 12:51 PM
Molybdenum	21	0.15	0.50		µg/L	1	10/6/2014 12:51 PM
Nickel	ND	0.032	1.0		µg/L	1	10/6/2014 12:51 PM
Selenium	3.4	0.069	0.50		µg/L	1	10/6/2014 12:51 PM
Silver	ND	0.094	0.50		µg/L	1	10/6/2014 12:51 PM
Thallium	ND	0.040	2.5		µg/L	5	10/8/2014 07:33 AM
Vanadium	2.4	0.16	1.0		µg/L	1	10/6/2014 12:51 PM
Zinc	ND	0.23	10		µg/L	1	10/6/2014 12:51 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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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-002

Client Sample ID: CW-01M-032
Collection Date: 10/2/2014 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141006A**	QC Batch: **46652**			PrepDate	**10/6/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/6/2014 12:57 PM
Arsenic	1.2	0.027	0.10		µg/L	1	10/6/2014 12:57 PM
Barium	26	0.030	1.0		µg/L	1	10/6/2014 12:57 PM
Beryllium	ND	0.010	0.50		µg/L	1	10/6/2014 12:57 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/6/2014 12:57 PM
Chromium	ND	0.030	1.0		µg/L	1	10/6/2014 12:57 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/6/2014 12:57 PM
Copper	ND	0.040	1.0		µg/L	1	10/8/2014 08:29 AM
Lead	ND	0.053	5.0		µg/L	5	10/8/2014 08:35 AM
Manganese	ND	0.026	0.50		µg/L	1	10/6/2014 12:57 PM
Molybdenum	22	0.15	0.50		µg/L	1	10/6/2014 12:57 PM
Nickel	ND	0.032	1.0		µg/L	1	10/6/2014 12:57 PM
Selenium	3.3	0.069	0.50		µg/L	1	10/6/2014 12:57 PM
Silver	ND	0.094	0.50		µg/L	1	10/6/2014 12:57 PM
Thallium	ND	0.040	2.5		µg/L	5	10/8/2014 08:35 AM
Vanadium	2.4	0.16	1.0		µg/L	1	10/6/2014 12:57 PM
Zinc	ND	0.23	10		µg/L	1	10/6/2014 12:57 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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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-003

Client Sample ID: CW-02D-032
Collection Date: 10/2/2014 2:40:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141006A**	QC Batch: **46652**			PrepDate	**10/6/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/6/2014 01:03 PM
Arsenic	3.3	0.027	0.10		µg/L	1	10/6/2014 01:03 PM
Barium	13	0.030	1.0		µg/L	1	10/6/2014 01:03 PM
Beryllium	ND	0.010	0.50		µg/L	1	10/6/2014 01:03 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/6/2014 01:03 PM
Chromium	ND	0.030	1.0		µg/L	1	10/6/2014 01:03 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/6/2014 01:03 PM
Copper	ND	0.040	1.0		µg/L	1	10/8/2014 08:41 AM
Lead	ND	0.053	5.0		µg/L	5	10/8/2014 08:46 AM
Manganese	ND	0.026	0.50		µg/L	1	10/6/2014 01:03 PM
Molybdenum	15	0.15	0.50		µg/L	1	10/6/2014 01:03 PM
Nickel	ND	0.032	1.0		µg/L	1	10/6/2014 01:03 PM
Selenium	3.1	0.069	0.50		µg/L	1	10/6/2014 01:03 PM
Silver	ND	0.094	0.50		µg/L	1	10/6/2014 01:03 PM
Thallium	ND	0.040	2.5		µg/L	5	10/8/2014 08:46 AM
Vanadium	4.5	0.16	1.0		µg/L	1	10/6/2014 01:03 PM
Zinc	ND	0.23	10		µg/L	1	10/6/2014 01:03 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-004

Client Sample ID: CW-02M-032
Collection Date: 10/2/2014 3:20:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141006A**	QC Batch: **46652**			PrepDate	**10/6/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/6/2014 01:09 PM
Arsenic	1.9	0.027	0.10		µg/L	1	10/6/2014 01:09 PM
Barium	70	0.030	1.0		µg/L	1	10/6/2014 01:09 PM
Beryllium	ND	0.010	0.50		µg/L	1	10/6/2014 01:09 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/6/2014 01:09 PM
Chromium	1.9	0.030	1.0		µg/L	1	10/6/2014 01:09 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/6/2014 01:09 PM
Copper	ND	0.040	1.0		µg/L	1	10/8/2014 08:52 AM
Lead	ND	0.053	5.0		µg/L	5	10/8/2014 08:57 AM
Manganese	ND	0.026	0.50		µg/L	1	10/6/2014 01:09 PM
Molybdenum	18	0.15	0.50		µg/L	1	10/6/2014 01:09 PM
Nickel	ND	0.032	1.0		µg/L	1	10/6/2014 01:09 PM
Selenium	2.6	0.069	0.50		µg/L	1	10/6/2014 01:09 PM
Silver	ND	0.094	0.50		µg/L	1	10/6/2014 01:09 PM
Thallium	ND	0.040	2.5		µg/L	5	10/8/2014 08:57 AM
Vanadium	3.5	0.16	1.0		µg/L	1	10/6/2014 01:09 PM
Zinc	ND	0.23	10		µg/L	1	10/6/2014 01:09 PM

Qualifiers:

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

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Date: *16-Oct-14*

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-46652** SampType: **MBLK** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95186**
Client ID: **PBW** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	0.059	1.0									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Chromium	ND	1.0									
Cobalt	ND	0.50									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	ND	0.50									
Vanadium	ND	1.0									
Zinc	0.285	10									

Sample ID **LCS-46652** SampType: **LCS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95186**
Client ID: **LCSW** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.230	0.50	10.00	0	102	85	115				
Arsenic	10.216	0.10	10.00	0	102	85	115				
Barium	102.338	1.0	100.0	0	102	85	115				
Beryllium	9.991	0.50	10.00	0	99.9	85	115				
Cadmium	10.510	0.50	10.00	0	105	85	115				
Chromium	9.777	1.0	10.00	0	97.8	85	115				
Cobalt	9.805	0.50	10.00	0	98.0	85	115				
Manganese	96.727	0.50	100.0	0	96.7	85	115				
Molybdenum	9.691	0.50	10.00	0	96.9	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **LCS-46652** SampType: **LCS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95186**
Client ID: **LCSW** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel	9.891	1.0	10.00	0	98.9	85	115				
Selenium	10.273	0.50	10.00	0	103	85	115				
Silver	10.122	0.50	10.00	0	101	85	115				
Vanadium	10.205	1.0	10.00	0	102	85	115				
Zinc	111.640	10	100.0	0	112	85	115				

Sample ID **N013514-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95186**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.912	0.50	10.00	0	99.1	75	125				
Arsenic	11.274	0.10	10.00	1.152	101	75	125				
Beryllium	11.608	0.50	10.00	0	116	75	125				
Cadmium	8.214	0.50	10.00	0	82.1	75	125				
Chromium	9.662	1.0	10.00	0.6264	90.4	75	125				
Cobalt	8.060	0.50	10.00	0	80.6	75	125				
Manganese	59.948	0.50	100.0	0	59.9	75	125				S
Molybdenum	28.282	0.50	10.00	21.43	68.5	75	125				S
Nickel	8.939	1.0	10.00	0	89.4	75	125				
Selenium	12.413	0.50	10.00	3.437	89.8	75	125				
Silver	9.220	0.50	10.00	0	92.2	75	125				
Vanadium	12.653	1.0	10.00	2.364	103	75	125				
Zinc	87.483	10	100.0	1.172	86.3	75	125				

Sample ID **N013514-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95186**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.941	0.50	10.00	0	99.4	75	125	9.912	0.297	20	
Arsenic	11.290	0.10	10.00	1.152	101	75	125	11.27	0.142	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: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N013514-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95186**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	11.508	0.50	10.00	0	115	75	125	11.61	0.866	20	
Cadmium	8.204	0.50	10.00	0	82.0	75	125	8.214	0.125	20	
Chromium	9.711	1.0	10.00	0.6264	90.8	75	125	9.662	0.505	20	
Cobalt	7.997	0.50	10.00	0	80.0	75	125	8.060	0.776	20	
Manganese	59.990	0.50	100.0	0	60.0	75	125	59.95	0.0690	20	S
Molybdenum	28.258	0.50	10.00	21.43	68.3	75	125	28.28	0.0864	20	S
Nickel	9.003	1.0	10.00	0	90.0	75	125	8.939	0.720	20	
Selenium	12.353	0.50	10.00	3.437	89.2	75	125	12.41	0.482	20	
Silver	9.244	0.50	10.00	0	92.4	75	125	9.220	0.261	20	
Vanadium	12.713	1.0	10.00	2.364	103	75	125	12.65	0.472	20	
Zinc	87.143	10	100.0	1.172	86.0	75	125	87.48	0.389	20	

Sample ID **N013514-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95186**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846390**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	216.696	5.0	100.0	27.37	189	75	125				S

Sample ID **N013514-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95186**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846391**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	215.490	5.0	100.0	27.37	188	75	125	216.7	0.558	20	S

Sample ID **MB-46652** SampType: **MBLK** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95214**
Client ID: **PBW** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.139	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-46652** SampType: **MBLK** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95214**
Client ID: **PBW** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.026	1.0									
Thallium	ND	0.50									

Sample ID **LCS-46652** SampType: **LCS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95214**
Client ID: **LCSW** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847475**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	10.201	1.0	10.00	0	102	85	115				
Lead	10.182	1.0	10.00	0	102	85	115				
Thallium	10.316	0.50	10.00	0	103	85	115				

Sample ID **N013514-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95214**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	4.990	1.0	10.00	0	49.9	75	125				S

Sample ID **N013514-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95214**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.783	5.0	10.00	0	108	75	125				
Thallium	10.408	2.5	10.00	0	104	75	125				

Sample ID **N013514-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95214**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847483**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.864	5.0	10.00	0	109	75	125	10.78	0.753	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: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N013514-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95214**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847483**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	10.134	2.5	10.00	0	101	75	125	10.41	2.66	20	

Sample ID **N013514-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95214**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	5.049	1.0	10.00	0	50.5	75	125	4.990	1.18	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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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141003C**	QC Batch: **R95141**			PrepDate			Analyst: **RB**
Turbidity	0.13	0.10	0.10		NTU	1	10/3/2014

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141003C**	QC Batch: **R95141**			PrepDate			Analyst: **RB**
Turbidity	0.12	0.10	0.10		NTU	1	10/3/2014

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141003C**	QC Batch: **R95141**			PrepDate			Analyst: **RB**
Turbidity	0.11	0.10	0.10		NTU	1	10/3/2014

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141003C**	QC Batch: **R95141**			PrepDate			Analyst: **RB**
Turbidity	0.11	0.10	0.10		NTU	1	10/3/2014

Qualifiers:

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

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Date: *16-Oct-14*

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID	**N013514-001DDUP**	SampType:	**DUP**	TestCode:	**2130_W**	Units:	**NTU**	Prep Date:				RunNo:	**95141**		
Client ID:	**ZZZZZZ**	Batch ID:	**R95141**	TestNo:	**SM 2130B**			Analysis Date:	**10/3/2014**			SeqNo:	**1844438**		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual	
Turbidity		0.120		0.10						0.1300		8.00	30		

Qualifiers:

B	Analyte detected in 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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141006A**	QC Batch: **R95182**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.69	0.016	0.20		µg/L	1	10/6/2014 01:02 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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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141006A**	QC Batch: **R95182**			PrepDate			Analyst: **RB**
Hexavalent Chromium	1.2	0.016	0.20		µg/L	1	10/6/2014 01:11 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **IC7_141006A**	QC Batch: **R95182**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.52	0.016	0.20		µg/L	1	10/6/2014 01:21 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141006A**	QC Batch: **R95182**			PrepDate			Analyst: **RB**
Hexavalent Chromium	2.4	0.016	0.20		µg/L	1	10/6/2014 01:30 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-80-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:45:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141006A**	QC Batch: **R95182**			PrepDate			Analyst: **RB**
Hexavalent Chromium	ND	0.016	0.20		µg/L	1	10/6/2014 01:39 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R95182** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **PBW** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846259**

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-R95182** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **LCSW** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846260**

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 **N013514-001A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.713	0.20	1.000	0.6856	103	90	110				

Sample ID **N013514-002A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.291	0.20	1.000	1.223	107	90	110				

Sample ID **N013514-003A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.574	0.20	1.000	0.5184	106	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		

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N013514-004A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.423	0.20	1.000	2.378	104	90	110				

Sample ID **N013514-005A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846272**

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	0.06360	103	90	110				

Sample ID **N013514-001A-DUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.699	0.20						0.6856	1.92	20	

Sample ID **N013514-002A-MSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.216	0.20	1.000	1.223	99.2	90	110	2.291	3.35	20	

Sample ID **N013515-003A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	139.718	2.0	50.00	89.77	99.9	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		

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N013515-006A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846281**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.171	0.20	1.000	0.1177	105	90	110				

Sample ID **N013515-009A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.174	0.20	1.000	0.1737	100	90	110				

Sample ID **N013515-010A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846284**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	152.366	2.0	50.00	104.2	96.3	90	110				

Sample ID **N013515-002A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	6.795	1.0	5.000	1.508	106	90	110				

Sample ID **N013515-007A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95182**
Client ID: **ZZZZZZ** Batch ID: **R95182** TestNo: **EPA 218.6** Analysis Date: **10/6/2014** SeqNo: **1846290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.057	1.0	5.000	0	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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141008A**	QC Batch: **R95220**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	52	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Total (As CaCO3)	52	1.2	5.0		mg/L	1	10/8/2014 02:00 PM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-002

Client Sample ID: CW-01M-032
Collection Date: 10/2/2014 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141008A**	QC Batch: **R95220**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	60	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Total (As CaCO3)	60	1.2	5.0		mg/L	1	10/8/2014 02:00 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141008A**	QC Batch: **R95220**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	54	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Total (As CaCO3)	54	1.2	5.0		mg/L	1	10/8/2014 02:00 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141008A**	QC Batch: **R95220**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	58	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2014 02:00 PM
Alkalinity, Total (As CaCO3)	58	1.2	5.0		mg/L	1	10/8/2014 02:00 PM

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R95220** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95220**
Client ID: **LCSW** Batch ID: **R95220** TestNo: **SM 2320 B** Analysis Date: **10/8/2014** SeqNo: **1847671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	98.272	5.0	100.0	0	98.3	85	115				
Alkalinity, Total (As CaCO3)	98.272	5.0	100.0	0	98.3	85	115				

Sample ID **MB-R95220** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95220**
Client ID: **PBW** Batch ID: **R95220** TestNo: **SM 2320 B** Analysis Date: **10/8/2014** SeqNo: **1847672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N013514-001D DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95220**
Client ID: **ZZZZZZ** Batch ID: **R95220** TestNo: **SM 2320 B** Analysis Date: **10/8/2014** SeqNo: **1847674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	51.836	5.0						51.84	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	51.836	5.0						51.84	0	30	

Sample ID **N013514-001D MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95220**
Client ID: **ZZZZZZ** Batch ID: **R95220** TestNo: **SM 2320 B** Analysis Date: **10/8/2014** SeqNo: **1847675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	146.868	5.0	100.0	51.84	95.0	75	125				
Alkalinity, Total (As CaCO3)	146.868	5.0	100.0	51.84	95.0	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **N013514-001D MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95220**
Client ID: **ZZZZZZ** Batch ID: **R95220** TestNo: **SM 2320 B** Analysis Date: **10/8/2014** SeqNo: **1847676**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	147.948	5.0	100.0	51.84	96.1	75	125	146.9	0.733	20	
Alkalinity, Total (As CaCO3)	147.948	5.0	100.0	51.84	96.1	75	125	146.9	0.733	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: *20-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141006A**	QC Batch: **46644**			PrepDate	**10/6/2014**		Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/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: *20-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141006A**	QC Batch: **46644**			PrepDate	**10/6/2014**		Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/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: *20-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141006A**	QC Batch: **46644**			PrepDate	**10/6/2014**		Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/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: *20-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141006A**	QC Batch: **46644**			PrepDate	**10/6/2014**		Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/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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Date: *20-Oct-14*

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 245.1_WD

Sample ID **LCS-46644** SampType: **LCS** TestCode: **245.1_WD** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95173**
Client ID: **LCSW** Batch ID: **46644** TestNo: **EPA 245.1** Analysis Date: **10/6/2014** SeqNo: **1853582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.678	0.20	5.000	0	93.6	85	115				

Sample ID **MB-46644** SampType: **MBLK** TestCode: **245.1_WD** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95173**
Client ID: **PBW** Batch ID: **46644** TestNo: **EPA 245.1** Analysis Date: **10/6/2014** SeqNo: **1853583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID **N013514-002C-MS** SampType: **MS** TestCode: **245.1_WD** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95173**
Client ID: **ZZZZZZ** Batch ID: **46644** TestNo: **EPA 245.1** Analysis Date: **10/6/2014** SeqNo: **1853586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.493	0.20	5.000	0	89.9	75	125				

Sample ID **N013514-002C-MSD** SampType: **MSD** TestCode: **245.1_WD** Units: **µg/L** Prep Date: **10/6/2014** RunNo: **95173**
Client ID: **ZZZZZZ** Batch ID: **46644** TestNo: **EPA 245.1** Analysis Date: **10/6/2014** SeqNo: **1853587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.378	0.20	5.000	0	87.6	75	125	4.493	2.59	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: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-001

Client Sample ID: CW-01D-032
Collection Date: 10/2/2014 11:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Chloride	2000	12	250		mg/L	500	10/3/2014 06:25 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Fluoride	4.2	0.055	0.50		mg/L	5	10/3/2014 01:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Sulfate	490	1.6	25		mg/L	50	10/3/2014 04:07 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-002

Client Sample ID: CW-01M-032
Collection Date: 10/2/2014 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Chloride	1900	12	250		mg/L	500	10/3/2014 06:37 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Fluoride	4.3	0.055	0.50		mg/L	5	10/3/2014 02:01 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Sulfate	470	3.3	50		mg/L	100	10/3/2014 04:44 PM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-003

Client Sample ID: CW-02D-032
Collection Date: 10/2/2014 2:40:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Chloride	1900	12	250		mg/L	500	10/3/2014 06:50 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Fluoride	4.6	0.055	0.50		mg/L	5	10/3/2014 12:57 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Sulfate	470	3.3	50		mg/L	100	10/3/2014 05:22 PM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013514
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013514-004

Client Sample ID: CW-02M-032
Collection Date: 10/2/2014 3:20:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Chloride	2000	12	250		mg/L	500	10/3/2014 07:03 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Fluoride	5.0	0.055	0.50		mg/L	5	10/3/2014 01:36 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141003A** QC Batch: **R95152**				PrepDate			Analyst: **PS**
Sulfate	490	3.3	50		mg/L	100	10/3/2014 05:34 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CL

Sample ID **MB-R95152_CL** SampType: **MBLK** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95152**
Client ID: **PBW** Batch ID: **R95152** TestNo: **EPA 300.0** Analysis Date: **10/3/2014** SeqNo: **1845239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **LCS-R95152_CL** SampType: **LCS** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95152**
Client ID: **LCSW** Batch ID: **R95152** TestNo: **EPA 300.0** Analysis Date: **10/3/2014** SeqNo: **1845240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.410	0.50	2.500	0	96.4	90	110				

Sample ID **N013514-003D-DUP** SampType: **DUP** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95152**
Client ID: **ZZZZZZ** Batch ID: **R95152** TestNo: **EPA 300.0** Analysis Date: **10/3/2014** SeqNo: **1845249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1916.500	250						1914	0.131	20	

Sample ID **N013514-003D-MS** SampType: **MS** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95152**
Client ID: **ZZZZZZ** Batch ID: **R95152** TestNo: **EPA 300.0** Analysis Date: **10/3/2014** SeqNo: **1845252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3250.500	250	1250	1914	107	80	120				

Sample ID **N013514-003D-MSD** SampType: **MSD** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95152**
Client ID: **ZZZZZZ** Batch ID: **R95152** TestNo: **EPA 300.0** Analysis Date: **10/3/2014** SeqNo: **1845253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3264.000	250	1250	1914	108	80	120	3250	0.414	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_F

Sample ID	MB-R95152_F	SampType:	MBLK	TestCode:	300_W_F	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	PBW	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845174

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID	LCS-R95152_F	SampType:	LCS	TestCode:	300_W_F	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	LCSW	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845175

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.446	0.10	2.500	0	97.8	90	110				

Sample ID	N013514-001D-MS	SampType:	MS	TestCode:	300_W_F	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	ZZZZZZ	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845182

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	9.175	0.50	5.000	4.230	98.9	80	120				

Sample ID	N013514-001D-DUP	SampType:	DUP	TestCode:	300_W_F	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	ZZZZZZ	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845183

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	4.560	0.50						4.230	7.51	20	

Sample ID	N013514-001D-MSD	SampType:	MSD	TestCode:	300_W_F	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	ZZZZZZ	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845184

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	9.390	0.50	5.000	4.230	103	80	120	9.175	2.32	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4

Sample ID	MB-R95152_SO4	SampType:	MBLK	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	PBW	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845286

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R95152_SO4	SampType:	LCS	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	LCSW	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845287

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.978	0.50	5.000	0	99.6	90	110				

Sample ID	N013514-002D-DUP	SampType:	DUP	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	ZZZZZZ	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845296

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	480.200	50						473.9	1.32	20	

Sample ID	N013514-002D-MS	SampType:	MS	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	ZZZZZZ	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845297

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	982.800	50	500.0	473.9	102	80	120				

Sample ID	N013514-002D-MSD	SampType:	MSD	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95152
Client ID:	ZZZZZZ	Batch ID:	R95152	TestNo:	EPA 300.0			Analysis Date:	10/3/2014	SeqNo:	1845298

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	984.200	50	500.0	473.9	102	80	120	982.8	0.142	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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **WETCHEM2_141013A**	QC Batch: **R95285**			PrepDate			Analyst: **PS**
Nitrate/Nitrite as N	3.4	0.11	0.25		mg/L	5	10/13/2014

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **WETCHEM2_141013A**	QC Batch: **R95285**			PrepDate			Analyst: **PS**
Nitrate/Nitrite as N	2.6	0.11	0.25		mg/L	5	10/13/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **WETCHEM2_141013A**	QC Batch: **R95285**			PrepDate			Analyst: **PS**
Nitrate/Nitrite as N	2.4	0.11	0.25		mg/L	5	10/13/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141013A** QC Batch: **R95285** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	2.5	0.11	0.25		mg/L	5	10/13/2014

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R95285** SampType: **MBLK** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95285**
Client ID: **PBW** Batch ID: **R95285** TestNo: **SM4500-NO3** Analysis Date: **10/13/2014** SeqNo: **1849889**

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-R95285** SampType: **LCS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95285**
Client ID: **LCSW** Batch ID: **R95285** TestNo: **SM4500-NO3** Analysis Date: **10/13/2014** SeqNo: **1849890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.991	0.050	1.000	0	99.1	85	115				

Sample ID **N013514-002EDUP** SampType: **DUP** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95285**
Client ID: **ZZZZZZ** Batch ID: **R95285** TestNo: **SM4500-NO3** Analysis Date: **10/13/2014** SeqNo: **1849893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.803	0.25						2.628	6.44	20	

Sample ID **N013514-002EMS** SampType: **MS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95285**
Client ID: **ZZZZZZ** Batch ID: **R95285** TestNo: **SM4500-NO3** Analysis Date: **10/13/2014** SeqNo: **1849894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	7.530	0.25	5.000	2.628	98.0	85	115				

Sample ID **N013514-002EMSD** SampType: **MSD** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95285**
Client ID: **ZZZZZZ** Batch ID: **R95285** TestNo: **SM4500-NO3** Analysis Date: **10/13/2014** SeqNo: **1849895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	7.243	0.25	5.000	2.628	92.3	85	115	7.530	3.89	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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141007D**	QC Batch: **46664**			PrepDate	**10/7/2014**		Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/7/2014 04:13 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-01M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141007D**	QC Batch: **46664**			PrepDate	**10/7/2014**		Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/7/2014 04:41 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: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02D-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 2:40:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141007D**	QC Batch: **46664**			PrepDate	**10/7/2014**		Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/7/2014 04:56 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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ANALYTICAL RESULTS

Print Date: *16-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-02M-032
Lab Order:	N013514	**Collection Date:**	10/2/2014 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013514-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141007D**	QC Batch: **46664**				PrepDate	**10/7/2014**	Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/7/2014 05:01 PM

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010W_HINK

Sample ID **MB-46664** SampType: **MBLK** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **PBW** Batch ID: **46664** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/7/2014** SeqNo: **1846532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	0.020									

Sample ID **LCS-46664** SampType: **LCS** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **LCSW** Batch ID: **46664** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/7/2014** SeqNo: **1846533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.110	0.020	0.1000	0	110	85	115				

Sample ID **N013514-001B-MS** SampType: **MS** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **ZZZZZZ** Batch ID: **46664** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/7/2014** SeqNo: **1846537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.102	0.020	0.1000	0.002252	100	75	125				

Sample ID **N013514-001B-MSD** SampType: **MSD** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: **10/7/2014** RunNo: **95183**
Client ID: **ZZZZZZ** Batch ID: **46664** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/7/2014** SeqNo: **1846538**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.104	0.020	0.1000	0.002252	102	75	125	0.1023	1.80	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		

CH2MHILL

CHAIN OF CUSTODY RECORD

10/2/2014 3:54:12 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.CM
Task Order
Project 2014-CMP-032
Turnaround Time 10 Days
Shipping Date: 10/2/2014
COC Number: 2

				Cr6 (E218.6) Field Filtered	Metals (6010B) Total Fe	Metals (E200series) Field Filtered AlSbAsBaBeBCaCdCoCrCuFePb MgMnHgMoNiSeAgTlVZnKNa	Anions (E300.0) Cl, Fl, SO4	Specific Conductance (E120.1)	Turbidity (SM2130)	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
Container:				250 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	1 Liter Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
Filtered:				Field	NA	Field	NA	NA	NA	NA	NA	NA	NA			
Holding Time:				28	180	180	2	2	2	2	2	28	28			
DATE		**TIME**	**Matrix**													
CW-01D-032	10/2/2014	11:00	Water	X	X	X	X	X	X	X	X	X	X	N013514-01	6	
CW-01M-032	10/2/2014	11:26	Water	X	X	X	X	X	X	X	X	X	X	-02	6	
CW-02D-032	10/2/2014	14:40	Water	X	X	X	X	X	X	X	X	X	X	-03	6	
CW-02M-032	10/2/2014	15:20	Water	X	X	X	X	X	X	X	X	X	X	-04	6	
OW-80-032	10/2/2014	15:45	Water	X										-05	1	
														TOTAL NUMBER OF CONTAINERS	25	

	Signatures	Date/Time
Approved by		10-2-14
Sampled by		1600
Relinquished by		
Received by		10/2/14 1600
Relinquished by		10/2/14
Received by		10/2/14 1515

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 8.1°C
Airbill No: 1P#2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Oct 1-6, 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:	10/2/2014	Workorder:	N013514
Rep sample Temp (Deg C):	3.1	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: MBC for ACortes 10/04/14

Reviewed By: 10/07/14

SAMPLE CALCULATION

METHOD: 2540C
TEST NAME: Total Filterable Solids
MATRIX: Water

FORMULA:

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

$$\text{TDS, in mg/L} = \frac{(A-B)*1{,}000{,}000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N013514-001D,** TDS in mg/L is calculated as follows:

63.8790-63.7941

$$\text{TDS (mg/L)} = \frac{(63.7941-63.8790)*1000000}{20}$$

= 4245

Reporting result in two significant figures,

TDS=4200

10/15/2014

for

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

7

Date Finished: 10/~~03~~/2014	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-46653	100	55.3759	55.3754	-5	1	-5		
LCS-46653	100	54.9394	55.043	1036	1	1036		
N013514-001D	20	63.7941	63.879	849	5	4245	7130	0.595371669
N013514-001D DUP	20	55.178	55.2633	853	5	4265	7130	0.598176718
N013514-002D	20	55.5661	55.6511	850	5	4250	7170	0.592747559
N013514-003D	20	53.9353	54.0132	779	5	3895	7120	0.547050562
N013514-004D	20	53.7261	53.8019	758	5	3790	6920	0.547687861
N013523-001F	100	55.7424	55.7744	320	1	320	387	0.826873385
N013524-001F	100	54.8522	54.8822	300	1	300	358	0.837988827

10/07/2014

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

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

Magnesium, 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 **N013514-001C**, the concentration in mg/L is calculated as follows:

Magnesium, mg/L = 15.53242806 * 1 * (25/25)

= 15.53242806

Reporting results in two significant figures,

Magnesium, mg/L = 16

Nancy 10/16/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013514
Test Method: EPA 200.7
Analysis Date: 10/07/14

Matrix: Water
Batch No.: 46651

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Claire E. Ignacio

Al and Fe
Dilution Test is not applicable for B. The calculated concentration was <25X the RL. However the PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N013514-001C-DT 5X	Aluminum	mg/L	0	NA	0		10
N013514-001C-DT 5X	Boron	mg/L	0.9658821600	NA	0.9280157200	4.08%	10
N013514-001C-DT 5X	Iron	mg/L	0	NA	0		10
N013514-001C-DT 5X	Magnesium	mg/L	17.055757465	PASSED	15.532430000	9.81%	10

Note: NA - Not Applicable

10/16/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013514
Test Method: EPA 200.7
Analysis Date: 10/08/14

Matrix: Water
Batch No.: 46651

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Claire E. Ignacio

Dilution Test failed for Na.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N013514-001C-DT 5X	Potassium	mg/L	13.171958	PASS	13.054171	0.90%	10
N013514-001C-DT 500X	Sodium	mg/L	1902.6665	FAIL	1667.4084	14.11%	10

-004C

Note: NA - Not Applicable

10/16/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013514
Test Method: EPA 200.7
Analysis Date: 10/08/14

Matrix: Water
Batch No.: 46651

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Claire E. Ignacio

Dilution Test failed for Ca.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N013514-001C-DT 5X	Calcium	mg/L	164.130169	FAIL	132.451074	23.92%	10

Note: NA - Not Applicable

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID: **N013514-001C-PS** SampType: **PS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: RunNo: **95183**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/7/2014** SeqNo: **1846590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.621	0.50	10.00	0	96.2	75	125				
Boron	6.196	0.10	5.000	0.9280	105	75	125				
Iron	0.105	0.50	0.1000	0	105	75	125				
Magnesium	25.683	0.10	10.00	15.53	102	75	125				

Sample ID: **N013514-004C-PS** SampType: **PS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: RunNo: **95204**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	34.749	0.50	20.00	13.05	108	75	125				

Sample ID: **N013514-004C-PS** SampType: **PS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: RunNo: **95204**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1639.617	50	2000	1667	-1.39	75	125				S

Sample ID: **N013514-001C-PS** SampType: **PS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: RunNo: **95215**
Client ID: **ZZZZZZ** Batch ID: **46651** TestNo: **EPA 200.7** Analysis Date: **10/8/2014** SeqNo: **1847553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	138.749	0.50	10.00	132.5	63.0	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 200.8
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

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

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N013514-001C,** the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.15211868645036 * 1 * (25/25)

= 1.15211868645036

Reporting results in two significant figures,

Arsenic, ug/L = 1.2

10/16/2014

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013514
Test Method: EPA 200.8
Analysis Date: 10/6/2014

Matrix: Water
Batch No.: 46652

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

Comments:

except Ba

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to all analytes. The calculated values are <25X RL. PS of all analytes except Mn passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N013514-001C-DT 5X	Antimony	µg/L	0	NA	0		10
N013514-001C-DT 5X	Arsenic	µg/L	1.283990379	NA	1.152118686	11.45%	10
N013514-001C-DT 25X	Barium	µg/L	28.50771	NA	27.37148508	4.15%	10
N013514-001C-DT 5X	Beryllium	µg/L	0	NA	0		10
N013514-001C-DT 5X	Cadmium	µg/L	0	NA	0		10
N013514-001C-DT 5X	Chromium	µg/L	0.579893176	NA	0.626422237	7.43%	10
N013514-001C-DT 5X	Cobalt	µg/L	0	NA	0		10
N013514-001C-DT 5X	Manganese	µg/L	0	NA	0		10
N013514-001C-DT 5X	Molybdenum	µg/L	22.49622361	NA	21.43158382	4.97%	10
N013514-001C-DT 5X	Nickel	µg/L	0	NA	0		10
N013514-001C-DT 5X	Selenium	µg/L	3.589028165	NA	3.436627167	4.43%	10
N013514-001C-DT 5X	Silver	µg/L	0	NA	0		10
N013514-001C-DT 5X	Vanadium	µg/L	2.580558329	NA	2.364205641	9.15%	10
N013514-001C-DT 5X	Zinc	µg/L	1.53089499	NA	1.172387622	30.58%	10

Note: NA - Not applicable

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013514
Test Method: EPA 200.8
Analysis Date: 10/8/2014

Matrix: Water
Batch No.: 46652

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.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N013514-001C-DT 5X	Copper	µg/L	0	NA	0		10
N013514-001C-DT 25X	Lead	µg/L	0	NA	0		10
N013514-001C-DT 25X	Thallium	µg/L	0	NA	0		10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **N013514-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **95186**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.818	0.50	10.00	0	98.2	80	120				
Arsenic	11.082	0.10	10.00	1.152	99.3	80	120				
Beryllium	10.973	0.50	10.00	0	110	80	120				
Cadmium	8.178	0.50	10.00	0	81.8	80	120				
Chromium	9.212	1.0	10.00	0.6264	85.9	80	120				
Cobalt	8.005	0.50	10.00	0	80.0	80	120				
Manganese	60.881	0.50	100.0	0	60.9	80	120				S
Molybdenum	30.910	0.50	10.00	21.43	94.8	80	120				
Nickel	8.741	1.0	10.00	0	87.4	80	120				
Selenium	11.778	0.50	10.00	3.437	83.4	80	120				
Silver	9.123	0.50	10.00	0	91.2	80	120				
Vanadium	11.285	1.0	10.00	2.364	89.2	80	120				
Zinc	85.900	10	100.0	1.172	84.7	80	120				

Sample ID: **N013514-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **95186**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/6/2014** SeqNo: **1846389**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	134.526	5.0	100.0	27.37	107	80	120				

Sample ID: **N013514-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **95214**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847479**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	4.867	1.0	10.00	0	48.7	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **N013514-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **95214**
Client ID: **ZZZZZZ** Batch ID: **46652** TestNo: **EPA 200.8** Analysis Date: **10/8/2014** SeqNo: **1847480**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.595	5.0	10.00	0	106	80	120				
Thallium	10.056	2.5	10.00	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

Cr^{+6}, µg/L = A * DF

where:

A = µg/L, IC Cr^{+6} calculated concentration
DF = dilution factor

For **N013514-004A** concentration in µg/L is calculated as follows:

Cr^{+6}, µg/L = 2.3784 * 1

= 2.3784

Reporting result in two significant figures,

Cr^{+6}, µg/L = 2.4

10/15/2014

Sample ID: **N013514-001D @ pH 7.71**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.575mL)

= **0.02160 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (2.40) (0.02160 N) (1) * 1000

= 51.8400 **mg/L**

Reporting results in two significant figures,

= 52 **mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02160 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (2.40 mL) (0.02160) (1) * 1000

= 51.8400 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 51.8400 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 52 **mg/L**

Advanced Technology Laboratories, Inc.

Sample Calculation

Work Order No.:	**N013514**
Test Method:	**EPA 7470**
Matrix:	**Aqueous**

FORMULA:

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

Hg = [A] [DF]

where:

A = ug/L, instrument calculated concentration
DF = dilution factor

For: **N013514-001C**

The concentration in ug/L is calculated as follows:

Hg = [A] [DF]

Hg = [-0.01000] [1]

Hg = -0.01000 ug/L

Since result is less than reporting limit.

Hg = ND ug/L

Nancy 10/16/2014

Sample Calculation

METHOD: EPA 300.0
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Groundwater

FORMULA:

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

Fluoride, mg/L = A * DF

where:

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

For **N013514-001D** concentration in mg/L is calculated as follows:

Fluoride, mg/L = 0.846 * 5

= 4.23

Reporting result in two significant figures,

Fluoride, mg/L = 4.2

Nancy 10/15/2014

SAMPLE CALCULATION

METHOD: SM4500-NO3F
TEST NAME: Nitrate/Nitrite by Cadmium reduction
MATRIX: WATER: Water

FORMULA:

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

Nitrate/Nitrite, mg/L = A*DF

Where:
A= mg/L, UV-VIS Cadmium reduction calculated concentration

DF= dilution factor

For **N013515-001E,** concentration in mg/L is calculated as follows:

Nitrate/Nitrite, mg/L = 0..6796 *5

= 3.398 mg/L

Reporting result in two significant figures; Since the reporting limit is 0.05 mg/L therefore,

Nitrate/Nitrite concentration = 3.4 mg/L

Nancy 10/15/201

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

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

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 **N013514-001B**, the concentration in mg/L is calculated as follows:

Iron, mg/L = 0.002251828 * 1 * (25/25)

= 0.002251828

Reporting results in two significant figures,

Iron, mg/L = 0.0023

Since reporting limit is 0.02 mg/L,

Iron, mg/L = ND

10/16/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013514
Test Method: EPA 6010
Analysis Date: 10/07/14

Matrix: Water
Batch No.: 46664

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Claire E. Ignacio

Dilution Test is not applicable for Fe. The calculated concentration was <25X the RL. However the PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N013514-001B-DT 5X	Iron	mg/L	0.0040743350	NA	0.0022520000	80.92%	10

Note: NA - Not Applicable

ASSET Laboratories

Date: *07-Oct-14*

CLIENT: CH2M HILL
Work Order: N013514
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010W_HINK

Sample ID: **N013514-001B-PS** SampType: **PS** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: RunNo: **95183**
Client ID: **ZZZZZZ** Batch ID: **46664** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/7/2014** SeqNo: **1846536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.103	0.020	0.1000	0.002252	100	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

October 24, 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.: N013574

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 08, 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,

for

Jose Tenorio Jr.
Laboratory Director

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

ASSET Laboratories **Date:** *24-Oct-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.CM
Lab Order: N013574

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail- Tustin,CA.

Analytical Comments for EPA 200.7_Dissolved:

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

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Because the results for total dissolved chromium (5.359 ug/L) and hexavalent chromium (6.786 ug/L) for sample N013574-002 (CW-03M-032) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 5.533 and 5.266 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

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

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acceptable.

Dilution was necessary on some analytes for samples N013574-001, N013574-002, N013574-003, N013574-004, N013574-008, N013574-012, N013574-013 and N013574-015 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria.

Analytical Comments for SM 2320B:

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

Analytical Comments for SM 4500_NO3F:

Matrix Spike (MS) is outside recovery criteria possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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ASSET Laboratories

Date: *24-Oct-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.CM
Lab Order: N013574
Contract No: 2014-CMP-032

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N013574-001A	CW-03D-032	Water	10/7/2014 8:22:00 AM	10/8/2014	10/24/2014
N013574-001B	CW-03D-032	Water	10/7/2014 8:22:00 AM	10/8/2014	10/24/2014
N013574-001C	CW-03D-032	Water	10/7/2014 8:22:00 AM	10/8/2014	10/24/2014
N013574-001D	CW-03D-032	Water	10/7/2014 8:22:00 AM	10/8/2014	10/24/2014
N013574-001E	CW-03D-032	Water	10/7/2014 8:22:00 AM	10/8/2014	10/24/2014
N013574-001F	CW-03D-032	Water	10/7/2014 8:22:00 AM	10/8/2014	10/24/2014
N013574-002A	CW-03M-032	Water	10/7/2014 9:22:00 AM	10/8/2014	10/24/2014
N013574-002B	CW-03M-032	Water	10/7/2014 9:22:00 AM	10/8/2014	10/24/2014
N013574-002C	CW-03M-032	Water	10/7/2014 9:22:00 AM	10/8/2014	10/24/2014
N013574-002D	CW-03M-032	Water	10/7/2014 9:22:00 AM	10/8/2014	10/24/2014
N013574-002E	CW-03M-032	Water	10/7/2014 9:22:00 AM	10/8/2014	10/24/2014
N013574-002F	CW-03M-032	Water	10/7/2014 9:22:00 AM	10/8/2014	10/24/2014
N013574-003A	CW-04D-032	Water	10/7/2014 11:26:00 AM	10/8/2014	10/24/2014
N013574-003B	CW-04D-032	Water	10/7/2014 11:26:00 AM	10/8/2014	10/24/2014
N013574-003C	CW-04D-032	Water	10/7/2014 11:26:00 AM	10/8/2014	10/24/2014
N013574-003D	CW-04D-032	Water	10/7/2014 11:26:00 AM	10/8/2014	10/24/2014
N013574-003E	CW-04D-032	Water	10/7/2014 11:26:00 AM	10/8/2014	10/24/2014
N013574-003F	CW-04D-032	Water	10/7/2014 11:26:00 AM	10/8/2014	10/24/2014
N013574-004A	CW-04M-032	Water	10/7/2014 12:15:00 PM	10/8/2014	10/24/2014
N013574-004B	CW-04M-032	Water	10/7/2014 12:15:00 PM	10/8/2014	10/24/2014
N013574-004C	CW-04M-032	Water	10/7/2014 12:15:00 PM	10/8/2014	10/24/2014
N013574-004D	CW-04M-032	Water	10/7/2014 12:15:00 PM	10/8/2014	10/24/2014
N013574-004E	CW-04M-032	Water	10/7/2014 12:15:00 PM	10/8/2014	10/24/2014
N013574-004F	CW-04M-032	Water	10/7/2014 12:15:00 PM	10/8/2014	10/24/2014
N013574-005A	OW-01D-032	Water	10/7/2014 2:22:00 PM	10/8/2014	10/24/2014
N013574-005B	OW-01D-032	Water	10/7/2014 2:22:00 PM	10/8/2014	10/24/2014
N013574-005C	OW-01D-032	Water	10/7/2014 2:22:00 PM	10/8/2014	10/24/2014
N013574-005D	OW-01D-032	Water	10/7/2014 2:22:00 PM	10/8/2014	10/24/2014
N013574-006A	OW-01M-032	Water	10/7/2014 2:42:00 PM	10/8/2014	10/24/2014

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.CM
Lab Order: N013574
Contract No: 2014-CMP-032

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N013574-006B	OW-01M-032	Water	10/7/2014 2:42:00 PM	10/8/2014	10/24/2014
N013574-006C	OW-01M-032	Water	10/7/2014 2:42:00 PM	10/8/2014	10/24/2014
N013574-006D	OW-01M-032	Water	10/7/2014 2:42:00 PM	10/8/2014	10/24/2014
N013574-007A	OW-01S-032	Water	10/7/2014 2:58:00 PM	10/8/2014	10/24/2014
N013574-007B	OW-01S-032	Water	10/7/2014 2:58:00 PM	10/8/2014	10/24/2014
N013574-007C	OW-01S-032	Water	10/7/2014 2:58:00 PM	10/8/2014	10/24/2014
N013574-007D	OW-01S-032	Water	10/7/2014 2:58:00 PM	10/8/2014	10/24/2014
N013574-008A	OW-70-032	Water	10/7/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-008B	OW-70-032	Water	10/7/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-008C	OW-70-032	Water	10/7/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-008D	OW-70-032	Water	10/7/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-008E	OW-70-032	Water	10/7/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-008F	OW-70-032	Water	10/7/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-009A	OW-02D-032	Water	10/8/2014 12:43:00 PM	10/8/2014	10/24/2014
N013574-009B	OW-02D-032	Water	10/8/2014 12:43:00 PM	10/8/2014	10/24/2014
N013574-009C	OW-02D-032	Water	10/8/2014 12:43:00 PM	10/8/2014	10/24/2014
N013574-009D	OW-02D-032	Water	10/8/2014 12:43:00 PM	10/8/2014	10/24/2014
N013574-010A	OW-02M-032	Water	10/8/2014 1:28:00 PM	10/8/2014	10/24/2014
N013574-010B	OW-02M-032	Water	10/8/2014 1:28:00 PM	10/8/2014	10/24/2014
N013574-010C	OW-02M-032	Water	10/8/2014 1:28:00 PM	10/8/2014	10/24/2014
N013574-010D	OW-02M-032	Water	10/8/2014 1:28:00 PM	10/8/2014	10/24/2014
N013574-011A	OW-02S-032	Water	10/8/2014 1:46:00 PM	10/8/2014	10/24/2014
N013574-011B	OW-02S-032	Water	10/8/2014 1:46:00 PM	10/8/2014	10/24/2014
N013574-011C	OW-02S-032	Water	10/8/2014 1:46:00 PM	10/8/2014	10/24/2014
N013574-011D	OW-02S-032	Water	10/8/2014 1:46:00 PM	10/8/2014	10/24/2014
N013574-012A	OW-05D-032	Water	10/8/2014 9:05:00 AM	10/8/2014	10/24/2014
N013574-012B	OW-05D-032	Water	10/8/2014 9:05:00 AM	10/8/2014	10/24/2014
N013574-012C	OW-05D-032	Water	10/8/2014 9:05:00 AM	10/8/2014	10/24/2014
N013574-012D	OW-05D-032	Water	10/8/2014 9:05:00 AM	10/8/2014	10/24/2014
N013574-012E	OW-05D-032	Water	10/8/2014 9:05:00 AM	10/8/2014	10/24/2014

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.CM
Lab Order: N013574
Contract No: 2014-CMP-032

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N013574-012F	OW-05D-032	Water	10/8/2014 9:05:00 AM	10/8/2014	10/24/2014
N013574-013A	OW-05M-032	Water	10/8/2014 9:52:00 AM	10/8/2014	10/24/2014
N013574-013B	OW-05M-032	Water	10/8/2014 9:52:00 AM	10/8/2014	10/24/2014
N013574-013C	OW-05M-032	Water	10/8/2014 9:52:00 AM	10/8/2014	10/24/2014
N013574-013D	OW-05M-032	Water	10/8/2014 9:52:00 AM	10/8/2014	10/24/2014
N013574-013E	OW-05M-032	Water	10/8/2014 9:52:00 AM	10/8/2014	10/24/2014
N013574-013F	OW-05M-032	Water	10/8/2014 9:52:00 AM	10/8/2014	10/24/2014
N013574-014A	OW-05S-032	Water	10/8/2014 10:20:00 AM	10/8/2014	10/24/2014
N013574-014B	OW-05S-032	Water	10/8/2014 10:20:00 AM	10/8/2014	10/24/2014
N013574-014C	OW-05S-032	Water	10/8/2014 10:20:00 AM	10/8/2014	10/24/2014
N013574-014D	OW-05S-032	Water	10/8/2014 10:20:00 AM	10/8/2014	10/24/2014
N013574-015A	OW-71-032	Water	10/8/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-015B	OW-71-032	Water	10/8/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-015C	OW-71-032	Water	10/8/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-015D	OW-71-032	Water	10/8/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-015E	OW-71-032	Water	10/8/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-015F	OW-71-032	Water	10/8/2014 8:00:00 AM	10/8/2014	10/24/2014
N013574-016A	OW-81-032	Water	10/8/2014 6:50:00 AM	10/8/2014	10/24/2014
N013574-017A	OW-82-032	Water	10/8/2014 2:34:00 PM	10/8/2014	10/24/2014

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	10/9/2014

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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	10/9/2014

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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	10/9/2014

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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	6500	0.10	0.10		umhos/cm	1	10/9/2014

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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	10/9/2014

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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	6900	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01S-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	4500	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-70-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	6800	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 12:43:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009F**	QC Batch: **R95229**			PrepDate			Analyst: **AC**
Specific Conductance	6900	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009G**	QC Batch: **R95230**			PrepDate			Analyst: **AC**
Specific Conductance	6800	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009G**	QC Batch: **R95230**			PrepDate			Analyst: **AC**
Specific Conductance	2100	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009G**	QC Batch: **R95230**			PrepDate			Analyst: **AC**
Specific Conductance	6800	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009G**	QC Batch: **R95230**			PrepDate			Analyst: **AC**
Specific Conductance	6800	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009G**	QC Batch: **R95230**			PrepDate			Analyst: **AC**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_141009G**	QC Batch: **R95230**			PrepDate			Analyst: **AC**
Specific Conductance	6900	0.10	0.10		umhos/cm	1	10/9/2014

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: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N013574-001D DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **95229**
Client ID: **ZZZZZZ** Batch ID: **R95229** TestNo: **EPA 120.1** Analysis Date: **10/9/2014** SeqNo: **1847762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7010.000	0.10						7010	0	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N013574-010C DUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:				RunNo:	**95230**
Client ID:	**ZZZZZZ**	Batch ID:	**R95230**	TestNo:	**EPA 120.1**			Analysis Date:	**10/9/2014**			SeqNo:	**1847772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6810.000	0.10						6830	0.293	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4000	50	50		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	5100	50	50		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4000	50	50		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4400	50	50		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01S-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	3400	33	33		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-70-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4100	50	50		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 12:43:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009I**	QC Batch: **46679**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4000	50	50		mg/L	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009J**	QC Batch: **46680**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4400	50	50		mg/L	1	10/9/2014 08:09 AM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009J**	QC Batch: **46680**				PrepDate	**10/9/2014**	Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	1200	17	17		mg/L	1	10/9/2014 08:09 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009J**	QC Batch: **46680**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	10/9/2014 08:09 AM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009J**	QC Batch: **46680**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4000	50	50		mg/L	1	10/9/2014 08:09 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009J**	QC Batch: **46680**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	2700	25	25		mg/L	1	10/9/2014 08:09 AM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_141009J**	QC Batch: **46680**			PrepDate	**10/9/2014**		Analyst: **AC**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	10/9/2014 08:09 AM

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

ASSET Laboratories

Date: *24-Oct-14*

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **MB-46679** SampType: **MBLK** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/9/2014** RunNo: **95255**
Client ID: **PBW** Batch ID: **46679** TestNo: **SM2540C** Analysis Date: **10/9/2014** SeqNo: **1848639**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **LCS-46679** SampType: **LCS** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/9/2014** RunNo: **95255**
Client ID: **LCSW** Batch ID: **46679** TestNo: **SM2540C** Analysis Date: **10/9/2014** SeqNo: **1848640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1045.000	10	1000	0	104	80	120				

Sample ID **N013574-001D DUP** SampType: **DUP** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/9/2014** RunNo: **95255**
Client ID: **ZZZZZZ** Batch ID: **46679** TestNo: **SM2540C** Analysis Date: **10/9/2014** SeqNo: **1848650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	3910.000	50						4045	3.39	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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CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-46680** SampType: **LCS** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/9/2014** RunNo: **95264**
Client ID: **LCSW** Batch ID: **46680** TestNo: **SM2540C** Analysis Date: **10/9/2014** SeqNo: **1849121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1058.000	10	1000	0	106	80	120				

Sample ID **MB-46680** SampType: **MBLK** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/9/2014** RunNo: **95264**
Client ID: **PBW** Batch ID: **46680** TestNo: **SM2540C** Analysis Date: **10/9/2014** SeqNo: **1849122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N013576-002DDUP** SampType: **DUP** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **10/9/2014** RunNo: **95264**
Client ID: **ZZZZZZ** Batch ID: **46680** TestNo: **SM2540C** Analysis Date: **10/9/2014** SeqNo: **1849130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4493.288	33						4517	0.518	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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141017B**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/17/2014 04:12 PM
Boron	0.96	0.019	0.10		mg/L	1	10/20/2014 03:34 PM
Calcium	64	0.058	0.50		mg/L	1	10/17/2014 04:12 PM
Iron	ND	0.0013	0.50		mg/L	1	10/17/2014 04:12 PM
Magnesium	4.8	0.011	0.10		mg/L	1	10/17/2014 04:12 PM
Potassium	11	0.31	2.5		mg/L	5	10/18/2014 04:09 PM
Sodium	1500	12	50		mg/L	100	10/18/2014 05:43 PM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141017B**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/17/2014 04:41 PM
Boron	1.2	0.019	0.10		mg/L	1	10/20/2014 03:56 PM
Calcium	170	0.058	0.50		mg/L	1	10/17/2014 04:41 PM
Iron	ND	0.0013	0.50		mg/L	1	10/17/2014 04:41 PM
Magnesium	15	0.011	0.10		mg/L	1	10/17/2014 04:41 PM
Potassium	14	0.31	2.5		mg/L	5	10/18/2014 04:13 PM
Sodium	1600	12	50		mg/L	100	10/18/2014 05:46 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-003

Client Sample ID: CW-04D-032
Collection Date: 10/7/2014 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141017B**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/17/2014 04:47 PM
Boron	1.0	0.019	0.10		mg/L	1	10/20/2014 04:01 PM
Calcium	97	0.058	0.50		mg/L	1	10/17/2014 04:47 PM
Iron	ND	0.0013	0.50		mg/L	1	10/17/2014 04:47 PM
Magnesium	7.3	0.011	0.10		mg/L	1	10/17/2014 04:47 PM
Potassium	12	0.31	2.5		mg/L	5	10/18/2014 04:18 PM
Sodium	1600	12	50		mg/L	100	10/18/2014 05:49 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141017B**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/17/2014 04:51 PM
Boron	0.90	0.019	0.10		mg/L	1	10/20/2014 04:06 PM
Calcium	150	0.058	0.50		mg/L	1	10/17/2014 04:51 PM
Iron	ND	0.0013	0.50		mg/L	1	10/17/2014 04:51 PM
Magnesium	13	0.011	0.10		mg/L	1	10/17/2014 04:51 PM
Potassium	13	0.31	2.5		mg/L	5	10/18/2014 04:22 PM
Sodium	1400	12	50		mg/L	100	10/18/2014 05:53 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141018A**	QC Batch: **46700**				PrepDate **10/13/2014**		Analyst: **CEI**
Sodium	1600	12	50		mg/L	100	10/18/2014 05:02 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141018A**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Sodium	1600	12	50		mg/L	100	10/18/2014 05:05 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01S-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
EPA 200.7							
RunID: **ICP2_141018A**	QC Batch: **46700**				PrepDate **10/13/2014**		Analyst: **CEI**
Sodium	750	12	50		mg/L	100	10/18/2014 05:08 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-008

Client Sample ID: OW-70-032
Collection Date: 10/7/2014 8:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141017B**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/17/2014 04:56 PM
Boron	0.94	0.019	0.10		mg/L	1	10/20/2014 04:20 PM
Calcium	63	0.058	0.50		mg/L	1	10/17/2014 04:56 PM
Iron	ND	0.0013	0.50		mg/L	1	10/17/2014 04:56 PM
Magnesium	4.7	0.011	0.10		mg/L	1	10/17/2014 04:56 PM
Potassium	11	0.31	2.5		mg/L	5	10/18/2014 04:27 PM
Sodium	1600	12	50		mg/L	100	10/18/2014 05:56 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 12:43:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141018A**	QC Batch: **46700**				PrepDate **10/13/2014**		Analyst: **CEI**
Sodium	1500	12	50		mg/L	100	10/18/2014 05:12 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141018A**	QC Batch: **46700**				PrepDate **10/13/2014**		Analyst: **CEI**
Sodium	1500	12	50		mg/L	100	10/18/2014 05:15 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
EPA 200.7							
RunID: **ICP2_141020A**	QC Batch: **46700**				PrepDate **10/13/2014**		Analyst: **CEI**
Boron	0.63	0.019	0.10		mg/L	1	10/20/2014 04:24 PM
Sodium	1600	12	50		mg/L	100	10/18/2014 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141017B**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/17/2014 05:17 PM
Boron	0.87	0.019	0.10		mg/L	1	10/20/2014 04:32 PM
Calcium	100	0.058	0.50		mg/L	1	10/17/2014 05:17 PM
Iron	ND	0.0013	0.50		mg/L	1	10/17/2014 05:17 PM
Magnesium	23	0.011	0.10		mg/L	1	10/17/2014 05:17 PM
Potassium	14	0.31	2.5		mg/L	5	10/18/2014 04:35 PM
Sodium	1500	12	50		mg/L	100	10/18/2014 05:59 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141017B**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/17/2014 05:54 PM
Boron	0.95	0.019	0.10		mg/L	1	10/20/2014 04:36 PM
Calcium	120	0.058	0.50		mg/L	1	10/17/2014 05:54 PM
Iron	ND	0.0013	0.50		mg/L	1	10/17/2014 05:54 PM
Magnesium	19	0.011	0.10		mg/L	1	10/17/2014 05:54 PM
Potassium	14	0.31	2.5		mg/L	5	10/18/2014 04:39 PM
Sodium	1500	12	50		mg/L	100	10/18/2014 06:03 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141018A**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Sodium	620	12	50		mg/L	100	10/18/2014 05:22 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **ICP2_141017B**	QC Batch: **46700**			PrepDate	**10/13/2014**		Analyst: **CEI**
Aluminum	ND	0.0062	0.50		mg/L	1	10/17/2014 05:59 PM
Boron	0.93	0.019	0.10		mg/L	1	10/20/2014 04:39 PM
Calcium	100	0.058	0.50		mg/L	1	10/17/2014 05:59 PM
Iron	ND	0.0013	0.50		mg/L	1	10/17/2014 05:59 PM
Magnesium	25	0.011	0.10		mg/L	1	10/17/2014 05:59 PM
Potassium	15	0.31	2.5		mg/L	5	10/18/2014 04:57 PM
Sodium	1500	12	50		mg/L	100	10/18/2014 06:06 PM

Qualifiers:

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

ASSET Laboratories

Date: *24-Oct-14*

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID **MB-46700** SampType: **MBLK** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95351**
Client ID: **PBW** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/17/2014** SeqNo: **1852539**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.50									
Calcium	0.067	0.50									
Iron	0.004	0.50									
Magnesium	ND	0.10									

Sample ID **LCS1-46700** SampType: **LCS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95351**
Client ID: **LCSW** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/17/2014** SeqNo: **1852540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8.998	0.50	10.00	0	90.0	85	115				
Calcium	9.785	0.50	10.00	0	97.9	85	115				
Iron	0.098	0.50	0.1000	0	97.5	85	115				
Magnesium	9.201	0.10	10.00	0	92.0	85	115				

Sample ID **N013574-001C-MS1** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95351**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/17/2014** SeqNo: **1852546**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8.833	0.50	10.00	0	88.3	75	125				
Calcium	70.653	0.50	10.00	64.28	63.7	75	125				S
Iron	0.105	0.50	0.1000	0.004840	99.9	75	125				
Magnesium	13.653	0.10	10.00	4.818	88.4	75	125				

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95351**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/17/2014** SeqNo: **1852547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8.729	0.50	10.00	0	87.3	75	125	8.833	1.17	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95351**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/17/2014** SeqNo: **1852547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	70.224	0.50	10.00	64.28	59.4	75	125	70.65	0.609	20	S
Iron	0.104	0.50	0.1000	0.004840	99.4	75	125	0.1048	0	20	
Magnesium	13.512	0.10	10.00	4.818	86.9	75	125	13.65	1.04	20	

Sample ID **MB-46700** SampType: **MBLK** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **PBW** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	0.50									
Sodium	ND	0.50									

Sample ID **LCS2-46700** SampType: **LCS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **LCSW** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	20.734	0.50	20.00	0	104	85	115				
Sodium	20.928	0.50	20.00	0	105	85	115				

Sample ID **N013574-002C-MS2** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	36.576	2.5	20.00	14.49	110	75	125				

Sample ID **N013574-002C-MS2** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1792.276	50	20.00	1625	834	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID **N013574-002C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	36.991	2.5	20.00	14.49	112	75	125	36.58	1.13	20	

Sample ID **N013574-002C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852757**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1777.894	50	20.00	1625	762	75	125	1792	0.806	20	S

Sample ID **N013574-012C-MS2** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	14.370	2.5	20.00	14.48	-0.559	75	125				S

Sample ID **N013574-012C-MS2** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1557.266	50	25.00	1464	375	75	125				S

Sample ID **MB-46700** SampType: **MBLK** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95394**
Client ID: **PBW** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/20/2014** SeqNo: **1854679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID **LCS1-46700** SampType: **LCS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95394**
Client ID: **LCSW** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/20/2014** SeqNo: **1854680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	4.559	0.10	5.000	0	91.2	85	115				

Sample ID **N013574-001C-MS1** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95394**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/20/2014** SeqNo: **1854684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	5.806	0.10	5.000	0.9642	96.8	75	125				

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95394**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/20/2014** SeqNo: **1854685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	5.948	0.10	5.000	0.9642	99.7	75	125	5.806	2.42	20	

Sample ID **N013574-011B-MS1** SampType: **MS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95394**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/20/2014** SeqNo: **1854693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.609	0.10	0.5000	0.6315	-4.42	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-001

Client Sample ID: CW-03D-032
Collection Date: 10/7/2014 8:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/19/2014 02:09 PM
Arsenic	1.4	0.027	0.10		µg/L	1	10/19/2014 02:09 PM
Barium	14	0.030	1.0		µg/L	1	10/22/2014 10:15 AM
Beryllium	ND	0.051	2.5		µg/L	5	10/20/2014 11:04 AM
Cadmium	ND	0.013	0.50		µg/L	1	10/19/2014 02:09 PM
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 02:09 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/19/2014 02:09 PM
Copper	ND	0.040	1.0		µg/L	1	10/20/2014 11:09 AM
Lead	ND	0.053	5.0		µg/L	5	10/19/2014 02:03 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 02:09 PM
Molybdenum	16	0.76	2.5		µg/L	5	10/19/2014 02:03 PM
Nickel	ND	0.032	1.0		µg/L	1	10/20/2014 11:09 AM
Selenium	2.7	0.069	0.50		µg/L	1	10/20/2014 11:09 AM
Silver	ND	0.094	0.50		µg/L	1	10/19/2014 02:09 PM
Thallium	ND	0.040	2.5		µg/L	5	10/19/2014 02:03 PM
Vanadium	2.5	0.16	1.0		µg/L	1	10/20/2014 11:09 AM
Zinc	ND	0.23	10		µg/L	1	10/22/2014 10:15 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-002

Client Sample ID: CW-03M-032
Collection Date: 10/7/2014 9:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/19/2014 03:34 PM
Arsenic	1.0	0.027	0.10		µg/L	1	10/19/2014 03:34 PM
Barium	47	0.030	1.0		µg/L	1	10/22/2014 11:11 AM
Beryllium	ND	0.010	0.50		µg/L	1	10/20/2014 12:37 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/19/2014 03:34 PM
Chromium	5.4	0.030	1.0		µg/L	1	10/19/2014 03:34 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/19/2014 03:34 PM
Copper	ND	0.040	1.0		µg/L	1	10/20/2014 12:37 PM
Lead	ND	0.053	5.0		µg/L	5	10/19/2014 03:28 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 03:34 PM
Molybdenum	25	0.15	0.50		µg/L	1	10/19/2014 03:34 PM
Nickel	ND	0.032	1.0		µg/L	1	10/20/2014 12:37 PM
Selenium	1.3	0.069	0.50		µg/L	1	10/20/2014 12:37 PM
Silver	ND	0.094	0.50		µg/L	1	10/19/2014 03:34 PM
Thallium	ND	0.040	2.5		µg/L	5	10/19/2014 03:28 PM
Vanadium	2.5	0.16	1.0		µg/L	1	10/20/2014 12:37 PM
Zinc	ND	0.23	10		µg/L	1	10/22/2014 11:11 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-003

Client Sample ID: CW-04D-032
Collection Date: 10/7/2014 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/19/2014 03:45 PM
Arsenic	2.9	0.027	0.10		µg/L	1	10/19/2014 03:45 PM
Barium	18	0.030	1.0		µg/L	1	10/22/2014 11:16 AM
Beryllium	ND	0.010	0.50		µg/L	1	10/20/2014 12:48 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/19/2014 03:45 PM
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 03:45 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/19/2014 03:45 PM
Copper	ND	0.040	1.0		µg/L	1	10/20/2014 12:48 PM
Lead	ND	0.053	5.0		µg/L	5	10/19/2014 03:39 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 03:45 PM
Molybdenum	22	0.15	0.50		µg/L	1	10/19/2014 03:45 PM
Nickel	ND	0.032	1.0		µg/L	1	10/20/2014 12:48 PM
Selenium	2.6	0.069	0.50		µg/L	1	10/20/2014 12:48 PM
Silver	ND	0.094	0.50		µg/L	1	10/19/2014 03:45 PM
Thallium	ND	0.040	2.5		µg/L	5	10/19/2014 03:39 PM
Vanadium	3.4	0.16	1.0		µg/L	1	10/20/2014 12:48 PM
Zinc	ND	0.23	10		µg/L	1	10/22/2014 11:16 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-004

Client Sample ID: CW-04M-032
Collection Date: 10/7/2014 12:15:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/19/2014 04:24 PM
Arsenic	1.9	0.027	0.10		µg/L	1	10/19/2014 04:24 PM
Barium	97	0.030	1.0		µg/L	1	10/22/2014 11:22 AM
Beryllium	ND	0.010	0.50		µg/L	1	10/20/2014 01:11 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/19/2014 04:24 PM
Chromium	3.7	0.030	1.0		µg/L	1	10/19/2014 04:24 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/19/2014 04:24 PM
Copper	ND	0.040	1.0		µg/L	1	10/20/2014 01:11 PM
Lead	ND	0.053	5.0		µg/L	5	10/19/2014 03:51 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 04:24 PM
Molybdenum	9.6	0.15	0.50		µg/L	1	10/19/2014 04:24 PM
Nickel	ND	0.032	1.0		µg/L	1	10/20/2014 01:11 PM
Selenium	2.1	0.069	0.50		µg/L	1	10/20/2014 01:11 PM
Silver	ND	0.094	0.50		µg/L	1	10/19/2014 04:24 PM
Thallium	ND	0.040	2.5		µg/L	5	10/19/2014 03:51 PM
Vanadium	3.3	0.16	1.0		µg/L	1	10/20/2014 01:11 PM
Zinc	ND	0.23	10		µg/L	1	10/22/2014 11:22 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Arsenic	1.1	0.027	0.10		µg/L	1	10/19/2014 04:35 PM
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 04:35 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 04:35 PM
Molybdenum	24	0.15	0.50		µg/L	1	10/19/2014 04:35 PM
Selenium	2.8	0.069	0.50		µg/L	1	10/20/2014 01:22 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Arsenic	2.3	0.027	0.10		µg/L	1	10/19/2014 04:46 PM
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 04:46 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 04:46 PM
Molybdenum	20	0.15	0.50		µg/L	1	10/19/2014 04:46 PM
Selenium	3.0	0.069	0.50		µg/L	1	10/20/2014 01:33 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01S-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **ICP7_141019B**	QC Batch: **46702**				PrepDate	**10/13/2014**	Analyst: **CEI**
Arsenic	0.79	0.027	0.10		µg/L	1	10/19/2014 04:57 PM
Chromium	9.4	0.030	1.0		µg/L	1	10/19/2014 04:57 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 04:57 PM
Molybdenum	9.7	0.15	0.50		µg/L	1	10/19/2014 04:57 PM
Selenium	2.1	0.069	0.50		µg/L	1	10/20/2014 03:00 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-008

Client Sample ID: OW-70-032
Collection Date: 10/7/2014 8:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/19/2014 05:08 PM
Arsenic	1.4	0.027	0.10		µg/L	1	10/19/2014 05:08 PM
Barium	15	0.030	1.0		µg/L	1	10/22/2014 11:28 AM
Beryllium	ND	0.010	0.50		µg/L	1	10/20/2014 01:55 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/19/2014 05:08 PM
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 05:08 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/19/2014 05:08 PM
Copper	ND	0.040	1.0		µg/L	1	10/20/2014 01:55 PM
Lead	ND	0.053	5.0		µg/L	5	10/19/2014 05:02 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 05:08 PM
Molybdenum	17	0.15	0.50		µg/L	1	10/19/2014 05:08 PM
Nickel	ND	0.032	1.0		µg/L	1	10/20/2014 01:55 PM
Selenium	2.8	0.069	0.50		µg/L	1	10/20/2014 01:55 PM
Silver	ND	0.094	0.50		µg/L	1	10/19/2014 05:08 PM
Thallium	ND	0.040	2.5		µg/L	5	10/19/2014 05:02 PM
Vanadium	2.7	0.16	1.0		µg/L	1	10/20/2014 01:55 PM
Zinc	ND	0.23	10		µg/L	1	10/22/2014 11:28 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 12:43:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **ICP7_141019B**	QC Batch: **46702**				PrepDate	**10/13/2014**	Analyst: **CEI**
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 05:30 PM
Molybdenum	25	0.15	0.50		µg/L	1	10/19/2014 05:30 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **ICP7_141019B**	QC Batch: **46702**				PrepDate	**10/13/2014**	Analyst: **CEI**
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 05:41 PM
Molybdenum	19	0.15	0.50		µg/L	1	10/19/2014 05:41 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **ICP7_141019B**	QC Batch: **46702**				PrepDate	**10/13/2014**	Analyst: **CEI**
Chromium	19	0.030	1.0		µg/L	1	10/19/2014 03:12 PM
Molybdenum	37	0.15	0.50		µg/L	1	10/19/2014 03:12 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-012

Client Sample ID: OW-05D-032
Collection Date: 10/8/2014 9:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/19/2014 05:52 PM
Arsenic	4.3	0.027	0.10		µg/L	1	10/19/2014 05:52 PM
Barium	20	0.030	1.0		µg/L	1	10/22/2014 11:33 AM
Beryllium	ND	0.010	0.50		µg/L	1	10/20/2014 02:17 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/19/2014 05:52 PM
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 05:52 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/19/2014 05:52 PM
Copper	ND	0.040	1.0		µg/L	1	10/20/2014 02:17 PM
Lead	ND	0.053	5.0		µg/L	5	10/19/2014 05:47 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 05:52 PM
Molybdenum	25	0.15	0.50		µg/L	1	10/19/2014 05:52 PM
Nickel	ND	0.032	1.0		µg/L	1	10/20/2014 02:17 PM
Selenium	2.8	0.069	0.50		µg/L	1	10/20/2014 02:17 PM
Silver	ND	0.094	0.50		µg/L	1	10/19/2014 05:52 PM
Thallium	ND	0.040	2.5		µg/L	5	10/19/2014 05:47 PM
Vanadium	3.3	0.16	1.0		µg/L	1	10/20/2014 02:17 PM
Zinc	ND	0.23	10		µg/L	1	10/22/2014 11:33 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-013

Client Sample ID: OW-05M-032
Collection Date: 10/8/2014 9:52:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/19/2014 06:04 PM
Arsenic	0.71	0.027	0.10		µg/L	1	10/19/2014 06:04 PM
Barium	37	0.030	1.0		µg/L	1	10/22/2014 11:39 AM
Beryllium	ND	0.010	0.50		µg/L	1	10/20/2014 02:32 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/19/2014 06:04 PM
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 06:04 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/19/2014 06:04 PM
Copper	ND	0.040	1.0		µg/L	1	10/20/2014 02:32 PM
Lead	ND	0.053	5.0		µg/L	5	10/19/2014 05:58 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 06:04 PM
Molybdenum	23	0.15	0.50		µg/L	1	10/19/2014 06:04 PM
Nickel	ND	0.032	1.0		µg/L	1	10/20/2014 02:32 PM
Selenium	2.9	0.069	0.50		µg/L	1	10/20/2014 02:32 PM
Silver	ND	0.094	0.50		µg/L	1	10/19/2014 06:04 PM
Thallium	ND	0.040	2.5		µg/L	5	10/19/2014 05:58 PM
Vanadium	1.5	0.16	1.0		µg/L	1	10/20/2014 02:32 PM
Zinc	ND	0.23	10		µg/L	1	10/22/2014 11:39 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Arsenic	0.61	0.027	0.10		µg/L	1	10/19/2014 06:15 PM
Chromium	14	0.030	1.0		µg/L	1	10/19/2014 06:15 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 06:15 PM
Molybdenum	12	0.15	0.50		µg/L	1	10/19/2014 06:15 PM
Selenium	1.4	0.069	0.50		µg/L	1	10/20/2014 02:43 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-015

Client Sample ID: OW-71-032
Collection Date: 10/8/2014 8:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **ICP7_141019B**	QC Batch: **46702**			PrepDate	**10/13/2014**		Analyst: **CEI**
Antimony	ND	0.18	0.50		µg/L	1	10/19/2014 06:37 PM
Arsenic	4.4	0.027	0.10		µg/L	1	10/19/2014 06:37 PM
Barium	21	0.030	1.0		µg/L	1	10/22/2014 11:44 AM
Beryllium	ND	0.010	0.50		µg/L	1	10/20/2014 02:54 PM
Cadmium	ND	0.013	0.50		µg/L	1	10/19/2014 06:37 PM
Chromium	ND	0.030	1.0		µg/L	1	10/19/2014 06:37 PM
Cobalt	ND	0.017	0.50		µg/L	1	10/19/2014 06:37 PM
Copper	ND	0.040	1.0		µg/L	1	10/20/2014 02:54 PM
Lead	ND	0.053	5.0		µg/L	5	10/19/2014 06:20 PM
Manganese	ND	0.026	0.50		µg/L	1	10/19/2014 06:37 PM
Molybdenum	27	0.15	0.50		µg/L	1	10/19/2014 06:37 PM
Nickel	ND	0.032	1.0		µg/L	1	10/20/2014 02:54 PM
Selenium	2.8	0.069	0.50		µg/L	1	10/20/2014 02:54 PM
Silver	ND	0.094	0.50		µg/L	1	10/19/2014 06:37 PM
Thallium	ND	0.040	2.5		µg/L	5	10/19/2014 06:20 PM
Vanadium	3.4	0.16	1.0		µg/L	1	10/20/2014 02:54 PM
Zinc	ND	0.23	10		µg/L	1	10/22/2014 11:44 AM

Qualifiers:

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

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Date: *24-Oct-14*

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-46702** SampType: **MBLK** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95387**
Client ID: **PBW** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Cadmium	ND	0.50									
Chromium	ND	1.0									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									

Sample ID **LCS-46702** SampType: **LCS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95387**
Client ID: **LCSW** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.782	0.50	10.00	0	108	85	115				
Arsenic	9.881	0.10	10.00	0	98.8	85	115				
Cadmium	10.301	0.50	10.00	0	103	85	115				
Chromium	9.672	1.0	10.00	0	96.7	85	115				
Cobalt	9.896	0.50	10.00	0	99.0	85	115				
Lead	10.706	1.0	10.00	0	107	85	115				
Manganese	97.881	0.50	100.0	0	97.9	85	115				
Molybdenum	10.539	0.50	10.00	0	105	85	115				
Silver	10.049	0.50	10.00	0	100	85	115				
Thallium	10.902	0.50	10.00	0	109	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N013574-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95387**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854488**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.301	5.0	10.00	0	113	75	125				
Molybdenum	28.455	2.5	10.00	15.90	126	75	125				S
Thallium	10.330	2.5	10.00	0.05275	103	75	125				

Sample ID **N013574-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95387**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854489**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.204	0.50	10.00	0	102	75	125				
Arsenic	10.941	0.10	10.00	1.356	95.9	75	125				
Cadmium	8.414	0.50	10.00	0	84.1	75	125				
Chromium	9.083	1.0	10.00	0.4544	86.3	75	125				
Cobalt	7.974	0.50	10.00	0	79.7	75	125				
Manganese	47.941	0.50	100.0	0	47.9	75	125				S
Silver	8.842	0.50	10.00	0	88.4	75	125				

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95387**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.234	5.0	10.00	0	112	75	125				
Molybdenum	28.497	2.5	10.00	15.90	126	75	125				S
Thallium	10.976	2.5	10.00	0.05275	109	75	125				

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95387**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.204	0.50	10.00	0	102	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95387**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.710	0.10	10.00	1.356	93.5	75	125				
Cadmium	8.387	0.50	10.00	0	83.9	75	125				
Chromium	9.115	1.0	10.00	0.4544	86.6	75	125				
Cobalt	8.050	0.50	10.00	0	80.5	75	125				
Manganese	47.811	0.50	100.0	0	47.8	75	125				S
Silver	8.858	0.50	10.00	0	88.6	75	125				

Sample ID **N013574-011B-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95387**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854497**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.690	0.50	10.00	0	107	75	125				
Arsenic	11.566	0.10	10.00	1.811	97.5	75	125				
Cadmium	9.366	0.50	10.00	0	93.7	75	125				
Chromium	28.138	1.0	10.00	19.41	87.2	75	125				
Cobalt	8.677	0.50	10.00	0	86.8	75	125				
Lead	10.703	1.0	10.00	0	107	75	125				
Manganese	79.699	0.50	100.0	0	79.7	75	125				
Molybdenum	48.996	0.50	10.00	37.39	116	75	125				
Silver	9.489	0.50	10.00	0	94.9	75	125				
Thallium	10.505	0.50	10.00	0.06766	104	75	125				

Sample ID **MB-46702** SampType: **MBLK** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95397**
Client ID: **PBW** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	ND	0.50									
Copper	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-46702** SampType: **MBLK** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95397**
Client ID: **PBW** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	ND	1.0									

Sample ID **LCS-46702** SampType: **LCS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95397**
Client ID: **LCSW** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	9.764	0.50	10.00	0	97.6	85	115				
Copper	9.852	1.0	10.00	0	98.5	85	115				
Nickel	9.827	1.0	10.00	0	98.3	85	115				
Selenium	8.722	0.50	10.00	0	87.2	85	115				
Vanadium	10.214	1.0	10.00	0	102	85	115				

Sample ID **N013574-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95397**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	11.324	2.5	10.00	0	113	75	125				

Sample ID **N013574-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95397**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	4.034	1.0	10.00	0	40.3	75	125				S
Nickel	8.427	1.0	10.00	0	84.3	75	125				
Selenium	10.456	0.50	10.00	2.703	77.5	75	125				
Vanadium	12.536	1.0	10.00	2.509	100	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95397**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	10.354	2.5	10.00	0	104	75	125	11.32	8.95	20	

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95397**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855365**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	3.920	1.0	10.00	0	39.2	75	125	4.034	2.85	20	S
Nickel	8.385	1.0	10.00	0	83.9	75	125	8.427	0.497	20	
Selenium	10.909	0.50	10.00	2.703	82.1	75	125	10.46	4.24	20	
Vanadium	12.547	1.0	10.00	2.509	100	75	125	12.54	0.0881	20	

Sample ID **N013574-011B-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95397**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855369**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	9.829	0.50	10.00	0	98.3	75	125				
Copper	7.800	1.0	10.00	0	78.0	75	125				
Nickel	9.538	1.0	10.00	0.4014	91.4	75	125				
Selenium	10.279	0.50	10.00	2.057	82.2	75	125				
Vanadium	15.291	1.0	10.00	4.984	103	75	125				

Sample ID **MB-46702** SampType: **MBLK** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95430**
Client ID: **PBW** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/22/2014** SeqNo: **1856300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Zinc	ND	10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **LCS-46702** SampType: **LCS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95430**
Client ID: **LCSW** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/22/2014** SeqNo: **1856301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	100.046	1.0	100.0	0	100	85	115				
Zinc	98.712	10	100.0	0	98.7	85	115				

Sample ID **N013574-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95430**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/22/2014** SeqNo: **1856305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	117.748	1.0	100.0	14.40	103	75	125				
Zinc	75.621	10	100.0	0	75.6	75	125				

Sample ID **N013574-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95430**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/22/2014** SeqNo: **1856306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	117.730	1.0	100.0	14.40	103	75	125	117.7	0.0152	20	
Zinc	76.071	10	100.0	0	76.1	75	125	75.62	0.594	20	

Sample ID **N013574-011B-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95430**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/22/2014** SeqNo: **1856310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	150.990	1.0	100.0	56.88	94.1	75	125				
Zinc	86.946	10	100.0	2.296	84.7	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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.60	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.44	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.20	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.32	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.69	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.39	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01S-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	3.0	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-70-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.30	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 12:43:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.27	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009D**	QC Batch: **R95227**			PrepDate			Analyst: **AC**
Turbidity	0.47	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009E**	QC Batch: **R95228**			PrepDate			Analyst: **AC**
Turbidity	2.3	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009E**	QC Batch: **R95228**			PrepDate			Analyst: **AC**
Turbidity	ND	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009E**	QC Batch: **R95228**			PrepDate			Analyst: **AC**
Turbidity	0.25	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009E**	QC Batch: **R95228**			PrepDate			Analyst: **AC**
Turbidity	8.2	0.10	0.10		NTU	1	10/9/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **WETCHEM_141009E**	QC Batch: **R95228**			PrepDate			Analyst: **AC**
Turbidity	ND	0.10	0.10		NTU	1	10/9/2014

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: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID	**MB-R95227**	SampType:	**MBLK**	TestCode:	**2130_W**	Units:	**NTU**	Prep Date:				RunNo:	**95227**
Client ID:	**PBW**	Batch ID:	**R95227**	TestNo:	**SM 2130B**			Analysis Date:	**10/9/2014**			SeqNo:	**1847739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10									

Sample ID	**N013574-001D DUP**	SampType:	**DUP**	TestCode:	**2130_W**	Units:	**NTU**	Prep Date:				RunNo:	**95227**
Client ID:	**ZZZZZZ**	Batch ID:	**R95227**	TestNo:	**SM 2130B**			Analysis Date:	**10/9/2014**			SeqNo:	**1847741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.620	0.10						0.6000	3.28	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID	MB-R95228	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	95228
Client ID:	PBW	Batch ID:	R95228	TestNo:	SM 2130B			Analysis Date:	10/9/2014	SeqNo:	1847752

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10									

Sample ID	N013574-011C DUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	95228
Client ID:	ZZZZZZ	Batch ID:	R95228	TestNo:	SM 2130B			Analysis Date:	10/9/2014	SeqNo:	1847754

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	2.290	0.10						2.280	0.438	30	

Qualifiers:

B	Analyte detected in 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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.63	0.016	0.20		µg/L	1	10/14/2014 01:12 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC6_141016B**	QC Batch: **R95379**			PrepDate			Analyst: **RB**
Hexavalent Chromium	6.8	0.016	0.20		µg/L	1	10/17/2014 03:31 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.91	0.016	0.20		µg/L	1	10/14/2014 01:52 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC6_141016B**	QC Batch: **R95379**			PrepDate			Analyst: **RB**
Hexavalent Chromium	4.4	0.016	0.20		µg/L	1	10/17/2014 03:51 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.45	0.016	0.20		µg/L	1	10/14/2014 03:07 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	1.1	0.016	0.20		µg/L	1	10/14/2014 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01S-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	9.8	0.016	0.20		µg/L	1	10/14/2014 03:26 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-70-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.67	0.016	0.20		µg/L	1	10/14/2014 03:36 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 12:43:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.32	0.016	0.20		µg/L	1	10/14/2014 03:45 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.86	0.016	0.20		µg/L	1	10/14/2014 03:55 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	21	0.032	0.40		µg/L	2	10/14/2014 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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.53	0.016	0.20		µg/L	1	10/14/2014 04:13 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.82	0.016	0.20		µg/L	1	10/14/2014 04:47 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	15	0.032	0.40		µg/L	2	10/14/2014 07:10 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	0.54	0.016	0.20		µg/L	1	10/14/2014 05:07 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-81-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 6:50:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	ND	0.016	0.20		µg/L	1	10/14/2014 05:16 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-82-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 2:34:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **IC7_141014A**	QC Batch: **R95324**			PrepDate			Analyst: **RB**
Hexavalent Chromium	ND	0.016	0.20		µg/L	1	10/14/2014 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		

ASSET Laboratories

Date: *24-Oct-14*

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R95324** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **PBW** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851341**

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-R95324** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **LCSW** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.013	0.20	5.000	0	100	90	110				

Sample ID **N013574-001A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.638	0.20	1.000	0.6341	100	90	110				

Sample ID **N013574-003A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.882	0.20	1.000	0.9087	97.3	90	110				

Sample ID **N013574-001A-DUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.663	0.20						0.6341	4.46	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: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N013574-001A-MSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851350**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.677	0.20	1.000	0.6341	104	90	110	1.638	2.37	20	

Sample ID **N013574-011A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851365**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	31.226	0.40	10.00	21.30	99.2	90	110				

Sample ID **N013574-005A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.476	0.20	1.000	0.4460	103	90	110				

Sample ID **N013574-006A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.012	0.20	1.000	1.103	90.9	90	110				

Sample ID **N013574-007A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14.620	0.20	5.000	9.832	95.8	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		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N013574-008A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.677	0.20	1.000	0.6704	101	90	110				

Sample ID **N013574-009A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.292	0.20	1.000	0.3205	97.2	90	110				

Sample ID **N013574-010A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.903	0.20	1.000	0.8649	104	90	110				

Sample ID **N013574-014A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	25.339	0.40	10.00	15.19	102	90	110				

Sample ID **N013574-012A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.513	0.20	1.000	0.5284	98.5	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
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N013574-013A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.870	0.20	1.000	0.8224	105	90	110				

Sample ID **N013574-015A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.571	0.20	1.000	0.5359	104	90	110				

Sample ID **N013574-016A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.089	0.20	1.000	0.07600	101	90	110				

Sample ID **N013574-017A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95324**
Client ID: **ZZZZZZ** Batch ID: **R95324** TestNo: **EPA 218.6** Analysis Date: **10/14/2014** SeqNo: **1851380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.060	0.20	1.000	0.08090	98.0	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		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R95379** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **PBW** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854004**

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-R95379** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **LCSW** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.964	0.20	5.000	0	99.3	90	110				

Sample ID **N013623-004A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854010**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.257	0.20	1.000	1.206	105	90	110				

Sample ID **N013623-005A-DUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.823	0.20						0.8323	1.10	20	

Sample ID **N013623-005A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.817	0.20	1.000	0.8323	98.4	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N013623-006A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.416	0.20	1.000	3.353	106	90	110				

Sample ID **N013623-006A-MSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.260	0.20	1.000	3.353	90.7	90	110	4.416	3.58	20	

Sample ID **N013623-034A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	8.041	0.20	5.000	2.864	104	90	110				

Sample ID **N013623-011A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.046	0.20	1.000	0	105	90	110				

Sample ID **N013623-012A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/16/2014** SeqNo: **1854025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	13.573	0.20	5.000	8.460	102	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: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N013623-013A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/17/2014** SeqNo: **1854027**

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	0.02950	104	90	110				

Sample ID **N013623-020A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/17/2014** SeqNo: **1854039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID **N013574-002A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/17/2014** SeqNo: **1854041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.673	0.20	5.000	6.786	97.8	90	110				

Sample ID **N013574-004A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **95379**
Client ID: **ZZZZZZ** Batch ID: **R95379** TestNo: **EPA 218.6** Analysis Date: **10/17/2014** SeqNo: **1854043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.638	0.20	5.000	4.434	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 RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141010B**	QC Batch: **R95270**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	58	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Total (As CaCO3)	58	1.2	5.0		mg/L	1	10/10/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141010B**	QC Batch: **R95270**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	53	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Total (As CaCO3)	53	1.2	5.0		mg/L	1	10/10/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141010B**	QC Batch: **R95270**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	40	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Total (As CaCO3)	40	1.2	5.0		mg/L	1	10/10/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141010B**	QC Batch: **R95270**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	51	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Total (As CaCO3)	51	1.2	5.0		mg/L	1	10/10/2014

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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-70-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141010B**	QC Batch: **R95270**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	61	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Total (As CaCO3)	61	1.2	5.0		mg/L	1	10/10/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141010B**	QC Batch: **R95270**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	67	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Total (As CaCO3)	67	1.2	5.0		mg/L	1	10/10/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141010B**	QC Batch: **R95270**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	60	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Total (As CaCO3)	60	1.2	5.0		mg/L	1	10/10/2014

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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_141010B**	QC Batch: **R95270**			PrepDate			Analyst: **AC**
Alkalinity, Bicarbonate (As CaCO3)	62	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/10/2014
Alkalinity, Total (As CaCO3)	62	1.2	5.0		mg/L	1	10/10/2014

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R95270** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95270**
Client ID: **LCSW** Batch ID: **R95270** TestNo: **SM 2320 B** Analysis Date: **10/10/2014** SeqNo: **1855888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.877	5.0	100.0	0	97.9	85	115				
Alkalinity, Total (As CaCO3)	100.236	5.0	100.0	0	100	85	115				

Sample ID **MB-R95270** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95270**
Client ID: **PBW** Batch ID: **R95270** TestNo: **SM 2320 B** Analysis Date: **10/10/2014** SeqNo: **1855889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N013574-002D DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95270**
Client ID: **ZZZZZZ** Batch ID: **R95270** TestNo: **SM 2320 B** Analysis Date: **10/10/2014** SeqNo: **1855892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	50.708	5.0						53.07	4.55	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	50.708	5.0						53.07	4.55	30	

Sample ID **N013574-002D MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95270**
Client ID: **ZZZZZZ** Batch ID: **R95270** TestNo: **SM 2320 B** Analysis Date: **10/10/2014** SeqNo: **1855893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.698	5.0	100.0	53.07	43.6	75	125				S
Alkalinity, Total (As CaCO3)	96.698	5.0	100.0	53.07	43.6	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **N013574-002D MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **95270**
Client ID: **ZZZZZZ** Batch ID: **R95270** TestNo: **SM 2320 B** Analysis Date: **10/10/2014** SeqNo: **1855894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.877	5.0	100.0	53.07	44.8	75	125	96.70	1.21	20	S
Alkalinity, Total (As CaCO3)	97.877	5.0	100.0	53.07	44.8	75	125	96.70	1.21	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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141014A**	QC Batch: **46703**				PrepDate	**10/13/2014**	Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/L	1	10/14/2014 04:26 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141014A**	QC Batch: **46703**				PrepDate	**10/13/2014**	Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/L	1	10/14/2014 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141014A**	QC Batch: **46703**				PrepDate	**10/13/2014**	Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/L	1	10/14/2014 04:23 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141014A**	QC Batch: **46703**				PrepDate	**10/13/2014**	Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/L	1	10/14/2014 04:32 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-70-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141014A**	QC Batch: **46703**				PrepDate	**10/13/2014**	Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/L	1	10/14/2014 04:34 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141014A**	QC Batch: **46703**				PrepDate	**10/13/2014**	Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/L	1	10/14/2014 04:37 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141014A**	QC Batch: **46703**				PrepDate	**10/13/2014**	Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/L	1	10/14/2014 04:45 PM

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **AA1_141014A**	QC Batch: **46703**				PrepDate	**10/13/2014**	Analyst: **CEI**
Mercury	ND	0.015	0.20		µg/L	1	10/14/2014 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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CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 245.1_WD

Sample ID **MB-46703** SampType: **MBLK** TestCode: **245.1_WD** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95298**
Client ID: **PBW** Batch ID: **46703** TestNo: **EPA 245.1** Analysis Date: **10/14/2014** SeqNo: **1856945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.016	0.20									

Sample ID **LCS-46703** SampType: **LCS** TestCode: **245.1_WD** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95298**
Client ID: **LCSW** Batch ID: **46703** TestNo: **EPA 245.1** Analysis Date: **10/14/2014** SeqNo: **1856946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.077	0.20	5.000	0	102	85	115				

Sample ID **N013574-003C-MS** SampType: **MS** TestCode: **245.1_WD** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95298**
Client ID: **ZZZZZZ** Batch ID: **46703** TestNo: **EPA 245.1** Analysis Date: **10/14/2014** SeqNo: **1856947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.071	0.20	5.000	0.02608	80.9	75	125				

Sample ID **N013574-003C-MSD** SampType: **MSD** TestCode: **245.1_WD** Units: **µg/L** Prep Date: **10/13/2014** RunNo: **95298**
Client ID: **ZZZZZZ** Batch ID: **46703** TestNo: **EPA 245.1** Analysis Date: **10/14/2014** SeqNo: **1856948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.037	0.20	5.000	0.02608	80.2	75	125	4.071	0.834	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: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-001

Client Sample ID: CW-03D-032
Collection Date: 10/7/2014 8:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	2000	12	250		mg/L	500	10/9/2014 07:32 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	5.9	0.055	0.50		mg/L	5	10/13/2014 10:34 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010A** QC Batch: **R95256**				PrepDate			Analyst: **PS**
Sulfate	480	3.3	50		mg/L	100	10/10/2014 10:30 AM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-002

Client Sample ID: CW-03M-032
Collection Date: 10/7/2014 9:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	2400	12	250		mg/L	500	10/9/2014 07:45 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	5.9	0.11	1.0		mg/L	10	10/13/2014 01:54 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010A** QC Batch: **R95256**				PrepDate			Analyst: **PS**
Sulfate	460	3.3	50		mg/L	100	10/10/2014 10:43 AM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-003

Client Sample ID: CW-04D-032
Collection Date: 10/7/2014 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	2000	12	250		mg/L	500	10/9/2014 08:23 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	5.6	0.055	0.50		mg/L	5	10/13/2014 11:51 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010A** QC Batch: **R95256**				PrepDate			Analyst: **PS**
Sulfate	480	3.3	50		mg/L	100	10/10/2014 10:56 AM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-004

Client Sample ID: CW-04M-032
Collection Date: 10/7/2014 12:15:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	1900	12	250		mg/L	500	10/9/2014 08:36 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	4.2	0.11	1.0		mg/L	10	10/13/2014 02:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010A** QC Batch: **R95256**				PrepDate			Analyst: **PS**
Sulfate	460	3.3	50		mg/L	100	10/10/2014 03:08 PM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-005

Client Sample ID: OW-01D-032
Collection Date: 10/7/2014 2:22:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	2000	12	250		mg/L	500	10/9/2014 08:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	4.7	0.11	1.0		mg/L	10	10/13/2014 02:19 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010A** QC Batch: **R95256**				PrepDate			Analyst: **PS**
Sulfate	470	1.6	25		mg/L	50	10/10/2014 03:21 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	2000	12	250		mg/L	500	10/9/2014 09:01 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	4.8	0.11	1.0		mg/L	10	10/13/2014 01:41 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010A** QC Batch: **R95256**				PrepDate			Analyst: **PS**
Sulfate	480	1.6	25		mg/L	50	10/10/2014 03:34 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-007

Client Sample ID: OW-01S-032
Collection Date: 10/7/2014 2:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Chloride	1400	5.0	100		mg/L	200	10/10/2014 07:34 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	3.2	0.11	1.0		mg/L	10	10/13/2014 02:32 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_141010A** QC Batch: **R95256**				PrepDate			Analyst: **PS**
Sulfate	290	1.6	25		mg/L	50	10/10/2014 03:46 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-008

Client Sample ID: OW-70-032
Collection Date: 10/7/2014 8:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	2000	12	250		mg/L	500	10/9/2014 09:13 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	5.7	0.11	1.0		mg/L	10	10/13/2014 02:45 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010A** QC Batch: **R95256**				PrepDate			Analyst: **PS**
Sulfate	480	1.6	25		mg/L	50	10/10/2014 03:59 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 12:43:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	2100	12	250		mg/L	500	10/9/2014 09:26 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	4.8	0.11	1.0		mg/L	10	10/13/2014 02:57 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Sulfate	470	1.6	25		mg/L	50	10/10/2014 08:24 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: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-010

Client Sample ID: OW-02M-032
Collection Date: 10/8/2014 1:28:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246** PrepDate Analyst: **PS**							
Chloride	2100	12	250		mg/L	500	10/9/2014 09:39 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274** PrepDate Analyst: **PS**							
Fluoride	4.4	0.11	1.0		mg/L	10	10/13/2014 03:35 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258** PrepDate Analyst: **PS**							
Sulfate	470	1.6	25		mg/L	50	10/10/2014 09:15 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-011

Client Sample ID: OW-02S-032
Collection Date: 10/8/2014 1:46:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Chloride	530	2.5	50		mg/L	100	10/10/2014 07:21 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	4.7	0.11	1.0		mg/L	10	10/13/2014 03:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Sulfate	100	0.33	5.0		mg/L	10	10/10/2014 09:27 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-012

Client Sample ID: OW-05D-032
Collection Date: 10/8/2014 9:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141009A** QC Batch: **R95246**				PrepDate			Analyst: **PS**
Chloride	2100	12	250		mg/L	500	10/9/2014 09:51 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	4.6	0.11	1.0		mg/L	10	10/13/2014 04:00 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Sulfate	480	1.6	25		mg/L	50	10/10/2014 09:40 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141011A** QC Batch: **R95261**				PrepDate			Analyst: **PS**
Chloride	2100	12	250		mg/L	500	10/11/2014 06:41 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	4.6	0.11	1.0		mg/L	10	10/13/2014 04:13 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Sulfate	480	1.6	25		mg/L	50	10/10/2014 10:43 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Chloride	1200	12	250		mg/L	500	10/10/2014 06:18 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	2.4	0.055	0.50		mg/L	5	10/13/2014 05:16 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Sulfate	210	1.6	25		mg/L	50	10/10/2014 09:53 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT: CH2M HILL
Lab Order: N013574
Project: PG&E Topock, 423575.MP.02.CM
Lab ID: N013574-015

Client Sample ID: OW-71-032
Collection Date: 10/8/2014 8:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Chloride	2100	12	250		mg/L	500	10/10/2014 08:12 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141013A** QC Batch: **R95274**				PrepDate			Analyst: **PS**
Fluoride	4.6	0.11	1.0		mg/L	10	10/13/2014 04:38 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_141010B** QC Batch: **R95258**				PrepDate			Analyst: **PS**
Sulfate	480	1.6	25		mg/L	50	10/10/2014 10:05 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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Date: *24-Oct-14*

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CL

Sample ID **MB-R95246_CL** SampType: **MBLK** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95246**
Client ID: **PBW** Batch ID: **R95246** TestNo: **EPA 300.0** Analysis Date: **10/9/2014** SeqNo: **1848323**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **LCS-R95246_CL** SampType: **LCS** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95246**
Client ID: **LCSW** Batch ID: **R95246** TestNo: **EPA 300.0** Analysis Date: **10/9/2014** SeqNo: **1848324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.384	0.50	2.500	0	95.4	90	110				

Sample ID **N013574-001D-DUP** SampType: **DUP** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95246**
Client ID: **ZZZZZZ** Batch ID: **R95246** TestNo: **EPA 300.0** Analysis Date: **10/9/2014** SeqNo: **1848341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2051.500	250						2002	2.42	20	

Sample ID **N013574-001D-MS** SampType: **MS** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95246**
Client ID: **ZZZZZZ** Batch ID: **R95246** TestNo: **EPA 300.0** Analysis Date: **10/9/2014** SeqNo: **1848342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3364.500	250	1250	2002	109	80	120				

Sample ID **N013574-001D-MSD** SampType: **MSD** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95246**
Client ID: **ZZZZZZ** Batch ID: **R95246** TestNo: **EPA 300.0** Analysis Date: **10/9/2014** SeqNo: **1848343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3288.000	250	1250	2002	103	80	120	3364	2.30	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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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: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CL

Sample ID **MB-R95258_CL** SampType: **MBLK** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **PBW** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **LCS-R95258_CL** SampType: **LCS** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **LCSW** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.438	0.50	2.500	0	97.5	90	110				

Sample ID **N013574-014C-DUP** SampType: **DUP** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **ZZZZZZ** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1158.000	250						1158	0.0432	20	

Sample ID **N013574-014C-MS** SampType: **MS** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **ZZZZZZ** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2377.000	250	1250	1158	97.5	80	120				

Sample ID **N013574-014C-MSD** SampType: **MSD** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **ZZZZZZ** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2401.500	250	1250	1158	99.4	80	120	2377	1.03	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CL

Sample ID **MB-R95261_CL** SampType: **MBLK** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95261**
Client ID: **PBW** Batch ID: **R95261** TestNo: **EPA 300.0** Analysis Date: **10/11/2014** SeqNo: **1848904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **LCS-R95261_CL** SampType: **LCS** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95261**
Client ID: **LCSW** Batch ID: **R95261** TestNo: **EPA 300.0** Analysis Date: **10/11/2014** SeqNo: **1848905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.441	0.50	2.500	0	97.6	90	110				

Sample ID **N013574-013D-DUP** SampType: **DUP** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95261**
Client ID: **ZZZZZZ** Batch ID: **R95261** TestNo: **EPA 300.0** Analysis Date: **10/11/2014** SeqNo: **1848915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2128.000	250						2051	3.69	20	

Sample ID **N013574-013D-MS** SampType: **MS** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95261**
Client ID: **ZZZZZZ** Batch ID: **R95261** TestNo: **EPA 300.0** Analysis Date: **10/11/2014** SeqNo: **1848916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3380.000	250	1250	2051	106	80	120				

Sample ID **N013574-013D-MSD** SampType: **MSD** TestCode: **300_W_CL** Units: **mg/L** Prep Date: RunNo: **95261**
Client ID: **ZZZZZZ** Batch ID: **R95261** TestNo: **EPA 300.0** Analysis Date: **10/11/2014** SeqNo: **1848917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3385.000	250	1250	2051	107	80	120	3380	0.148	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_F

Sample ID **MB-R95274_F** SampType: **MBLK** TestCode: **300_W_F** Units: **mg/L** Prep Date: RunNo: **95274**
Client ID: **PBW** Batch ID: **R95274** TestNo: **EPA 300.0** Analysis Date: **10/13/2014** SeqNo: **1849364**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID **LCS-R95274_F** SampType: **LCS** TestCode: **300_W_F** Units: **mg/L** Prep Date: RunNo: **95274**
Client ID: **LCSW** Batch ID: **R95274** TestNo: **EPA 300.0** Analysis Date: **10/13/2014** SeqNo: **1849365**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.463	0.10	2.500	0	98.5	90	110				

Sample ID **N013574-001D-MS** SampType: **MS** TestCode: **300_W_F** Units: **mg/L** Prep Date: RunNo: **95274**
Client ID: **ZZZZZZ** Batch ID: **R95274** TestNo: **EPA 300.0** Analysis Date: **10/13/2014** SeqNo: **1849367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	10.775	0.50	5.000	5.925	97.0	80	120				

Sample ID **N013574-001D-MSD** SampType: **MSD** TestCode: **300_W_F** Units: **mg/L** Prep Date: RunNo: **95274**
Client ID: **ZZZZZZ** Batch ID: **R95274** TestNo: **EPA 300.0** Analysis Date: **10/13/2014** SeqNo: **1849371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	10.815	0.50	5.000	5.925	97.8	80	120	10.78	0.371	20	

Sample ID **N013574-001D-DUP** SampType: **DUP** TestCode: **300_W_F** Units: **mg/L** Prep Date: RunNo: **95274**
Client ID: **ZZZZZZ** Batch ID: **R95274** TestNo: **EPA 300.0** Analysis Date: **10/13/2014** SeqNo: **1849372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	5.845	0.50						5.925	1.36	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_F

Sample ID	N013574-008D-DUP	SampType:	DUP	TestCode:	300_W_F	Units:	mg/L	Prep Date:		RunNo:	95274
Client ID:	ZZZZZZ	Batch ID:	R95274	TestNo:	EPA 300.0			Analysis Date:	10/13/2014	SeqNo:	1849387

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	6.010	1.0						5.700	5.29	20	

Sample ID	N013574-008D-MS	SampType:	MS	TestCode:	300_W_F	Units:	mg/L	Prep Date:		RunNo:	95274
Client ID:	ZZZZZZ	Batch ID:	R95274	TestNo:	EPA 300.0			Analysis Date:	10/13/2014	SeqNo:	1849388

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	14.860	1.0	10.00	5.700	91.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4

Sample ID	MB-R95256_SO4	SampType:	MBLK	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95256
Client ID:	PBW	Batch ID:	R95256	TestNo:	EPA 300.0			Analysis Date:	10/10/2014	SeqNo:	1848685

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R95256_SO4	SampType:	LCS	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95256
Client ID:	LCSW	Batch ID:	R95256	TestNo:	EPA 300.0			Analysis Date:	10/10/2014	SeqNo:	1848686

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.953	0.50	5.000	0	99.1	90	110				

Sample ID	N013574-001D-DUP	SampType:	DUP	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95256
Client ID:	ZZZZZZ	Batch ID:	R95256	TestNo:	EPA 300.0			Analysis Date:	10/10/2014	SeqNo:	1848690

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	484.400	50						477.7	1.39	20	

Sample ID	N013574-001D-MS	SampType:	MS	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95256
Client ID:	ZZZZZZ	Batch ID:	R95256	TestNo:	EPA 300.0			Analysis Date:	10/10/2014	SeqNo:	1848691

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	978.500	50	500.0	477.7	100	80	120				

Sample ID	N013574-001D-MSD	SampType:	MSD	TestCode:	300_W_SO4	Units:	mg/L	Prep Date:		RunNo:	95256
Client ID:	ZZZZZZ	Batch ID:	R95256	TestNo:	EPA 300.0			Analysis Date:	10/10/2014	SeqNo:	1848692

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	969.000	50	500.0	477.7	98.3	80	120	978.5	0.976	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: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4

Sample ID **MB-R95258_SO4** SampType: **MBLK** TestCode: **300_W_SO4** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **PBW** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **LCS-R95258_SO4** SampType: **LCS** TestCode: **300_W_SO4** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **LCSW** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.120	0.50	5.000	0	102	90	110				

Sample ID **N013574-009C-DUP** SampType: **DUP** TestCode: **300_W_SO4** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **ZZZZZZ** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	471.550	25						468.2	0.702	20	

Sample ID **N013574-009C-MS** SampType: **MS** TestCode: **300_W_SO4** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **ZZZZZZ** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	730.050	25	250.0	468.2	105	80	120				

Sample ID **N013574-009C-MSD** SampType: **MSD** TestCode: **300_W_SO4** Units: **mg/L** Prep Date: RunNo: **95258**
Client ID: **ZZZZZZ** Batch ID: **R95258** TestNo: **EPA 300.0** Analysis Date: **10/10/2014** SeqNo: **1848767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	725.350	25	250.0	468.2	103	80	120	730.1	0.646	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: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	2.8	0.11	0.25		mg/L	5	10/21/2014

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	1.9	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	14	0.22	0.50		mg/L	10	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	2.7	0.11	0.25		mg/L	5	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:22:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	2.7	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	3.2	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-01S-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	3.0	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-70-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	3.2	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 12:43:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	2.8	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	3.1	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-02S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	3.7	0.11	0.25		mg/L	5	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	2.9	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
SM4500-NO3F							
RunID: **WETCHEM2_141021A** QC Batch: **R95415** PrepDate Analyst: **PS**							
Nitrate/Nitrite as N	2.7	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05S-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 10:20:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **WETCHEM2_141021A**	QC Batch: **R95415**			PrepDate			Analyst: **PS**
Nitrate/Nitrite as N	2.8	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **WETCHEM2_141021A**	QC Batch: **R95415**			PrepDate			Analyst: **PS**
Nitrate/Nitrite as N	2.6	0.044	0.10		mg/L	2	10/21/2014

Qualifiers:

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

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Date: *24-Oct-14*

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R95415** SampType: **MBLK** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95415**
Client ID: **PBW** Batch ID: **R95415** TestNo: **SM4500-NO3** Analysis Date: **10/21/2014** SeqNo: **1855779**

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-R95415** SampType: **LCS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95415**
Client ID: **LCSW** Batch ID: **R95415** TestNo: **SM4500-NO3** Analysis Date: **10/21/2014** SeqNo: **1855780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	1.146	0.050	1.000	0	115	85	115				

Sample ID **N013574-001EDUP** SampType: **DUP** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95415**
Client ID: **ZZZZZZ** Batch ID: **R95415** TestNo: **SM4500-NO3** Analysis Date: **10/21/2014** SeqNo: **1855783**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.010	0.25						2.782	7.87	20	

Sample ID **N013574-001EMS** SampType: **MS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95415**
Client ID: **ZZZZZZ** Batch ID: **R95415** TestNo: **SM4500-NO3** Analysis Date: **10/21/2014** SeqNo: **1855784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	8.837	0.25	5.000	2.782	121	85	115				S

Sample ID **N013574-001EMSD** SampType: **MSD** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **95415**
Client ID: **ZZZZZZ** Batch ID: **R95415** TestNo: **SM4500-NO3** Analysis Date: **10/21/2014** SeqNo: **1855785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	8.411	0.25	5.000	2.782	113	85	115	8.837	4.95	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	N013574-004EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95415
Client ID:	ZZZZZZ	Batch ID:	R95415	TestNo:	SM4500-NO3			Analysis Date:	10/21/2014	SeqNo:	1855789

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.794	0.25						2.676	4.30	20	

Sample ID	N013574-004EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	95415
Client ID:	ZZZZZZ	Batch ID:	R95415	TestNo:	SM4500-NO3			Analysis Date:	10/21/2014	SeqNo:	1855790

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	8.606	0.25	5.000	2.676	119	85	115				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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141017A**	QC Batch: **46701**				PrepDate	**10/13/2014**	Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/17/2014 02:48 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-03M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 9:22:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141017A**	QC Batch: **46701**				PrepDate	**10/13/2014**	Analyst: **CEI**
Iron	0.11	0.0013	0.020		mg/L	1	10/17/2014 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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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04D-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141017A**	QC Batch: **46701**				PrepDate	**10/13/2014**	Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/17/2014 03:31 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	CW-04M-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141017A**	QC Batch: **46701**			PrepDate	**10/13/2014**		Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/17/2014 03:36 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-70-032
Lab Order:	N013574	**Collection Date:**	10/7/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141017A**	QC Batch: **46701**				PrepDate	**10/13/2014**	Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/17/2014 03:42 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05D-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:05:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141017A**	QC Batch: **46701**				PrepDate	**10/13/2014**	Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/17/2014 03:46 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-05M-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 9:52:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141017A**	QC Batch: **46701**				PrepDate	**10/13/2014**	Analyst: **CEI**
Iron	0.033	0.0013	0.020		mg/L	1	10/17/2014 03:50 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *24-Oct-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-71-032
Lab Order:	N013574	**Collection Date:**	10/8/2014 8:00:00 AM
Project:	PG&E Topock, 423575.MP.02.CM	**Matrix:**	WATER
Lab ID:	N013574-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_141017A**	QC Batch: **46701**				PrepDate	**10/13/2014**	Analyst: **CEI**
Iron	ND	0.0013	0.020		mg/L	1	10/17/2014 03:56 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
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010W_HINK

Sample ID **MB-46701** SampType: **MBLK** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95350**
Client ID: **PBW** Batch ID: **46701** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/17/2014** SeqNo: **1852312**

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-46701** SampType: **LCS** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95350**
Client ID: **LCSW** Batch ID: **46701** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/17/2014** SeqNo: **1852313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.110	0.020	0.1000	0	110	85	115				

Sample ID **N013574-001B-MSD** SampType: **MSD** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95350**
Client ID: **ZZZZZZ** Batch ID: **46701** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/17/2014** SeqNo: **1852318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.123	0.020	0.1000	0.004125	119	75	125	0.1146	7.27	20	

Sample ID **N013574-001B-MS** SampType: **MS** TestCode: **6010W_HINK** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95350**
Client ID: **ZZZZZZ** Batch ID: **46701** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/17/2014** SeqNo: **1852319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.115	0.020	0.1000	0.004125	110	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		

CH2MHILL

CHAIN OF CUSTODY RECORD

10/8/2014 3:10:05 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.CM
Task Order
Project 2014-CMP-032
Turnaround Time 10 Days
Shipping Date:
COC Number: CMP-032

Container:	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	1 Liter Poly
Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C
Filtered:	Field	Field	Field	NA	Field	NA	NA	NA	NA	NA	NA	NA
Holding Time:	28	180	180	180	180	2	2	2	2	2	28	28

	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (E200.7/E200.8) Field Filtered Cr,Mo,Na	Metals (E200.7/E200.8) Field Filtered Cr,Mo,Na,Se,As,Mn	Metals (6010B) Total Fe	Metals (E200series) Field Filtered AlSbAsBaBeBCaCdCoCrCuFePbMgMnHgMoNiSeAgTlVZnKNa	Anions (E300.0) Cl, Fl, SO4	Specific Conductance (E120.1)	Turbidity (SM2130)	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
CW-03D-032	10/7/2014	8:22	Water	X			X	X	X	X	X	X	X	X	X	N013574-01	6	
CW-03M-032	10/7/2014	9:22	Water	X			X	X	X	X	X	X	X	X	X	-02	6	
CW-04D-032	10/7/2014	11:26	Water	X			X	X	X	X	X	X	X	X	X	-03	6	
CW-04M-032	10/7/2014	12:15	Water	X			X	X	X	X	X	X	X	X	X	-04	6	
OW-01D-032	10/7/2014	14:22	Water	X		X			X	X	X	X		X		-05	4	
OW-01M-032	10/7/2014	14:42	Water	X		X			X	X	X	X		X		-06	4	
OW-01S-032	10/7/2014	14:58	Water	X		X			X	X	X	X		X		-07	4	
OW-70-032	10/7/2014	8:00	Water	X			X	X	X	X	X	X	X	X	X	-08	6	
OW-02D-032	10/8/2014	12:43	Water	X	X				X	X	X	X		X		-09	4	
OW-02M-032	10/8/2014	13:28	Water	X	X				X	X	X	X		X		-10	4	
OW-02S-032	10/8/2014	13:46	Water	X	X				X	X	X	X		X		-11	4	
OW-05D-032	10/8/2014	9:05	Water	X			X	X	X	X	X	X	X	X	X	-12	6	
OW-05M-032	10/8/2014	9:52	Water	X			X	X	X	X	X	X	X	X	X	-13	6	
OW-05S-032	10/8/2014	10:20	Water	X		X			X	X	X	X		X		-14	4	

	Signatures	Date/Time
Approved by		10-8-14
Sampled by		1532
Relinquished by		
Received by		10/8/14 @ 1532
Relinquished by		
Received by		10/8/14 @ 1844

Shipping Details

Method of Shipment: FedEx
On Ice: (yes) no 1.3, 1.4, 1.0, 4.9
Airbill No: IRR ICE
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Oct 1-6, 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

10/8/2014 3:10:06 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.CM
Task Order
Project 2014-CMP-032
Turnaround Time 10 Days
Shipping Date:
COC Number: CMP-032

			Container:	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	1 Liter Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	NA	Field	NA	NA	NA	NA	NA	NA	NA			
			Holding Time:	28	180	180	180	180	2	2	2	2	2	28	28			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (E200.7/E200.8) Field Filtered Cr,Mo,Na	Metals (E200.7/E200.8) Field Filtered Cr,Mo,Na,Se,As,Mn	Metals (6010B) Total Fe	Metals (E200series) Field Filtered AlSbAsBaBeBCaCdCoCrCuFePbMgMnHgMoNiSeAgTlVZnKNa	Anions (E300.0) Cl, Fl, SO4	Specific Conductance (E120.1)	Turbidity (SM2130)	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
OW-71-032	10/8/2014	8:00	Water	X			X	X	X	X	X	X	X	X	X	N013574 - 15	6	
OW-81-032	10/8/2014	6:50	Water	X												-16	1	
OW-82-032	10/8/2014	14:34	Water	X												-17	1	
																TOTAL NUMBER OF CONTAINERS	78	

Signatures	Date/Time
Approved by	10-8-14
Sampled by	1532
Relinquished by	
Received by	10/8/14@1532
Relinquished by	10/8/14@1844
Received by	

Shipping Details

Method of Shipment: FedEx
On Ice: (yes) / no 1.3, 1.4, 1.0, 4.1
Airbill No: IR#2 ICE
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Oct 1-6, 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:	10/8/2014	Workorder:	N013574
Rep sample Temp (Deg C):	1.0, 1.3, 1.4, 4.1	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: MBC for A Cortes 10/09/14

Reviewed By: 10/13/14

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:
Truesdail
14201 Franklin Ave.
Tustin, CA 92680

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: Barry Collom

09-Oct-14

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**SM4500-NH3C**		
N013574-001F / CW-03D-032	Water	10/7/2014 8:22:00 AM	16OZP	1		
N013574-002F / CW-03M-032	Water	10/7/2014 9:22:00 AM	16OZP	1		
N013574-003F / CW-04D-032	Water	10/7/2014 11:26:00 AM	16OZP	1		
N013574-004F / CW-04M-032	Water	10/7/2014 12:15:00 PM	16OZP	1		
N013574-008F / OW-70-032	Water	10/7/2014 8:00:00 AM	16OZP	1		
N013574-012F / OW-05D-032	Water	10/8/2014 9:05:00 AM	16OZP	1		
N013574-013F / OW-05M-032	Water	10/8/2014 9:52:00 AM	16OZP	1		
N013574-015F / OW-71-032	Water	10/8/2014 8:00:00 AM	16OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N13574A For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analyze for Ammonia by SM4500. CH2MHill Samples. For questions, please contact Shawn Duffy at (530)941-9227.

GSO# 525847850

		Date/Time			Date/Time
Relinquished by:	JPGumawid	10/09/14 @ 17:00	**Received by:**		
Relinquished by:			**Received by:**		

SAMPLE CALCULATION

METHOD: 2540C
TEST NAME: Total Filterable Solids
MATRIX: Water

FORMULA:

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

$$\text{TDS, in mg/L} = \frac{(A-B)*1{,}000{,}000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N013574-002D,** TDS in mg/L is calculated as follows:

30.2104 - 30.1092

$$\text{TDS (mg/L)} = \frac{(\cancel{30.1092-30.2104})*1000000}{20}$$

$$= 5060$$

Reporting result in two significant figures,

TDS=5100

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Finished: 10/10/2014	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-46679	100	64.2677	64.2678	1	1	1		
LCS-46679	100	53.9289	54.0334	1045	1	1045		
N013574-001D	20	30.5899	30.6708	809	5	4045	7010	0.57703281
N013574-001D DUP	20	30.9885	31.0667	782	5	3910	7010	0.557774608
N013574-002D	20	30.1092	30.2104	1012	5	5060	7540	0.671087533
N013574-003D	20	30.9917	31.0726	809	5	4045	6660	0.607357357
N013574-004D	20	30.7153	30.8	847	5	4235	6510	0.650537634
N013574-005C	20	31.0237	31.1085	848	5	4240	6660	0.636636637
N013574-006C	20	61.3637	61.4522	885	5	4425	6860	0.645043732
N013574-007C	30	61.4086	61.5121	1035	3.33333	3449.99655	4500	0.7666659
N013574-008D	20	61.1311	61.2134	823	5	4115	6790	0.606038292
N013574-009C	20	61.0164	61.0958	794	5	3970	6870	0.577874818

10/13/2014

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Finished: 10/10/2014	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-46680	100	55.5535	55.5539	4	1	4		
LCS-46680	100	61.2226	61.3284	1058	1	1058		
N013574-010C	20	64.1022	64.1897	875	5	4375	6830	0.640556369
N013574-011C	60	63.5062	63.5761	699	1.66667	1165.00233	2070	0.562803058
N013574-012D	20	63.7717	63.8556	839	5	4195	6830	0.61420205
N013574-013D	20	63.9804	64.0601	797	5	3985	6810	0.585168869
N013574-014C	40	53.6558	53.7644	1086	2.5	2715	3860	0.703367876
N013574-015D	20	62.9892	63.0724	832	5	4160	6910	0.602026049
N013576-002D	30	30.6661	30.8016	1355	3.33333	4516.66215	4840	0.933194659
N013576-002D DUP	30	30.8604	30.9952	1348	3.33333	4493.32884	4840	0.928373727
N013576-003D	40	56.0348	56.178	1432	2.5	3580	3880	0.922680412
N013576-004D	10	31.3347	31.4292	945	10	9450	9070	1.041896362

10/13/2014

Sample Calculation

METHOD: EPA 200.7
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

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

Magnesium, 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 **N013574-003C**, the concentration in mg/L is calculated as follows:

Magnesium, mg/L = 7.3317621 * 1 * (25/25)

= 7.3317621

Reporting results in two significant figures,

Magnesium, mg/L = 7.3

Nancy 10/24/2014

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013574
Test Method: EPA 200.7
Analysis Date: 10/17/14

Matrix: Water
Batch No.: 46700

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable for Al, Fe & Mg. The calculated concentration was < 25X the RL. PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N013574-001C-DT 5X	Aluminum	mg/L	0	NA	0		10
N013574-001C-DT 5X	Calcium	mg/L	70.6636565	PASS	64.28271272	0.09926376	10
N013574-001C-DT 5X	Iron	mg/L	0.008312507	NA	0.004839	0.717815065	10
N013574-001C-DT 5X	Magnesium	mg/L	5.13750791	NA	4.8176	0.066404	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013574
Test Method: EPA 200.7
Analysis Date: 10/18/14

Matrix: Water
Batch No.: 46700

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Claire E. Ignacio

Dilution Test is not applicable to K. The calculated concentration was < 25X the RL. However the PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N013574-001C-DT 25X	Potassium	mg/L	14.809982	NA	14.492178	0.02	10
N013574-001C-DT	Sodium	mg/L	1765.049245	PASSED	1625.394042	0.09	10

@ 500x

Note: NA - Not Applicable

10/24/2014

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013574
Test Method: EPA 200.7
Analysis Date: 10/20/14

Matrix: Water
Batch No.: 46700

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable for B. The calculated concentration is <25X the RL. PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	Sampref Val	%DIFF	%DIFFlimit
N012290-001B-DT 5X	Boron	mg/L	1.198361932	NA	0.964162402	24.29%	10

Note: NA - Not Applicable

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WD1

Sample ID: **N013574-001C-PS** SampType: **PS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: RunNo: **95351**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/17/2014** SeqNo: **1852545**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8.467	0.50	10.00	0	84.7	75	125				
Calcium	67.091	0.50	10.00	64.28	28.1	75	125				S
Iron	0.094	0.50	0.1000	0.004840	88.8	75	125				
Magnesium	12.328	0.10	10.00	4.818	75.1	75	125				

Sample ID: **N013574-002C-PS** SampType: **PS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	36.517	2.5	20.00	14.49	110	75	125				

Sample ID: **N013574-002C-PS** SampType: **PS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: **10/13/2014** RunNo: **95344**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/18/2014** SeqNo: **1852753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1782.325	50	20.00	1625	785	75	125				S

Sample ID: **N013574-001C-PS** SampType: **PS** TestCode: **200.7_WD1** Units: **mg/L** Prep Date: RunNo: **95394**
Client ID: **ZZZZZZ** Batch ID: **46700** TestNo: **EPA 200.7** Analysis Date: **10/20/2014** SeqNo: **1854683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	5.539	0.10	5.000	0.9642	91.5	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		

Sample Calculation

METHOD: EPA 200.8
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

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

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N013574-001C,** the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.35550908966787 * 1 * (25/25)

= 1.35550908966787

Reporting results in two significant figures,

Arsenic, ug/L = 1.4

10/23/2014

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013574
Test Method: EPA 200.8
Analysis Date: 10/19/2014

Matrix: Water
Batch No.: 46702

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 value is <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N013574-001C-DT 5X	Antimony	µg/L	0	NA	0		10
N013574-001C-DT 5X	Arsenic	µg/L	1.528869637	NA	1.35550909	12.79%	10
N013574-001C-DT 5X	Cadmium	µg/L	0	NA	0		10
N013574-001C-DT 5X	Chromium	µg/L	0.488801858	NA	0.454397101	7.57%	10
N013574-001C-DT 5X	Cobalt	µg/L	0	NA	0		10
N013574-001C-DT 5X	Manganese	µg/L	0	NA	0		10
N013574-001C-DT 5X	Selenium	µg/L	2.75502215	NA	2.887700987	4.59%	10
N013574-001C-DT 5X	Silver	µg/L	0	NA	0		10
N013574-001C-DT 25X	Lead	µg/L	0	NA	0		10
N013574-001C-DT 25X	Molybdenum	µg/L	16.6755006	NA	15.89991828	4.88%	10
N013574-001C-DT 25X	Thallium	µg/L	0	NA	0.052754193	100.00%	10

Note: NA - Not applicable

Se not reported

Mary 10/23/2014

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013574
Test Method: EPA 200.8
Analysis Date: 10/20/2014

Matrix: Water
Batch No.: 46702

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 value is <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N013574-001C-DT 5X	Copper	µg/L	0	NA	0		10
N013574-001C-DT 5X	Nickel	µg/L	0	NA	0		10
N013574-001C-DT 5X	Selenium	µg/L	3.150405306	NA	2.702864503	16.56%	10
N013574-001C-DT 5X	Vanadium	µg/L	2.67729893	NA	2.508663597	6.72%	10
N013574-001C-DT 25X	Beryllium	µg/L	0	NA	0		10

Note: NA - Not applicable

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013574
Test Method: EPA 200.8
Analysis Date: 10/22/2014

Matrix: Water
Batch No.: 46702

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 value are <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N013574-001C-DT 5X	Barium	µg/L	15.62526899	NA	14.39759551	8.53%	10
N013574-001C-DT 5X	Zinc	µg/L	0	NA	0		10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N013574-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **95387**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.294	5.0	10.00	0	113	80	120				
Molybdenum	27.662	2.5	10.00	15.90	118	80	120				
Thallium	11.475	2.5	10.00	0.05275	114	80	120				

Sample ID **N013574-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **95387**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/19/2014** SeqNo: **1854487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.323	0.50	10.00	0	103	80	120				
Arsenic	11.046	0.10	10.00	1.356	96.9	80	120				
Cadmium	8.498	0.50	10.00	0	85.0	80	120				
Chromium	9.442	1.0	10.00	0.4544	89.9	80	120				
Cobalt	8.254	0.50	10.00	0	82.5	80	120				
Manganese	51.368	0.50	100.0	0	51.4	80	120				S
Silver	8.833	0.50	10.00	0	88.3	80	120				

Sample ID **N013574-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **95397**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	10.208	2.5	10.00	0	102	80	120				

Sample ID **N013574-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **95397**
Client ID: **ZZZZZZ** Batch ID: **46702** TestNo: **EPA 200.8** Analysis Date: **10/20/2014** SeqNo: **1855359**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	4.122	1.0	10.00	0	41.2	80	120				S
Nickel	8.323	1.0	10.00	0	83.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	N013574-001C-PS	SampType:	PS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:		RunNo:	95397
Client ID:	ZZZZZZ	Batch ID:	46702	TestNo:	EPA 200.8			Analysis Date:	10/20/2014	SeqNo:	1855359

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.901	0.50	10.00	2.703	82.0	80	120				
Vanadium	12.615	1.0	10.00	2.509	101	80	120				

Sample ID	N013574-001C-PS	SampType:	PS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:		RunNo:	95430
Client ID:	ZZZZZZ	Batch ID:	46702	TestNo:	EPA 200.8			Analysis Date:	10/22/2014	SeqNo:	1856304

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	118.980	1.0	100.0	14.40	105	80	120				
Zinc	76.540	10	100.0	0	76.5	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

Cr^{+6}, µg/L = A * DF

where:

A = µg/L, IC Cr^{+6} calculated concentration
DF = dilution factor

For **N013574-005A** concentration in µg/L is calculated as follows:

Cr^{+6}, µg/L = 0.446 * 1

= 0.446

Reporting result in two significant figures,

Cr^{+6}, µg/L = 0.45

Nancy 10/24/2014

Sample ID: **N013574-002D @ pH 7.76**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (10.60mL)

= **0.02358 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (2.25) (0.02358 N) (1) * 1000

= 53.0550 **mg/L**

Reporting results in two significant figures,

= 53 **mg/L** as CaCO3

10/14/2014

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02358 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (2.25 mL) (0.02358) (1) * 1000

= 53.0550 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 53.0550 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 53 **mg/L**

10/14/2014

Advanced Technology Laboratories, Inc.

Sample Calculation

Work Order No.:	**N013574**
Test Method:	**EPA 7470**
Matrix:	**Aqueous**

FORMULA:

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

Hg = [A] [DF]

where:

A = ug/L, instrument calculated concentration
DF = dilution factor

For: **N013574-003C**

The concentration in ug/L is calculated as follows:

Hg = [A] [DF]

Hg = [0.03000] [1]

Hg = 0.03000 ug/L

Since result is less than reporting limit.

Hg = ND ug/L

Nancy 10/24/2014

Sample Calculation

METHOD: EPA 300.0
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: Water

FORMULA:

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

Chloride, mg/L = A * DF

where:

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

For **N013574-011C** concentration in mg/L is calculated as follows:

Chloride, mg/L = 5.264 * 100

= 526.4

Reporting result in two significant figures,

Chloride, mg/L = 530

10/21/2014

SAMPLE CALCULATION

METHOD: SM4500-NO3F
TEST NAME: Nitrate/Nitrite by Cadmium reduction
MATRIX: WATER: Water

FORMULA:

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

Nitrate/Nitrite, mg/L = A*DF

Where:
A= mg/L, UV-VIS Cadmium reduction calculated concentration

DF= dilution factor

For **N013574-003E,** concentration in mg/L is calculated as follows:

Nitrate/Nitrite, mg/L = 1.4435 *10

= 14.435 mg/L

Reporting result in two significant figures; ~~Since the reporting limit is 0.05 mg/L therefore~~,

Nitrate/Nitrite concentration = 14 mg/L

Nancy 10/24/2014 **718**

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

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

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 **N013574-002B**, the concentration in mg/L is calculated as follows:

Iron, mg/L = 0.1142235554 * 1 * (25/25)

= 0.1142235554

Reporting results in two significant figures,

Iron, mg/L = 0.11

10/23/2014

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N013574
Test Method: EPA 6010
Analysis Date: 10/17/14

Matrix: Water
Batch No.: 46701

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Claire E. Ignacio

Dilution Test is not applicable for Fe. The calculated concentration was < 25X the RL. However the PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N013574-001B-DT 5X	Iron	mg/L	0.0048361949	NA	0.0041251237	17.24%	10

Note: NA - Not Applicable

ASSET Laboratories

Date: *19-Oct-14*

CLIENT: CH2M HILL
Work Order: N013574
Project: PG&E Topock, 423575.MP.02.CM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010W_HINK

Sample ID	**N013574-001B-PS**	SampType:	**PS**	TestCode:	**6010W_HINK**	Units:	**mg/L**	Prep Date:		RunNo:	**95350**
Client ID:	**ZZZZZZ**	Batch ID:	**46701**	TestNo:	**EPA 6010B**	**EPA 3010A**		Analysis Date:	**10/17/2014**	SeqNo:	**1852316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.116	0.020	0.1000	0.004125	112	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Appendix B
Field Data Sheets, Second Half 2014
(provided on CD-ROM only)

Topock CMP Manual Water Level Snapshot

Personnel: B. Collom / CHAM :

WLI serial number: PGE 2014-01

Loc ID	Depth to Water (ft BTOC)	Date	Time	Comments
CW-1M	108.46	8-6-14	1106	
CW-1D	108.54		1108	
CW-2M	92.05		1114	
CW-2D	91.59		1117	
CW-3M	76.91		1120	
CW-3D	76.27		1122	
CW-4M	60.80		1129	
CW-4D	60.62		1132	
OW-1S	92.94		1139	
OW-1M	92.72		1141	
OW-1D	92.38		1144	
OW-2S	91.58		1148	
OW-2M	90.86		1150	
OW-2D	90.79		1153	
OW-5S	94.41		1156	
OW-5M	93.25		1159	
OW-5D	94.01		1202	

IM-3 Staff confirm that 8-3-14, 8-4-14, and 8-5-14 were normal operation days with no backwashing or plant down time prior to snapshot collection.

PM Signature: _____

QC Signature: _____

TOPOCK PLANNED SAMPLE TABLE

Date: Oct 1-6, 2014 **Event: 2014-CMP-032 (423575.MP.02.CM)**

								Aqueous Sample Container	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	1 Liter Poly
								Aqueous Preservatives	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C
								Filtered	Field	Field	Field	NA	Field	NA	NA	NA	NA	NA	NA	NA
								Lab	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL
								Analysis Holding Time	28	180	180	180	180	2	2	2	2	2	28	28
Sample Location	Sample ID	Approx DTW (feet TOC)	Target Purge Rate (gpm)	Est. Total Purge (gal)	Est. Total Purge Duration (min)	Previous CR (VI) µg/L	Sample Method	Sample Type	Cr6 (E218.6) FF	Metals (E200.7/E200.8) FF Cr,Mo,Na	Metals (E200.7/E200.8) FF Cr,Mo,Na,Se,As,Mn	Metals (6010B) Total Fe	Metals (E200series) FF AlSbAsBaBeBCaCdCoCrCuFePbMgMnHgMoNiSeAgTlVZnKNa	Anions (E300.0) Cl, Fl, SO4	Specific Conductance (E120.1)	Turbidity (SM2130)	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3)	Ammonia (SM4500NH3)
CW-01D	CW-01D-032	108.91	3	98	32.7	ND (1.0)	Three Volume	N	10			10	10	10	10	10	10	10	10	10
CW-01M	CW-01M-032	108.85	2	42	21.0	ND (1.0)	Three Volume	N	10			10	10	10	10	10	10	10	10	10
CW-02D	CW-02D-032	91.7	3	134	44.7	ND (1.0)	Three Volume	N	10			10	10	10	10	10	10	10	10	10
CW-02M	CW-02M-032	91.98	2	56	28.0	2.20	Three Volume	N	10			10	10	10	10	10	10	10	10	10
CW-03D	CW-03D-032	76.31	3	134	44.7	ND (1.0)	Three Volume	N	10			10	10	10	10	10	10	10	10	10
CW-03D	OW-70-032	76.31	3	134	44.7	ND (1.0)	Three Volume	FD	10			10	10	10	10	10	10	10	10	10
CW-03M	CW-03M-032	76.89	2	74	37.0	6.40	Three Volume	N	10			10	10	10	10	10	10	10	10	10
CW-04D	CW-04D-032	59.94	3	124	41.3	ND (1.0)	Three Volume	N	10			10	10	10	10	10	10	10	10	10
CW-04M	CW-04M-032	61.05	2	56	28.0	4.90	Three Volume	N	10			10	10	10	10	10	10	10	10	10
OW-01D	OW-01D-032	92.74	3	94	31.3	ND (1.0)	Three Volume	N	10		10			10	10	10	10		10	
OW-01M	OW-01M-032	93.18	3	48	16.0	1.20	Three Volume	N	10		10			10	10	10	10		10	
OW-01S	OW-01S-032	93.73	1	10.2	10.2	5.80	Three Volume	N	10		10			10	10	10	10		10	
OW-02D	OW-02D-032	91.35	2	127	63.5	ND (1.0)	Three Volume	N	10	10				10	10	10	10		10	
OW-02M	OW-02M-032	91.38	2	61	30.5	1.60	Three Volume	N	10	10				10	10	10	10		10	
OW-02S	OW-02S-032	92.35	1	15	15.0	19.8	Three Volume	N	10	10				10	10	10	10		10	
OW-05D	OW-05D-032	94.85	3	131	43.7	ND (1.0)	Three Volume	N	10			10	10	10	10	10	10	10	10	10
OW-05D	OW-71-032	94.85	3	131	43.7	ND (1.0)	Three Volume	FD	10			10	10	10	10	10	10	10	10	10

PM Signature: _____

QC Signature: _____

TOPOCK PLANNED SAMPLE TABLE

Date: Oct 1-6, 2014 **Event: 2014-CMP-032 (423575.MP.02.CM)**

								Aqueous Sample Container	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	1 Liter Poly
								Aqueous Preservatives	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C
								Filtered	Field	Field	Field	NA	Field	NA	NA	NA	NA	NA	NA	NA
								Lab	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL	ATL
								Analysis Holding Time	28	180	180	180	180	2	2	2	2	2	28	28
Sample Location	Sample ID	Approx DTW (feet TOC)	Target Purge Rate (gpm)	Est. Total Purge (gal)	Est. Total Purge Duration (min)	Previous CR (VI) µg/L	Sample Method	Sample Type	Cr6 (E218.6) FF	Metals (E200.7/E200.8) FF Cr,Mo,Na	Metals (E200.7/E200.8) FF Cr,Mo,Na,Se,As,Mn	Metals (6010B) Total Fe	Metals (E200series) FF AlSbAsBaBeBCaCdCoCrCuFePbMgMnHgMoNiSeAgTlVZnKNa	Anions (E300.0) Cl, Fl, SO4	Specific Conductance (E120.1)	Turbidity (SM2130)	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3)	Ammonia (SM4500NH3)
OW-05M	OW-05M-032	94.77	2	80	40.0	ND (1.0)	Three Volume	N	10			10	10	10	10	10	10	10	10	10
OW-05S	OW-05S-032	94.44	1	8	8.00	15.4	Three Volume	N	10		10			10	10	10	10		10	
EB-CMP	OW-80-032				—			EB	10											
EB-CMP	OW-81-032				—			EB	10											
EB-CMP	OW-82-032				—			EB	10											
EB-CMP	OW-83-032				—			EB	10											
EB-CMP	OW-84-032				—			EB	10											
EB-CMP	OW-85-032				—			EB	10											
EB-CMP	OW-86-032				—			EB	10											
EB-CMP	OW-87-032				—			EB	10											
EB-CMP	OW-88-032				—			EB	10											
EB-CMP	OW-89-032				—			EB	10											

PM Signature: _____

QC Signature: _____

TOPOCK PLANNED SAMPLE TABLE

Date: Oct 1-6, 2014 **Event: 2014-CMP-032 (423575.MP.02.CM)**

NOTES:

1. Purge and sample in accordance with SOP A-1 "Purging and Sampling Monitoring Wells" and SOP A-6 "Sample Field Filtration and Preservation for Metals Analyses".
2. Record the water level and field parameters during purging. Compare parameters with previous (Table 2). Note where anamalous data is suspected and investigate equipment problems. If unresolved, report to Barry Collom 541-740-3250.
3. Complete the entire field data form and note "NA" where data is not applicable.
4. Sample when purge volume is greater than or equal to three casing volumes and stablization criteria have been met.
5. Fax Purge forms, COCs, Field notes, and Calibration forms daily to Oakland office (510)-622-9210.
6. Alkalinity will be collected in same bottle set as SC, Anions, Turbidity and TDS when collected.
7. Samples collected for SC, Anions, Turbidity and TDS should be shipped to ensure they do not exceed the minimum hold time, which is 2 days.
8. pH triggers contingency actions if pH <6.2 or pH >9.2. If pH out of that range immediately contact B.Collom ((541) 740-3250). If B.Collom unavailable contact S.Duffy ((530) 229-3303 x 33303 or (530) 510-2340). If S.Duffy unavailable contact J.Piper ((702) 953-1202 x36602) or (702) 525-1137). If J.Piper unavailable contact Christina Hong ((626) 703-4475 or (636) 297-5292).
9. TDS triggers contingency actions if TDS is greater than 10,800 µg/L (17,000 µS/cm). If TDS is out of range, immediately contact B.Collom ((541) 740-3250). If B.Collom unavailable contact S.Duffy ((530) 229-3303 x 33303 or (530) 510-2340). If S.Duffy unavailable contact J.Piper ((702) 953-1202 x36602) or (702) 525-1137). If J.Piper unavailable contact Christina Hong ((626) 703-4475 or (636) 297-5292).

CH2MHILL

CHAIN OF CUSTODY RECORD

10/2/2014 3:54:12 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.CM
Task Order
Project 2014-CMP-032
Turnaround Time 10 Days
Shipping Date: 10/2/2014
COC Number: 2

			Container:	250 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	1 Liter Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	NA	Field	NA	NA	NA	NA	NA	NA	NA			
			Holding Time:	28	180	180	2	2	2	2	2	28	28			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (6010B) Total Fe	Metals (E200series) Field Filtered AlSbAsBaBeBCaCdCoCrCuFePbMgMnHgMoNiSeAgTlVZnKNa	Anions (E300.0) Cl, Fl, SO4	Specific Conductance (E120.1)	Turbidity (SM2130)	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
CW-01D-032	10/2/2014	11:00	Water	X	X	X	X	X	X	X	X	X	X		6	
CW-01M-032	10/2/2014	11:26	Water	X	X	X	X	X	X	X	X	X	X		6	
CW-02D-032	10/2/2014	14:40	Water	X	X	X	X	X	X	X	X	X	X		6	
CW-02M-032	10/2/2014	15:20	Water	X	X	X	X	X	X	X	X	X	X		6	
OW-80-032	10/2/2014	15:45	Water	X											1	
														TOTAL NUMBER OF CONTAINERS	25	

	Signatures	Date/Time
Approved by		10-2-14
Sampled by		1600
Relinquished by		
Received by		10/2/14 1600
Relinquished by		
Received by		

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Oct 1-6, 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

10/8/2014 3:10:05 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.CM
Task Order
Project 2014-CMP-032
Turnaround Time 10 Days
Shipping Date:
COC Number: CMP-032

			Container:	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	1 Liter Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	NA	Field	NA	NA	NA	NA	NA	NA	NA			
			Holding Time:	28	180	180	180	180	2	2	2	2	2	28	28			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (E200.7/E200.8) Field Filtered Cr,Mo,Na	Metals (E200.7/E200.8) Field Filtered Cr,Mo,Na,Se,As,Mn	Metals (6010B) Total Fe	Metals (E200series) Field Filtered AlSbAsBaBeBCaCdCoCrCuFePb MgMnHgMoNiSeAgTlVZnKNa	Anions (E300.0) Cl, Fl, SO4	Specific Conductance (E120.1)	Turbidity (SM2130)	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
CW-03D-032	10/7/2014	8:22	Water	X			X	X	X	X	X	X	X	X	X		6	
CW-03M-032	10/7/2014	9:22	Water	X			X	X	X	X	X	X	X	X	X		6	
CW-04D-032	10/7/2014	11:26	Water	X			X	X	X	X	X	X	X	X	X		6	
CW-04M-032	10/7/2014	12:15	Water	X			X	X	X	X	X	X	X	X	X		6	
OW-01D-032	10/7/2014	14:22	Water	X		X			X	X	X	X		X			4	
OW-01M-032	10/7/2014	14:42	Water	X		X			X	X	X	X		X			4	
OW-01S-032	10/7/2014	14:58	Water	X		X			X	X	X	X		X			4	
OW-70-032	10/7/2014	8:00	Water	X			X	X	X	X	X	X	X	X	X		6	
OW-02D-032	10/8/2014	12:43	Water	X	X				X	X	X	X		X			4	
OW-02M-032	10/8/2014	13:28	Water	X	X				X	X	X	X		X			4	
OW-02S-032	10/8/2014	13:46	Water	X	X				X	X	X	X		X			4	
OW-05D-032	10/8/2014	9:05	Water	X			X	X	X	X	X	X	X	X	X		6	
OW-05M-032	10/8/2014	9:52	Water	X			X	X	X	X	X	X	X	X	X		6	
OW-05S-032	10/8/2014	10:20	Water	X		X			X	X	X	X		X			4	

	Signatures	Date/Time
Approved by		10-8-14
Sampled by		1532
Relinquished by		
Received by		10/8/14 @ 1532
Relinquished by		
Received by		

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:

Sample Custody
and
Marlon

Special Instructions:

Oct 1-6, 2014

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL **CHAIN OF CUSTODY RECORD** *10/8/2014 3:10:06 PM*

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.CM
Task Order
Project 2014-CMP-032
Turnaround Time 10 Days
Shipping Date:
COC Number: CMP-032

			Container:	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	1 Liter Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	NA	Field	NA	NA	NA	NA	NA	NA	NA			
			Holding Time:	28	180	180	180	180	2	2	2	2	2	28	28			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (E200.7/E200.8) Field Filtered Cr,Mo,Na	Metals (E200.7/E200.8) Field Filtered Cr,Mo,Na,Se,As,Mn	Metals (6010B) Total Fe	Metals (E200series) Field Filtered AlSbAsBaBeBCaCdCoCrCuFePbMgMnHgMoNiSeAgTlVZnKNa	Anions (E300.0) Cl, Fl, SO4	Specific Conductance (E120.1)	Turbidity (SM2130)	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3)	Ammonia (SM4500NH3)		Number of Containers	COMMENTS
OW-71-032	10/8/2014	8:00	Water	X			X	X	X	X	X	X	X	X	X		6	
OW-81-032	10/8/2014	6:50	Water	X													1	
OW-82-032	10/8/2014	14:34	Water	X													1	
																TOTAL NUMBER OF CONTAINERS	78	

	Signatures	Date/Time
Approved by		10-8-14
Sampled by		1532
Relinquished by		
Received by		10/8/14@1532
Relinquished by		
Received by		

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Oct 1-6, 2014

Report Copy to
Shawn Duffy
(530) 229-3303

Decon./Equipment Blank Logsheet

Event: CMP-032 Project #: 423575.MP.02.CM Date: 10-2-14

Date	Time	Pump #	Equip. Blank #	Initials	Last Well #
✓ 10-2-14	1545	G#3	OW-80-032	BEC	CW-2M
✓ 10-8-14	0650	G#2	OW-81-032	BEC	OW-1S
✓ 10-8-14	1434	G#2	OW-81-032	BEC	OW-2S

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-7-14

Sampler JR/RP Field Team 1 Field Conditions Rainy/overcast. Page 1 of 1

✓ BGC

Well/Sample Number OW-01D-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1350 Purge Method: 3 Vol Ded. Pump —

Flow Cell: (Y) N Min. Purge Volume (gal)/(L) 94 Purge Rate (gpm)/(mLpm) 3 Pump Make and Model G#34

Water Level	Time 6min	Vol. Purged (gallons) / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
98.41	1356	18	7.66	7696	1	4.64	28.2	-113	321 Hz
98.44	1402	36	7.61	7694	1	3.81	27.9	-111	
98.56	1408	54	7.59	7934	1	7.76	27.7	-75	Switched to Insitu 5133b to check
98.56	1414	72	7.59	7936	1	7.98	27.8	-69	numbers
98.56	1420	90	7.60	7940	1	7.98	27.8	-69	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV	
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y	
Previous Field measurement (10/9/2013)	7.47	7328	1	6.98	28.89	150	
Are measurements consistent with previous?	y	y	y	N	N	lower	

Sample Time 1422 Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): ~~93.55~~ 92.75

Field measured confirmation of Well Depth (ft btoc): ____

WD (Well Depth - from database) ft btoc (277)

SWH (Standing Water Height) = WD-Initial Depth ~~183.45~~ 184.25

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH ~~31.1865~~ 31.3225

Three Casing Volumes = ~~93.5595~~ 93.9675

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 5000

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal 1330
~~1339~~ 1333	~~93.55~~	—	—	Time of Reinstallation
Comments:	92.75			

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-7-14

Sampler X/RP Field Team 1 Field Conditions Raining/overcast Page 1 of 1

✓ BEC

Well/Sample Number OW-01M-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1425 Purge Method: _____ Ded. Pump —

Flow Cell (Y) N Min. Purge Volume (gal)/(L) 48 Purge Rate (gpm)/(mLpm) 3 Pump Make and Model G#3

Water Level	Time 3 Mins	Vol. Purged (gallons)/ liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
93.33	1428	9	7.65	7948	1	7.77	27.7	-70	389 Hz (watch Amps)
93.33	1431	18	7.65	7946	1	7.76	27.7	-70	
93.33	1434	27	7.65	7949	1	7.65	27.7	-71	
93.33	1437	36	7.65	7948	1	7.73	27.7	-71	
93.33	1440	45	7.62	8018	1	7.80	28.6	-63	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (10/9/2013)	7.35	7391	1	7.69	28.9	169
Are measurements consistent with previous?	y	y	y	y	y	lower

Sample Time 1442 ✓ Sample Location: pump tubing ✓ well port _____ spigot _____ bailer _____ other _____

Comments: _____

Initial Depth to Water (ft BTOC): 93.06

Field measured confirmation of Well Depth (ft btoc): _____

WD (Well Depth - from database) ft btoc (185.8)

SWH (Standing Water Height) = WD-Initial Depth 92.74

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 15.7658

Three Casing Volumes = 47.2974

WQ METER MAKE and SERIAL NUMBER: Insitu 5D1018

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		Time of Removal /
Time	Initial DTW	Time	Final DTW	Time of Reinstallation
1344	93.06	—	—	

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-7-14

Sampler X/RO Field Team 1 Field Conditions Rainy/calm/sunny Page 1 of 1

✓ BEC

Well/Sample Number OW-01S-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1446 Purge Method: 3Vol Ded. Pump —

Flow Cell: (Y) / N Min. Purge Volume (gal)/(L) 11 Purge Rate (gpm)/(mLpm) 1 Pump Make and Model G#2

Water Level	Time 2min	~~Vol. Purged~~ gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
93.52	1448	2	7.98	3994	1	7.56	28.9	-71	255 Hz
93.52	1450	4	7.72	5440	1	7.66	29.6	-60	
93.52	1452	6	7.66	5267	1	7.64	29.6	-58	
93.52	1454	8	7.60	5331	1	7.63	29.6	-56	
93.52	1456	10	7.60	5335	1	7.64	29.6	-55	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (4/8/2014)	7.21	6647	2	7.39	29.56	47
Are measurements consistent with previous?	y	y	y	y	y	lower

Sample Time 1458 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): 93.55

Field measured confirmation of Well Depth (ft btoc): ____

WD (Well Depth - from database) ft btoc (113.5)

SWH (Standing Water Height) = WD-Initial Depth 19.95

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 3.3915

Three Casing Volumes = 10.1745

WQ METER MAKE and SERIAL NUMBER: Insitue 50/d3

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal 1330
1329	93.55	1515	93.53	Time of Reinstallation 1510

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-8-14

Sampler JR/RP Field Team 1 Field Conditions Raining

Page 1 of 1

✓ BLL

Well/Sample Number OW-02D-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1200 Purge Method: 3Vol Ded. Pump —

Flow Cell (Y) / N Min. Purge Volume (gal)/(L) 127 Purge Rate (gpm)/(mLpm) 3 Pump Make and Model G1

Water Level	Time 8mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
91.35	1208	24	7.40	7732	1	4.92	28.9	145	285 Hz
91.35	1216	48	7.50	7740	1	5.47	28.8	11	
91.35	1224	72	7.61	7942	1	7.36	28.7	3	
91.35	1232	96	7.63	7943	1	7.37	28.7	8	
91.35	1240	120	7.69	7940	1	7.37	28.7	10	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV	
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y	
Previous Field measurement (10/10/2013)	7.43	7392	1	7.45	29.22	56	
Are measurements consistent with previous?	y	y	y	y	y	y	

Sample Time 1243 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments: ____

Initial Depth to Water (ft BTOC): 91.08

Field measured confirmation of Well Depth (ft btoc): ____

WD (Well Depth - from database) ft btoc (340)

SWH (Standing Water Height) = WD-Initial Depth 248.92

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 42.3164

Three Casing Volumes = 126.9492

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50618

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal / Time of Reinstallation
1153	91.08	—		

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM
Sampler JL/KP Field Team 1 Field Conditions Raining

Sampling Event 2014-CMP-032
Date 10-8-14
Page 1 of 1

✓ BRL

Well/Sample Number OW-02M-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1256 Purge Method: 3Vol Ded. Pump —

Flow Cell: (Y) / N Min. Purge Volume (gal)/(L) 60 Purge Rate (gpm)/(mLpm) 2 Pump Make and Model G# 21

Water Level	Time 6mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
91.14	1302	12	7.59	7931	.6	8.13	29.5	5	311 Hz
91.14	1308	24	7.59	7933	.5	8.10	29.5	6	
91.14	1314	36	7.55	7937	.4	8.52	29.6	5	
91.14	1320	48	7.54	7935	.4	8.52	29.6	5	
91.14	1326	60	7.54	7936	.4	8.53	29.6	7	

Parameter Stabilization Criteria		+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV	
Did last three Parameters Stablize prior to sampling?		y	y	y	y	y	y	
Previous Field measurement	(10/10/2013)	7.63	7277	1	7.63	29.35	145	
Are measurements consistent with previous?		y	y	y	Higher	y	Lower	

Sample Time 1328 Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments: ____

Initial Depth to Water (ft BTOC): 91.00
Field measured confirmation of Well Depth (ft btoc): ____
WD (Well Depth - from database) ft btoc (210.3)
SWH (Standing Water Height) = WD-Initial Depth 119.3
D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)
One Casing Volume = D*SWH 20.281
Three Casing Volumes = 60.843

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 9500 506 13
WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer		
		Approx. 5 min After Reinstallation		Time of Removal /
Time	Initial DTW	Time	Final DTW	Time of Reinstallation
~~0759~~ 1282	~~94.49~~	—	—	
Comments:	91.00			

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-8-14

Sampler JC/RP Field Team 1 Field Conditions Raining.

Page 1 of 1

✓ BC

Well/Sample Number OW-02S-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1330 Purge Method: 3Vol Ded. Pump —

Flow Cell: Y / N Min. Purge Volume (gal)/(L) 15 Purge Rate (gpm)/(mLpm) 1 Pump Make and Model G#2

Water Level	Time 3min	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
92.46	1333	3	7.97	2300	6	8.09	28.9	18	255 Hz
92.46	1336	6	7.93	2276	5	8.13	29.0	16	
92.46	1339	9	7.89	2278	3	8.12	29.0	17	
92.46	1342	12	7.88	2276	2	8.13	29.0	15	
92.46	1345	15	7.88	2274	2	8.13	29.1	14	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (4/8/2014)	7.73	2288	2	8.11	29.7	26
Are measurements consistent with previous?	y	y	y	y	y	y

Sample Time 1346 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments: ____

Initial Depth to Water (ft BTOC): 92.22

Field measured confirmation of Well Depth (ft btoc): ____

WD (Well Depth - from database) ft btoc (121)

SWH (Standing Water Height) = WD-Initial Depth 28.78

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 4.8926

Three Casing Volumes = 14.6778

Measure Point: ~~Well~~ TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50613

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer		
		Approx. 5 min After Reinstallation		Time of Removal ~~0814~~ 1208
Time	Initial DTW	Time	Final DTW	Time of Reinstallation 1349
1207 ~~0814~~	~~95.06~~	1354	91.22	
Comments:	92.22			

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-8-14

Sampler JR/RP Field Team 1 Field Conditions Raining

Page 1 of 1

✓ BCC

Well/Sample Number OW-05D-032 **QC Sample ID** OW-71-032 QC Sample Time 0800 ✓

Purge Start Time 0752 Purge Method: 3Vol Ded. Pump —

Flow Cell: Y / N Min. Purge Volume (gal)/(L) 131 Purge Rate (gpm)/(mLpm) 2 Pump Make and Model G#4

Water Level	Time 12mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
95.30	0804	24	7.23	7808	1	4.72	28.1	-11	279 Hz
95.30	0816	48	7.58	7833	.3	6.53	28.6	-23	
95.30	0828	72	7.49	7837	.3	6.52	28.6	-29	Double Checked ORP with Insitu
95.30	0840	96	7.69	7844	.3	6.49	28.6	-27	51336 Numbers match.
95.30	0852	120	7.70	7848	.3	6.48	28.6	-27	
95.30	0904	144	7.73	7849	.3	6.49	28.6	-27	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (10/9/2013)	7.64	7656	1	6.4	29.58	147
Are measurements consistent with previous?	y	y	y	y	y	lower

* Run @ 3 gpm next time.

Sample Time 0905 ✓ Sample Location: pump tubing ✓ well port ___ spigot ___ bailer ___ other ___

Comments:

Initial Depth to Water (ft BTOC): 95.07

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (350) 3

SWH (Standing Water Height) = WD-Initial Depth 254.93

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 43.3381

Three Casing Volumes = 130.0143

Measure Point: ~~Well TOC~~ Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50613

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal 0745
0745	95.07	1030	95.40	Time of Reinstallation 1025

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-8-14

Sampler JR / RP Field Team 1 Field Conditions Raining

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✓ BEC

Well/Sample Number OW-05M-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 9:10 Purge Method: 3 vol Ded. Pump —

Flow Cell (Y) / N Min. Purge Volume (gal)/(L) 80 Purge Rate (gpm)/(mLpm) 2 Pump Make and Model G#2

Water Level	Time 8mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
94.90	0913	16	7.66	7841	.8	6.09	28.3	-30	315 Hz
94.90	0926	32	7.67	7846	.6	6.99	28.3	-21	
94.90	0934	48	7.68	7851	.4	7.06	28.2	-20	Double checked numbers of ORP
94.90	0942	64	7.69	7852	.4	7.08	28.1	-19	with Insitu 51336. They matched.
94.90	0950	80	7.69	7865	.4	7.00	28.1	-20	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (10/9/2013)	7.59	7554	1	7.54	28.33	175
Are measurements consistent with previous?	y	y	y	y	y	lower

Sample Time 0952 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): 94.48

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (250.25)

SWH (Standing Water Height) = WD-Initial Depth 155.77

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 26.4809

Three Casing Volumes = 79.4427

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50613

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		Time of Removal 0759
Time	Initial DTW	Time	Final DTW	Time of Reinstallation 1025
0759	94.48	1030	~~95.40~~ 94.35	
Comments:				

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-8-14

✓ BEL

Sampler JR/RP Field Team 1 Field Conditions Raining Page 1 of 1

Well/Sample Number OW-05S-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1008 Purge Method: 3vol Ded. Pump —

Flow Cell (Y) N Min. Purge Volume (gal)/(L) 8 Purge Rate (gpm)/(mLpm) 1 Pump Make and Model G#1

Water Level	Time 2mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
95.11	1010	~~1010~~ 2	7.91	46662	.6	6.49	28.8	-31	255 Hz
95.11	1012	~~1012~~ 4	7.79	4556	.4	6.52	28.9	-26	
95.11	1014	6	7.72	4500	.4	6.49	29.1	-24	
95.11	1016	8	7.70	4488	.4	6.54	29.0	-23	
95.11	1019	10	7.66	4480	.4	6.54	29.0	-22	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (4/8/2014)	7.33	4458	1	6.74	29.57	23
Are measurements consistent with previous?	y	y	y	y	y	lower

Sample Time 1020 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): 95.06

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (110.3)

SWH (Standing Water Height) = WD-Initial Depth 15.24

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH ~~1.524~~ 2.5908

Three Casing Volumes = ~~4.572~~ 7.7724

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50618

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal 0814
0814	95.06	~~1025~~ 1040	~~1040~~ 95.11	Time of Reinstallation 1030
Comments:				

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-2-14

Sampler JK/KP Field Team 1 Field Conditions Windy/warm Page 1 of 1

✓ BEL

Well/Sample Number CW-01D-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1028 Purge Method: 3 Vol Ded. Pump —

Flow Cell (Y) N Min. Purge Volume (gal)/(L) 98 Purge Rate (gpm)/(mLpm) 3 Pump Make and Model G#2

Water Level	Time 6 min	Vol. Purged (gallons)/ liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
109.55	1034	18	7.64	7748	1	6.28	28.6	-132	349 Hz
109.55	1040	36	7.61	7763	1	6.78	28.5	-127	
109.55	1046	54	7.61	7767	1	6.80	28.4	-127	Double Checked ORP with Insitu 5133Le
109.55	1052	72	7.62	7775	1	6.82	28.4	-129	Reading same.
109.55	1058	90	7.61	7770	1	6.82	28.4	-129	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (4/7/2014)	7.52	6913	1	7.02	28.21	108
Are measurements consistent with previous?	y	y	y	y	y	lower

Sample Time 1100 ✓ Sample Location: pump tubing ✗ well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): 109.26

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (300.2)

SWH (Standing Water Height) = WD-Initial Depth 190.94

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 32.4598

Three Casing Volumes = 97.3794

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50618

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal / Time of Reinstallation
1018	109.26	—		

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM
Sampler JK/KP Field Team 1 Field Conditions Windy/warm

Sampling Event 2014-CMP-032
Date 10-2-14
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BGC ✓

Well/Sample Number CW-01M-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1104 Purge Method: 3 Vol Ded. Pump —

Flow Cell (Y) / N Min. Purge Volume (gal)/(L) 42 Purge Rate (gpm)/(mLpm) 2 Pump Make and Model GF#1

Water Level	Time 4 mins	Vol Purged (gallons) / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
109.13	1108	8	7.33	7816	1	7.68	29.5	-97	3/7 Hc
109.13	1112	16	7.36	7820	1	7.66	29.6	-99	
109.13	1116	24	7.42	7830	1	7.64	29.5	-101	Double checked ORP with Instru 5D36
109.13	1120	32	7.44	7825	1	7.65	29.5	-103	numbers were the same.
109.13	1124	40	7.44	7828	1	7.64	29.5	-104	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV	
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y	
Previous Field measurement (4/7/2014)	7.57	6776	1	7.76	29.29	110	
Are measurements consistent with previous?	y	y	y	y	y	N	

Sample Time 11:26 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): 109.11
Field measured confirmation of Well Depth (ft btoc): ____
WD (Well Depth - from database) ft btoc (190)
SWH (Standing Water Height) = WD-Initial Depth 80.89
D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)
One Casing Volume = D*SWH 13.7513
Three Casing Volumes = 41.2539

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 5D6018
WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal / Time of Reinstallation
10:32	109.11	—	—	/

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM
Sampling Event 2014-CMP-032
Date 10-2-14
Sampler JR/LP Field Team 1 Field Conditions Windy/warm
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✓ BEC

Well/Sample Number CW-02D-032 **QC Sample ID** NA QC Sample Time —
Purge Start Time 13:54 Purge Method: 3Vol Ded. Pump —
Flow Cell (Y) / N Min. Purge Volume (gal)/(L) 135 Purge Rate (gpm)/(mLpm) 3 Pump Make and Model G#4

Water Level	Time 9mins	~~Vol. Purged~~ gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
92.35	1403	27	7.58	7620	4	6.58	30.3	-121	299 Hz
92.35	1412	54	7.84	7649	1	7.31	30.4	-106	Double checked ORP with
92.35	1421	81	7.90	7646	1	7.32	30.4	-97	Insitu 5133le. Numbers were the same.
92.35	1430	108	7.92	7650	1	7.30	30.4	-93	
92.35	1439	135	7.94	7651	1	7.29	30.4	-92	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (4/7/2014)	7.74	6820	1	7.33	30.45	22
Are measurements consistent with previous?	y	Higher	y	y	y	Lower.

Sample Time 1440 ✓ Sample Location: pump tubing ✓ well port ____ spigot ____ bailer ____ other ____
Comments: ____

Initial Depth to Water (ft BTOC): 92.14
Field measured confirmation of Well Depth (ft btoc): ____
WD (Well Depth - from database) ft btoc (355)
SWH (Standing Water Height) = WD-Initial Depth 262.86
D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)
One Casing Volume = D*SWH 44.68362
Three Casing Volumes = 134.0586

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50618
WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal / Time of Reinstallation
1342	92.14	—	—	/

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-2-14

✓ BLL

Sampler JL/RP Field Team 1 Field Conditions Windy/warm Page 1 of 1

Well/Sample Number CW-02M-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1452 Purge Method: 3Vol Ded. Pump —

Flow Cell (Y) / N Min. Purge Volume (gal)(L) 56 Purge Rate (gpm)(mLpm) 2 Pump Make and Model GT#3

Water Level	Time 5 Mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
92.65	1457	10	7.88	7637	1	7.43	30.3	-92	289 Hz
92.62	1502	20	7.78	7670	1	7.38	30.4	-85	Double checked ORP with the Insitue
92.62	1507	30	7.76	7673	1	7.43	30.4	-84	stable Numbers matched
92.62	1512	40	7.75	7663	1	7.42	30.4	-83	
92.62	1517	50	7.76	7670	1	7.42	30.4	-82	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV	
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y	
Previous Field measurement (4/7/2014)	7.45	6744	1	7.6	30.45	69	
Are measurements consistent with previous?	y	Higher	y	y	y	lower	

Sample Time 1520 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): 92.52

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (202)

SWH (Standing Water Height) = WD-Initial Depth 109.48

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 18.6116

Three Casing Volumes = 55.8348

Measure Point: Well X OC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitue 50618

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal / Time of Reinstallation
13:56	92.52	—	—	/

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-7-14

Sampler JR/RP Field Team 1 Field Conditions warm / overcast. Page 1 of 1

✓ BKC

Well/Sample Number CW-03D-032 **QC Sample ID** OW-70-032 QC Sample Time 08:00

Purge Start Time 0736 Purge Method: 3Vol Ded. Pump —

Flow Cell (Y) / N Min. Purge Volume (gal)/(L) 135 Purge Rate (gpm)/(mLpm) 3 Pump Make and Model GF2

Water Level	Time 9mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
76.91	0745	27	7.24	7869	.2	6.12	29.7	-20	
76.91	0754	54	7.56	7888	.2	7.05	30.5	-31	
76.91	0803	81	7.74	7908	.1	7.06	30.5	-36	
76.91	0812	108	7.79	7921	.1	7.06	30.6	-40	
76.91	0821	135	7.80	7933	.1	7.07	30.6	-40	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (4/8/2014)	7.74	7757	1	6.96	30.49	63
Are measurements consistent with previous?	y	y	y	y	y	Lower.

Sample Time 0822 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments: ____

Initial Depth to Water (ft BTOC): 76.90

Field measured confirmation of Well Depth (ft btoc): ____

WD (Well Depth - from database) ft btoc (340)

SWH (Standing Water Height) = WD-Initial Depth 263.1

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 44.727

Three Casing Volumes = 134.181

Measure Point: Well ~~TOC~~ Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50618

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal / Time of Reinstallation
0724	76.90	—	—	/

Comments:

Color: ~~clear~~, grey, yellow, brown, black, cloudy, green **Odor:** ~~none~~, sulphur, organic, other **Solids:** ~~Trace~~, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-7-14

Sampler SL/RP Field Team 1 Field Conditions Warm / overcast Page 1 of 1

✓ BRC

Well/Sample Number CW-03M-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 0845 Purge Method: 3Vol Ded. Pump —

Flow Cell (Y) N Min. Purge Volume (gal)/(L) 74 Purge Rate (gpm)/(mLpm) 2 Pump Make and Model GT#4

Water Level	Time 7mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
77.64	0852	14	7.63	9514	.4	3.59	30.2	-78	269 Hz
77.64	0859	28	7.60	9186	.3	4.28	30.3	-68	
77.64	0906	42	7.58	9117	.2	4.34	30.3	-68	
77.64	0913	56	7.58	9118	.2	4.36	30.2	-68	
77.64	0920	70	7.58	9120	.2	4.36	30.2	-68	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV	
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y	
Previous Field measurement (4/8/2014)	7.5	9282	1	3.47	30.37	41	
Are measurements consistent with previous?	y	y	y	y	y	lower	

Sample Time 0922 Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): 77.51

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (222)

SWH (Standing Water Height) = WD-Initial Depth 144.49

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 24.5633

Three Casing Volumes = 73.6899

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Insitu 50620

WATER LEVEL METER SERIAL NUMBER: Solinst

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal / Time of Reinstallation
0730	77.51	—	—	

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-7-14

Sampler JR/RP Field Team 1 Field Conditions Overcast/calm Page 1 of 1

✓ BLL

Well/Sample Number CW-04D-032 **QC Sample ID** NA QC Sample Time —

Purge Start Time 1044 Purge Method: 3Vol Ded. Pump —

Flow Cell (Y) N Min. Purge Volume (gal)/(L) 124 Purge Rate (gpm)/(mLpm) 3 Pump Make and Model G#3

Water Level	Time 8mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
61.84	1052	48 24	7.72	7947	.3	7.95	30.2	-57	269Hz
61.84	1100	48	7.73	7947	.3	7.58	30.4	-57	
61.84	1108	72	7.75	7954	.3	7.57	30.5	-57	
61.84	1116	96	7.76	7977	.3	7.53	30.5	-58	
61.84	1124	120	7.76	7984	.3	7.53	30.5	-60	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y
Previous Field measurement (4/8/2014)	7.7	7627	1	8.26	30.66	50
Are measurements consistent with previous?	y	y	y	y	y	lower

Sample Time 1126 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments: ____

Initial Depth to Water (ft BTOC): 61.40

Field measured confirmation of Well Depth (ft btoc): ____

WD (Well Depth - from database) ft btoc (303)

SWH (Standing Water Height) = WD-Initial Depth 241.6

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 41.072

Three Casing Volumes = 123.216

Measure Point: WellTOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Horiba 506

WATER LEVEL METER SERIAL NUMBER: Solinst 210128

Initial DTW / Before Removal		If Transducer: Approx. 5 min After Reinstallation		
Time	Initial DTW	Time	Final DTW	Time of Removal / Time of Reinstallation
1030	61.40	—	—	

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM

Sampling Event 2014-CMP-032
Date 10-7-14

Sampler SL/RP Field Team 1 Field Conditions Overcast/calm Page 1 of 1

✓ BEL

Well/Sample Number CW-04M-032 **QC Sample ID** NA QC Sample Time ←

Purge Start Time 1144 Purge Method: 3Vol Ded. Pump —

Flow Cell (Y) / N Min. Purge Volume (gal)/(L) 5L Purge Rate (gpm)/(mLpm) 2 Pump Make and Model G#1

Water Level	Time 10mins	Vol. Purged gallons / liters	pH	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Eh/ORP mv	Comments (See description below
61.73	1150	12	7.70	7769	.3	7.25	29.7	-65	245 Hz
61.73	1156	24	7.65	7739	.3	6.79	29.9	-63	
61.73	1202	36	7.64	7748	.3	6.61	29.9	-64	Started to Rain.
61.73	1208	48	7.62	7653	.3	6.61	29.9	-61	
61.73	1214	60	7.61	7642	.3	6.58	29.9	-61	

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	+/- 10 mV	
Did last three Parameters Stablize prior to sampling?	y	y	y	y	y	y	
Previous Field measurement (4/8/2014)	7.53	7272	1	7.17	29.99	58	
Are measurements consistent with previous?	y	y	y	y	y	lower	

Sample Time 1215 ✓ Sample Location: pump tubing X well port ____ spigot ____ bailer ____ other ____

Comments:

Initial Depth to Water (ft BTOC): 61.51

Field measured confirmation of Well Depth (ft btoc): ____

WD (Well Depth - from database) ft btoc (169.8)

SWH (Standing Water Height) = WD-Initial Depth 108.29

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 18.4093

Three Casing Volumes = 55.2279

WQ METER MAKE and SERIAL NUMBER: Insitue 50018

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: Solinst 20128

Initial DTW / Before Removal		If Transducer		
		Approx. 5 min After Reinstallation		Time of Removal ____
Time	Initial DTW	Time	Final DTW	Time of Reinstallation ____
1031	61.51	—	—	

Comments:

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Topock CMP Manual Water Level Snapshot

Personnel: B. Collom/CH2m

WLI serial number: PGE 2014-01

Loc ID	Depth to Water (ft BTOC)	Date	Time	Comments
CW-1M	109.06	10-21-14	1238	
CW-1D	109.19		1240	
CW-2M	92.57		1244	
CW-2D	92.12		1247	
CW-3M	77.39		1251	
CW-3D	76.77		1254	
CW-4M	61.34		1303	
CW-4D	61.21		1301	
OW-1S	93.51		1309	
OW-1M	93.02		1311	
OW-1D	92.56		1314	
OW-2S	92.13		1318	
OW-2M	90.90		1320	
OW-2D	90.86		1323	
OW-5S	94.97		1327	
OW-5M	94.38		1330	
OW-5D	94.99		1332	

IM-3 Staff confirm that 10-19-14, 10-20-14, and 10-21-14 were normal operation days with no backwashing or plant down time prior to snapshot collection.

Appendix C
ARAR Monitoring Information for Groundwater Samples, Second Half 2014

TABLE C-1

ARAR Monitoring Information for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-01D	CW-01D-032	Barry Collom	10/2/2014	11:00:00 AM	ASSET	EPA 120.1	SC	10/3/2014	Ryan Balilu	µmhos/cm	6900	0.1	0.10
					ASSET	EPA 200.7	ALD	10/7/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/7/2014	Claire Ignacio	mg/L	0.93	0.10	0.019
					ASSET	EPA 200.7	CAD	10/8/2014	Claire Ignacio	mg/L	130	0.50	0.058
					ASSET	EPA 200.7	FETD	10/7/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/8/2014	Claire Ignacio	mg/L	13.0	0.50	0.062
					ASSET	EPA 200.7	MGD	10/7/2014	Claire Ignacio	mg/L	16.0	0.10	0.011
					ASSET	EPA 200.7	NAD	10/8/2014	Claire Ignacio	mg/L	1600	50.0	12.0
					ASSET	EPA 200.8	AGD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/6/2014	Claire Ignacio	µg/L	1.2	0.1	0.027
					ASSET	EPA 200.8	BAD	10/6/2014	Claire Ignacio	µg/L	27.0 J	5.0	0.15
					ASSET	EPA 200.8	BED	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/6/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	CUD	10/8/2014	Claire Ignacio	µg/L	ND (1.0)J	1.0	0.04
					ASSET	EPA 200.8	MND	10/6/2014	Claire Ignacio	µg/L	ND (0.5)J	0.5	0.026
					ASSET	EPA 200.8	MOD	10/6/2014	Claire Ignacio	µg/L	21.0 J	0.5	0.15

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-01D	CW-01D-032	Barry Collom	10/2/2014	11:00:00 AM	ASSET	EPA 200.8	NID	10/6/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/8/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/6/2014	Claire Ignacio	µg/L	3.4	0.5	0.069
					ASSET	EPA 200.8	TLD	10/8/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/6/2014	Claire Ignacio	µg/L	2.4	1.0	0.16
					ASSET	EPA 200.8	ZND	10/6/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/6/2014	Ryan Balilu	µg/L	0.69	0.2	0.016
					ASSET	EPA 245.1	HGD	10/6/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/3/2014	Patrick Swanson	mg/L	2000	250	12.0
					ASSET	EPA 300.0	FL	10/3/2014	Patrick Swanson	mg/L	4.20	0.5	0.055
					ASSET	EPA 300.0	SO4	10/3/2014	Patrick Swanson	mg/L	490	25.0	1.60
					ASSET	EPA 6010B	FE	10/7/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/8/2014	Amanda Cortes	mg/L	52.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/8/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/8/2014	Amanda Cortes	mg/L	52.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/8/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/6/2014	Amanda Cortes	mg/L	4200	50.0	50.0

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-01D	CW-01D-032	Barry Collom	10/2/2014	11:00:00 AM	ASSET	SM 4500-NO3F	NO3NO2N	10/13/2014	Patrick Swanson	mg/L	3.40	0.25	0.11
					ASSET	SM2130B	TRB	10/3/2014	Ryan Balilu	NTU	0.130	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
CW-01M	CW-01M-032	Barry Collom	10/2/2014	11:26:00 AM	ASSET	EPA 120.1	SC	10/3/2014	Ryan Balilu	µmhos/cm	7000	0.1	0.10
					ASSET	EPA 200.7	ALD	10/7/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/7/2014	Claire Ignacio	mg/L	0.92	0.10	0.019
					ASSET	EPA 200.7	CAD	10/8/2014	Claire Ignacio	mg/L	140	0.50	0.058
					ASSET	EPA 200.7	FETD	10/7/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/8/2014	Claire Ignacio	mg/L	14.0	0.50	0.062
					ASSET	EPA 200.7	MGD	10/7/2014	Claire Ignacio	mg/L	13.0	0.10	0.011
					ASSET	EPA 200.7	NAD	10/8/2014	Claire Ignacio	mg/L	1600	50.0	12.0
					ASSET	EPA 200.8	AGD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/6/2014	Claire Ignacio	µg/L	1.2	0.1	0.027
					ASSET	EPA 200.8	BAD	10/6/2014	Claire Ignacio	µg/L	26.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/6/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-01M	CW-01M-032	Barry Collom	10/2/2014	11:26:00 AM	ASSET	EPA 200.8	CUD	10/8/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/6/2014	Claire Ignacio	µg/L	22.0	0.5	0.15
					ASSET	EPA 200.8	NID	10/6/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/8/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/6/2014	Claire Ignacio	µg/L	3.3	0.5	0.069
					ASSET	EPA 200.8	TLD	10/8/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/6/2014	Claire Ignacio	µg/L	2.4	1.0	0.16
					ASSET	EPA 200.8	ZND	10/6/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/6/2014	Ryan Balilu	µg/L	1.2	0.2	0.016
					ASSET	EPA 245.1	HGD	10/6/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/3/2014	Patrick Swanson	mg/L	1900	250	12.0
					ASSET	EPA 300.0	FL	10/3/2014	Patrick Swanson	mg/L	4.30	0.5	0.055
					ASSET	EPA 300.0	SO4	10/3/2014	Patrick Swanson	mg/L	470	50.0	3.30
					ASSET	EPA 6010B	FE	10/7/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/8/2014	Amanda Cortes	mg/L	60.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/8/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-01M	CW-01M-032	Barry Collom	10/2/2014	11:26:00 AM	ASSET	SM 2320B	ALKT	10/8/2014	Amanda Cortes	mg/L	60.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/8/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/6/2014	Amanda Cortes	mg/L	4200	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/13/2014	Patrick Swanson	mg/L	2.60	0.25	0.11
					ASSET	SM2130B	TRB	10/3/2014	Ryan Balilu	NTU	0.120	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
CW-02D	CW-02D-032	Barry Collom	10/2/2014	2:40:00 PM	ASSET	EPA 120.1	SC	10/3/2014	Ryan Balilu	µmhos/cm	7000	0.1	0.10
					ASSET	EPA 200.7	ALD	10/7/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/7/2014	Claire Ignacio	mg/L	0.91	0.10	0.019
					ASSET	EPA 200.7	CAD	10/8/2014	Claire Ignacio	mg/L	65.0	0.50	0.058
					ASSET	EPA 200.7	FETD	10/7/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/8/2014	Claire Ignacio	mg/L	12.0	0.50	0.062
					ASSET	EPA 200.7	MGD	10/7/2014	Claire Ignacio	mg/L	3.90	0.10	0.011
					ASSET	EPA 200.7	NAD	10/8/2014	Claire Ignacio	mg/L	1700	50.0	12.0
					ASSET	EPA 200.8	AGD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/6/2014	Claire Ignacio	µg/L	3.3	0.1	0.027
					ASSET	EPA 200.8	BAD	10/6/2014	Claire Ignacio	µg/L	13.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-02D	CW-02D-032	Barry Collom	10/2/2014	2:40:00 PM	ASSET	EPA 200.8	CDD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/6/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	CUD	10/8/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/6/2014	Claire Ignacio	µg/L	15.0	0.5	0.15
					ASSET	EPA 200.8	NID	10/6/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/8/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/6/2014	Claire Ignacio	µg/L	3.1	0.5	0.069
					ASSET	EPA 200.8	TLD	10/8/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/6/2014	Claire Ignacio	µg/L	4.5	1.0	0.16
					ASSET	EPA 200.8	ZND	10/6/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/6/2014	Ryan Balilu	µg/L	0.52	0.2	0.016
					ASSET	EPA 245.1	HGD	10/6/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/3/2014	Patrick Swanson	mg/L	1900	250	12.0
					ASSET	EPA 300.0	FL	10/3/2014	Patrick Swanson	mg/L	4.60	0.5	0.055
					ASSET	EPA 300.0	SO4	10/3/2014	Patrick Swanson	mg/L	470	50.0	3.30

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PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-02D	CW-02D-032	Barry Collom	10/2/2014	2:40:00 PM	ASSET	EPA 6010B	FE	10/7/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/8/2014	Amanda Cortes	mg/L	54.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/8/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/8/2014	Amanda Cortes	mg/L	54.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/8/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/6/2014	Amanda Cortes	mg/L	3900	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/13/2014	Patrick Swanson	mg/L	2.40	0.25	0.11
					ASSET	SM2130B	TRB	10/3/2014	Ryan Balilu	NTU	0.110	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
CW-02M	CW-02M-032	Barry Collom	10/2/2014	3:20:00 PM	ASSET	EPA 120.1	SC	10/3/2014	Ryan Balilu	µmhos/cm	7000	0.1	0.10
					ASSET	EPA 200.7	ALD	10/7/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/7/2014	Claire Ignacio	mg/L	1.10	0.10	0.019
					ASSET	EPA 200.7	CAD	10/8/2014	Claire Ignacio	mg/L	110	0.50	0.058
					ASSET	EPA 200.7	FETD	10/7/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/8/2014	Claire Ignacio	mg/L	13.0	0.50	0.062
					ASSET	EPA 200.7	MGD	10/7/2014	Claire Ignacio	mg/L	9.70	0.10	0.011
					ASSET	EPA 200.7	NAD	10/8/2014	Claire Ignacio	mg/L	1700	50.0	12.0
					ASSET	EPA 200.8	AGD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-02M	CW-02M-032	Barry Collom	10/2/2014	3:20:00 PM	ASSET	EPA 200.8	ASD	10/6/2014	Claire Ignacio	µg/L	1.9	0.1	0.027
					ASSET	EPA 200.8	BAD	10/6/2014	Claire Ignacio	µg/L	70.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/6/2014	Claire Ignacio	µg/L	1.9	1.0	0.03
					ASSET	EPA 200.8	CUD	10/8/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/6/2014	Claire Ignacio	µg/L	18.0	0.5	0.15
					ASSET	EPA 200.8	NID	10/6/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/8/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/6/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/6/2014	Claire Ignacio	µg/L	2.6	0.5	0.069
					ASSET	EPA 200.8	TLD	10/8/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/6/2014	Claire Ignacio	µg/L	3.5	1.0	0.16
					ASSET	EPA 200.8	ZND	10/6/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/6/2014	Ryan Balilu	µg/L	2.4	0.2	0.016
					ASSET	EPA 245.1	HGD	10/6/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015

TABLE C-1

ARAR Monitoring Information for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-02M	CW-02M-032	Barry Collom	10/2/2014	3:20:00 PM	ASSET	EPA 300.0	CL	10/3/2014	Patrick Swanson	mg/L	2000	250	12.0
					ASSET	EPA 300.0	FL	10/3/2014	Patrick Swanson	mg/L	5.00	0.5	0.055
					ASSET	EPA 300.0	SO4	10/3/2014	Patrick Swanson	mg/L	490	50.0	3.30
					ASSET	EPA 6010B	FE	10/7/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/8/2014	Amanda Cortes	mg/L	58.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/8/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/8/2014	Amanda Cortes	mg/L	58.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/8/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/6/2014	Amanda Cortes	mg/L	3800	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/13/2014	Patrick Swanson	mg/L	2.50	0.25	0.11
					ASSET	SM2130B	TRB	10/3/2014	Ryan Balilu	NTU	0.110	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
CW-03D	OW-70-032	Barry Collom	10/7/2014	8:00:00 AM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6800	0.1	0.10
					ASSET	EPA 200.7	ALD	10/17/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	0.94	0.10	0.019
					ASSET	EPA 200.7	CAD	10/17/2014	Claire Ignacio	mg/L	63.0	0.50	0.058
					ASSET	EPA 200.7	FETD	10/17/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/18/2014	Claire Ignacio	mg/L	11.0	2.50	0.31

TABLE C-1

ARAR Monitoring Information for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03D	OW-70-032	Barry Collom	10/7/2014	8:00:00 AM	ASSET	EPA 200.7	MGD	10/17/2014	Claire Ignacio	mg/L	4.70	0.10	0.011
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1600	50.0	12.0
					ASSET	EPA 200.8	AGD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	1.4	0.1	0.027
					ASSET	EPA 200.8	BAD	10/22/2014	Claire Ignacio	µg/L	15.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/20/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	CUD	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	17.0	0.5	0.15
					ASSET	EPA 200.8	NID	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/19/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.8	0.5	0.069
					ASSET	EPA 200.8	TLD	10/19/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/20/2014	Claire Ignacio	µg/L	2.7	1.0	0.16

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ARAR Monitoring Information for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03D	OW-70-032	Barry Collom	10/7/2014	8:00:00 AM	ASSET	EPA 200.8	ZND	10/22/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.67	0.2	0.016
					ASSET	EPA 245.1	HGD	10/14/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2000	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	5.70	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	480	25.0	1.60
					ASSET	EPA 6010B	FE	10/17/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/10/2014	Amanda Cortes	mg/L	61.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/10/2014	Amanda Cortes	mg/L	61.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4100	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	3.20	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.300 J	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
CW-03D	CW-03D-032	Barry Collom	10/7/2014	8:22:00 AM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	7000	0.1	0.10
					ASSET	EPA 200.7	ALD	10/17/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	0.96	0.10	0.019

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Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03D	CW-03D-032	Barry Collom	10/7/2014	8:22:00 AM	ASSET	EPA 200.7	CAD	10/17/2014	Claire Ignacio	mg/L	64.0	0.50	0.058
					ASSET	EPA 200.7	FETD	10/17/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/18/2014	Claire Ignacio	mg/L	11.0	2.50	0.31
					ASSET	EPA 200.7	MGD	10/17/2014	Claire Ignacio	mg/L	4.80	0.10	0.011
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1500	50.0	12.0
					ASSET	EPA 200.8	AGD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	1.4	0.1	0.027
					ASSET	EPA 200.8	BAD	10/22/2014	Claire Ignacio	µg/L	14.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/20/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.051
					ASSET	EPA 200.8	CDD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	CUD	10/20/2014	Claire Ignacio	µg/L	ND (1.0)J	1.0	0.04
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)J	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	16.0 J	2.5	0.76
					ASSET	EPA 200.8	NID	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/19/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18

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Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03D	CW-03D-032	Barry Collom	10/7/2014	8:22:00 AM	ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.7	0.5	0.069
					ASSET	EPA 200.8	TLD	10/19/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/20/2014	Claire Ignacio	µg/L	2.5	1.0	0.16
					ASSET	EPA 200.8	ZND	10/22/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.63	0.2	0.016
					ASSET	EPA 245.1	HGD	10/14/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2000	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	5.90	0.5	0.055
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	480	50.0	3.30
					ASSET	EPA 6010B	FE	10/17/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/10/2014	Amanda Cortes	mg/L	58.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/10/2014	Amanda Cortes	mg/L	58.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4000	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	2.80 J	0.25	0.11
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.600 J	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03M	CW-03M-032	Barry Collom	10/7/2014	9:22:00 AM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	7500	0.1	0.10
					ASSET	EPA 200.7	ALD	10/17/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	1.20	0.10	0.019
					ASSET	EPA 200.7	CAD	10/17/2014	Claire Ignacio	mg/L	170	0.50	0.058
					ASSET	EPA 200.7	FETD	10/17/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/18/2014	Claire Ignacio	mg/L	14.0	2.50	0.31
					ASSET	EPA 200.7	MGD	10/17/2014	Claire Ignacio	mg/L	15.0	0.10	0.011
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1600	50.0	12.0
					ASSET	EPA 200.8	AGD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	1.0	0.1	0.027
					ASSET	EPA 200.8	BAD	10/22/2014	Claire Ignacio	µg/L	47.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/20/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	5.4 J	1.0	0.03
					ASSET	EPA 200.8	CUD	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	25.0	0.5	0.15

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ARAR Monitoring Information for Groundwater Samples, Second Half 2014

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03M	CW-03M-032	Barry Collom	10/7/2014	9:22:00 AM	ASSET	EPA 200.8	NID	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/19/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	1.3	0.5	0.069
					ASSET	EPA 200.8	TLD	10/19/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/20/2014	Claire Ignacio	µg/L	2.5	1.0	0.16
					ASSET	EPA 200.8	ZND	10/22/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/17/2014	Ryan Balilu	µg/L	6.8 J	0.2	0.016
					ASSET	EPA 245.1	HGD	10/14/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2400	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	5.90	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	460	50.0	3.30
					ASSET	EPA 6010B	FE	10/17/2014	Claire Ignacio	mg/L	0.11	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/10/2014	Amanda Cortes	mg/L	53.0 J	5.0	1.20
					ASSET	SM 2320B	ALKC	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/10/2014	Amanda Cortes	mg/L	53.0 J	5.0	1.20
					ASSET	SM 2320B	HYDX	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	5100	50.0	50.0

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03M	CW-03M-032	Barry Collom	10/7/2014	9:22:00 AM	ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	1.90	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.440	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
CW-04D	CW-04D-032	Barry Collom	10/7/2014	11:26:00 AM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6700	0.1	0.10
					ASSET	EPA 200.7	ALD	10/17/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	1.00	0.10	0.019
					ASSET	EPA 200.7	CAD	10/17/2014	Claire Ignacio	mg/L	97.0	0.50	0.058
					ASSET	EPA 200.7	FETD	10/17/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/18/2014	Claire Ignacio	mg/L	12.0	2.50	0.31
					ASSET	EPA 200.7	MGD	10/17/2014	Claire Ignacio	mg/L	7.30	0.10	0.011
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1600	50.0	12.0
					ASSET	EPA 200.8	AGD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	2.9	0.1	0.027
					ASSET	EPA 200.8	BAD	10/22/2014	Claire Ignacio	µg/L	18.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/20/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03

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ARAR Monitoring Information for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-04D	CW-04D-032	Barry Collom	10/7/2014	11:26:00 AM	ASSET	EPA 200.8	CUD	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	22.0	0.5	0.15
					ASSET	EPA 200.8	NID	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/19/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.6	0.5	0.069
					ASSET	EPA 200.8	TLD	10/19/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/20/2014	Claire Ignacio	µg/L	3.4	1.0	0.16
					ASSET	EPA 200.8	ZND	10/22/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.91	0.2	0.016
					ASSET	EPA 245.1	HGD	10/14/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2000	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	5.60	0.5	0.055
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	480	50.0	3.30
					ASSET	EPA 6010B	FE	10/17/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/10/2014	Amanda Cortes	mg/L	40.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20

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ARAR Monitoring Information for Groundwater Samples, Second Half 2014

Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-04D	CW-04D-032	Barry Collom	10/7/2014	11:26:00 AM	ASSET	SM 2320B	ALKT	10/10/2014	Amanda Cortes	mg/L	40.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4000	50.0	50.0
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.200	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
CW-04D	CW-04D-032R	Barry Collom	12/23/2014	10:56:00 AM	ASSET	SM 4500-NO3F	NO3NO2N	12/29/2014	Patrick Swanson	mg/L	2.70	0.05	0.022
CW-04M	CW-04M-032	Barry Collom	10/7/2014	12:15:00 PM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6500	0.1	0.10
					ASSET	EPA 200.7	ALD	10/17/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	0.90	0.10	0.019
					ASSET	EPA 200.7	CAD	10/17/2014	Claire Ignacio	mg/L	150	0.50	0.058
					ASSET	EPA 200.7	FETD	10/17/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/18/2014	Claire Ignacio	mg/L	13.0	2.50	0.31
					ASSET	EPA 200.7	MGD	10/17/2014	Claire Ignacio	mg/L	13.0	0.10	0.011
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1400	50.0	12.0
					ASSET	EPA 200.8	AGD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	1.9	0.1	0.027
					ASSET	EPA 200.8	BAD	10/22/2014	Claire Ignacio	µg/L	97.0	1.0	0.03

TABLE C-1

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Combined CMP Semiannual Groundwater Monitoring Report,

Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-04M	CW-04M-032	Barry Collom	10/7/2014	12:15:00 PM	ASSET	EPA 200.8	BED	10/20/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	3.7	1.0	0.03
					ASSET	EPA 200.8	CUD	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	9.6	0.5	0.15
					ASSET	EPA 200.8	NID	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/19/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.1	0.5	0.069
					ASSET	EPA 200.8	TLD	10/19/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/20/2014	Claire Ignacio	µg/L	3.3	1.0	0.16
					ASSET	EPA 200.8	ZND	10/22/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/17/2014	Ryan Balilu	µg/L	4.4	0.2	0.016
					ASSET	EPA 245.1	HGD	10/14/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	1900	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.20	1.0	0.11

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-04M	CW-04M-032	Barry Collom	10/7/2014	12:15:00 PM	ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	460	50.0	3.30
					ASSET	EPA 6010B	FE	10/17/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/10/2014	Amanda Cortes	mg/L	51.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/10/2014	Amanda Cortes	mg/L	51.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4200	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	2.70 J	0.25	0.11
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.320	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
OW-01D	OW-01D-032	Barry Collom	10/7/2014	2:22:00 PM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6700	0.1	0.10
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1600	50.0	12.0
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	1.1	0.1	0.027
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	24.0	0.5	0.15
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.8	0.5	0.069
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.45	0.2	0.016

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-01D	OW-01D-032	Barry Collom	10/7/2014	2:22:00 PM	ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2000	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.70	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	470	25.0	1.60
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4200	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	2.70	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.690	0.1	0.10
OW-01M	OW-01M-032	Barry Collom	10/7/2014	2:42:00 PM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6900	0.1	0.10
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1600	50.0	12.0
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	2.3	0.1	0.027
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	20.0	0.5	0.15
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	3.0	0.5	0.069
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	1.1	0.2	0.016
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2000	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.80	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	480	25.0	1.60
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4400	50.0	50.0

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-01M	OW-01M-032	Barry Collom	10/7/2014	2:42:00 PM	ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	3.20	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.390	0.1	0.10
OW-01S	OW-01S-032	Barry Collom	10/7/2014	2:58:00 PM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	4500	0.1	0.10
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	750	50.0	12.0
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	0.79	0.1	0.027
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	9.4	1.0	0.03
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	9.7	0.5	0.15
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.1	0.5	0.069
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	9.8	0.2	0.016
					ASSET	EPA 300.0	CL	10/10/2014	Patrick Swanson	mg/L	1400	100	5.00
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	3.20	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	290	25.0	1.60
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	3400	33.0	33.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	3.00	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	3.000	0.1	0.10
OW-02D	OW-02D-032	Barry Collom	10/8/2014	12:43:00 PM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6900	0.1	0.10

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-02D	OW-02D-032	Barry Collom	10/8/2014	12:43:00 PM	ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1500	50.0	12.0
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	25.0	0.5	0.15
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.32	0.2	0.016
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2100	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.80	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	470	25.0	1.60
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4000	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	2.80	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.270	0.1	0.10
OW-02M	OW-02M-032	Barry Collom	10/8/2014	1:28:00 PM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6800	0.1	0.10
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1500	50.0	12.0
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	19.0	0.5	0.15
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.86	0.2	0.016
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2100	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.40	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	470	25.0	1.60

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-02M	OW-02M-032	Barry Collom	10/8/2014	1:28:00 PM	ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4400	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	3.10	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.470	0.1	0.10
OW-02S	OW-02S-032	Barry Collom	10/8/2014	1:46:00 PM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	2100	0.1	0.10
					ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	0.63 J	0.10	0.019
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	410	12.0	3.00
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	19.0	1.0	0.03
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	37.0	0.5	0.15
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	21.0	0.4	0.032
					ASSET	EPA 300.0	CL	10/10/2014	Patrick Swanson	mg/L	530	50.0	2.50
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.70	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	100	5.0	0.33
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	1200	17.0	17.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	3.70	0.25	0.11
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	2.300	0.1	0.10
OW-05D	OW-71-032	Barry Collom	10/8/2014	8:00:00 AM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6900	0.1	0.10
					ASSET	EPA 200.7	ALD	10/17/2014	Claire Ignacio	µg/L	ND (500)	500	6.20

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PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05D	OW-71-032	Barry Collom	10/8/2014	8:00:00 AM	ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	0.93	0.10	0.019
					ASSET	EPA 200.7	CAD	10/17/2014	Claire Ignacio	mg/L	100	0.50	0.058
					ASSET	EPA 200.7	FETD	10/17/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/18/2014	Claire Ignacio	mg/L	15.0	2.50	0.31
					ASSET	EPA 200.7	MGD	10/17/2014	Claire Ignacio	mg/L	25.0	0.10	0.011
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1500	50.0	12.0
					ASSET	EPA 200.8	AGD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	4.4	0.1	0.027
					ASSET	EPA 200.8	BAD	10/22/2014	Claire Ignacio	µg/L	21.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/20/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	CUD	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	27.0	0.5	0.15
					ASSET	EPA 200.8	NID	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/19/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05D	OW-71-032	Barry Collom	10/8/2014	8:00:00 AM	ASSET	EPA 200.8	SBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.8	0.5	0.069
					ASSET	EPA 200.8	TLD	10/19/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/20/2014	Claire Ignacio	µg/L	3.4	1.0	0.16
					ASSET	EPA 200.8	ZND	10/22/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.54	0.2	0.016
					ASSET	EPA 245.1	HGD	10/14/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/10/2014	Patrick Swanson	mg/L	2100	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.60	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	480	25.0	1.60
					ASSET	EPA 6010B	FE	10/17/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/10/2014	Amanda Cortes	mg/L	62.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/10/2014	Amanda Cortes	mg/L	62.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4200	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	2.60	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	ND (0.1)	0.1	0.10

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05D	OW-71-032	Barry Collom	10/8/2014	8:00:00 AM	TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
OW-05D	OW-05D-032	Barry Collom	10/8/2014	9:05:00 AM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6800	0.1	0.10
					ASSET	EPA 200.7	ALD	10/17/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	0.87	0.10	0.019
					ASSET	EPA 200.7	CAD	10/17/2014	Claire Ignacio	mg/L	100	0.50	0.058
					ASSET	EPA 200.7	FETD	10/17/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/18/2014	Claire Ignacio	mg/L	14.0 J	2.50	0.31
					ASSET	EPA 200.7	MGD	10/17/2014	Claire Ignacio	mg/L	23.0	0.10	0.011
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1500	50.0	12.0
					ASSET	EPA 200.8	AGD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	4.3	0.1	0.027
					ASSET	EPA 200.8	BAD	10/22/2014	Claire Ignacio	µg/L	20.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/20/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	CUD	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026

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PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05D	OW-05D-032	Barry Collom	10/8/2014	9:05:00 AM	ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	25.0	0.5	0.15
					ASSET	EPA 200.8	NID	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/19/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.8	0.5	0.069
					ASSET	EPA 200.8	TLD	10/19/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/20/2014	Claire Ignacio	µg/L	3.3	1.0	0.16
					ASSET	EPA 200.8	ZND	10/22/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.53	0.2	0.016
					ASSET	EPA 245.1	HGD	10/14/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/9/2014	Patrick Swanson	mg/L	2100	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.60	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	480	25.0	1.60
					ASSET	EPA 6010B	FE	10/17/2014	Claire Ignacio	mg/L	ND (0.02)	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/10/2014	Amanda Cortes	mg/L	67.0	5.0	1.20
					ASSET	SM 2320B	ALKC	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/10/2014	Amanda Cortes	mg/L	67.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20

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Second Half 2014, and PAR, Interim Measure No. 3, Injection Well Field,

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05D	OW-05D-032	Barry Collom	10/8/2014	9:05:00 AM	ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4200	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	2.90	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	ND (0.1)	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
OW-05M	OW-05M-032	Barry Collom	10/8/2014	9:52:00 AM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	6800	0.1	0.10
					ASSET	EPA 200.7	ALD	10/17/2014	Claire Ignacio	µg/L	ND (500)	500	6.20
					ASSET	EPA 200.7	BD	10/20/2014	Claire Ignacio	mg/L	0.95	0.10	0.019
					ASSET	EPA 200.7	CAD	10/17/2014	Claire Ignacio	mg/L	120	0.50	0.058
					ASSET	EPA 200.7	FETD	10/17/2014	Claire Ignacio	mg/L	ND (0.5)	0.50	0.0013
					ASSET	EPA 200.7	KD	10/18/2014	Claire Ignacio	mg/L	14.0	2.50	0.31
					ASSET	EPA 200.7	MGD	10/17/2014	Claire Ignacio	mg/L	19.0	0.10	0.011
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	1500	50.0	12.0
					ASSET	EPA 200.8	AGD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.094
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	0.71	0.1	0.027
					ASSET	EPA 200.8	BAD	10/22/2014	Claire Ignacio	µg/L	37.0	1.0	0.03
					ASSET	EPA 200.8	BED	10/20/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.01
					ASSET	EPA 200.8	CDD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.013
					ASSET	EPA 200.8	COBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.017

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05M	OW-05M-032	Barry Collom	10/8/2014	9:52:00 AM	ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.03
					ASSET	EPA 200.8	CUD	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.04
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	23.0	0.5	0.15
					ASSET	EPA 200.8	NID	10/20/2014	Claire Ignacio	µg/L	ND (1.0)	1.0	0.032
					ASSET	EPA 200.8	PBD	10/19/2014	Claire Ignacio	µg/L	ND (5.0)	5.0	0.053
					ASSET	EPA 200.8	SBD	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.18
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	2.9	0.5	0.069
					ASSET	EPA 200.8	TLD	10/19/2014	Claire Ignacio	µg/L	ND (2.5)	2.5	0.04
					ASSET	EPA 200.8	VD	10/20/2014	Claire Ignacio	µg/L	1.5	1.0	0.16
					ASSET	EPA 200.8	ZND	10/22/2014	Claire Ignacio	µg/L	ND (10)	10.0	0.23
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	0.82	0.2	0.016
					ASSET	EPA 245.1	HGD	10/14/2014	Claire Ignacio	µg/L	ND (0.2)	0.2	0.015
					ASSET	EPA 300.0	CL	10/11/2014	Patrick Swanson	mg/L	2100	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	4.60	1.0	0.11
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	480	25.0	1.60
					ASSET	EPA 6010B	FE	10/17/2014	Claire Ignacio	mg/L	0.033	0.02	0.0013
					ASSET	SM 2320B	ALKB	10/10/2014	Amanda Cortes	mg/L	60.0	5.0	1.20

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05M	OW-05M-032	Barry Collom	10/8/2014	9:52:00 AM	ASSET	SM 2320B	ALKC	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2320B	ALKT	10/10/2014	Amanda Cortes	mg/L	60.0	5.0	1.20
					ASSET	SM 2320B	HYDX	10/10/2014	Amanda Cortes	mg/L	ND (5.0)	5.0	1.20
					ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	4000	50.0	50.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	2.70	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	0.250	0.1	0.10
					TLI	SM4500NH3D	NH3N	10/16/2014	Maksim Gorbunov	mg/L	ND (0.5)	0.5	0.0318
OW-05S	OW-05S-032	Barry Collom	10/8/2014	10:20:00 AM	ASSET	EPA 120.1	SC	10/9/2014	Amanda Cortes	µmhos/cm	3900	0.1	0.10
					ASSET	EPA 200.7	NAD	10/18/2014	Claire Ignacio	mg/L	620	50.0	12.0
					ASSET	EPA 200.8	ASD	10/19/2014	Claire Ignacio	µg/L	0.61	0.1	0.027
					ASSET	EPA 200.8	CRTD	10/19/2014	Claire Ignacio	µg/L	14.0	1.0	0.03
					ASSET	EPA 200.8	MND	10/19/2014	Claire Ignacio	µg/L	ND (0.5)	0.5	0.026
					ASSET	EPA 200.8	MOD	10/19/2014	Claire Ignacio	µg/L	12.0	0.5	0.15
					ASSET	EPA 200.8	SED	10/20/2014	Claire Ignacio	µg/L	1.4	0.5	0.069
					ASSET	EPA 218.6	CR6	10/14/2014	Ryan Balilu	µg/L	15.0	0.4	0.032
					ASSET	EPA 300.0	CL	10/10/2014	Patrick Swanson	mg/L	1200	250	12.0
					ASSET	EPA 300.0	FL	10/13/2014	Patrick Swanson	mg/L	2.40	0.5	0.055
					ASSET	EPA 300.0	SO4	10/10/2014	Patrick Swanson	mg/L	210	25.0	1.60

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05S	OW-05S-032	Barry Collom	10/8/2014	10:20:00 AM	ASSET	SM 2540C	TDS	10/9/2014	Amanda Cortes	mg/L	2700	25.0	25.0
					ASSET	SM 4500-NO3F	NO3NO2N	10/21/2014	Patrick Swanson	mg/L	2.80	0.1	0.044
					ASSET	SM2130B	TRB	10/9/2014	Amanda Cortes	NTU	8.200	0.1	0.10

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PG&E Topock Compressor Station, Needles, California

NOTES:

MDL	method detection limit corrected for sample dilution
RL	reporting limit corrected for sample dilution
ND	parameter not detected at the listed reporting limit
µmhos/cm	micro-mhos per centimeter
NTU	Nephelometric Turbidity Unit
mg/L	milligrams per liter
µg/L	micrograms per liter
J	concentration estimated by laboratory or data validation

ARAR	applicable or relevant and appropriate requirements
ASSET	Asset Laboratories.
TLI	Truesdail Laboratories, Inc.

ALKC	alkalinity, as carbonate	HGD	mercury, dissolved
ALKT	alkalinity, total as CaCO3	KD	potassium, dissolved
ALKB	alkalinity, bicarbonate as CaCO3	MGD	magnesium, dissolved
ALD	aluminum, dissolved	MND	manganese, dissolved
AGD	silver, dissolved	MOD	molybdenum, dissolved
ASD	arsenic, dissolved	NAD	sodium, dissolved
BD	boron, dissolved	NID	nickel, dissolved
BAD	barium, dissolved	NH3N	ammonia (as Nitrogen)
BED	beryllium, dissolved	NO3NO2N	nitrate/nitrite (as Nitrogen)
CAD	calcium, dissolved	PBD	lead, dissolved
CDD	cadmium, dissolved	SBD	antimony, dissolved
CL	chloride	SC	specific conductance
COBD	cobalt, dissolved	SED	selenium, dissolved
CRTD	chromium, dissolved	SO4	sulfate
CR6	hexavalent chromium	TLD	thallium, dissolved
CUD	copper, dissolved	TDS	total dissolved solids
FE	iron	TRB	turbidity
FETD	iron, dissolved	VD	vanadium, dissolved
FL	fluoride	ZND	zinc, dissolved