

Topock Project Executive Abstract

<p>Document Title: <i>Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California</i></p> <p>Submitting Agency: DTSC</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: December 15, 2015</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)</p> <p>PG&E</p>
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Brief Summary of attached document:

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

Based on the data and evaluation presented in this report, the IM performance standard has been met for Third Quarter 2015, which includes the months of July, August, September, and October 2015. The average pumping rate for the IM extraction system during the Third Quarter 2015 was 128.6 gallons per minute. To date, the IM extraction system has removed a total of 8,390 pounds (3,810 kilograms) of chromium.

Written by: PG&E

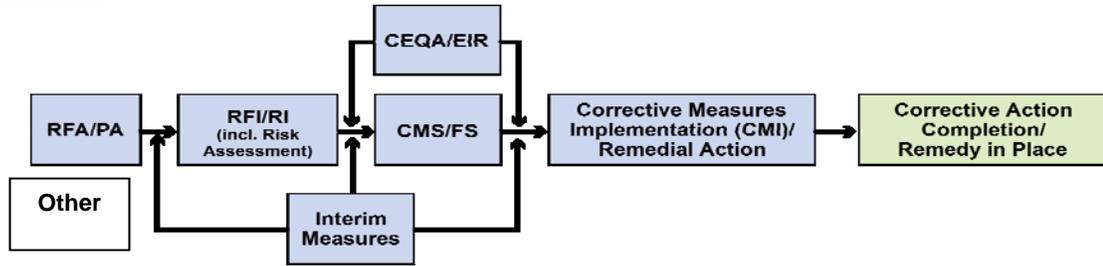
Recommendations:
 This report is for information only.

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

Other requirements of this information?
 None.

Related Reports and Documents:

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



Legend

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



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December 15, 2015

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Subject: *Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* (Document ID: PGE20151215A)

Dear Mr. Yue:

Enclosed is the *Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*, for Pacific Gas and Electric Company's (PG&E's) Interim Measures (IM) Performance Monitoring Program and the Groundwater Monitoring Program (GMP) and Surface Water Monitoring Program (RMP) for the Topock project. This report presents the Third Quarter 2015 (July through October 2015) performance monitoring results for the IM hydraulic containment system, and summarizes the operations and performance evaluation for the reporting period. In compliance with the requirements for the California Environmental Protection Agency, Department of Toxic Substances Control's (DTSC's) GMP and RMP directive of April 2005, this report also presents groundwater and surface water monitoring activities, results, and analyses related to the GMP and RMP during Third Quarter 2015.

The IM quarterly performance monitoring report is submitted in conformance with the reporting requirements in the DTSC's IM directive dated February 14, 2005, and in the updates and modifications approved by DTSC in letters or e-mails dated October 12, 2007; July 14, 2008; July 17, 2008; March 3, 2010; April 28, 2010; July 23, 2010; June 27, 2014; and July 20, 2015.

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

Sincerely,

Yvonne Meeks
Topock Project Manager

Enclosure

Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report

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**Third Quarter 2015
Interim Measures Performance
Monitoring and Site-wide
Groundwater and Surface Water
Monitoring Report,
PG&E Topock Compressor Station,
Needles, California**

Document ID: PGE20151215A

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

On behalf of
Pacific Gas and Electric Company

December 15, 2015

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Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

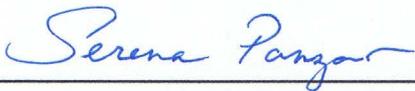
PG&E Topock Compressor Station,
Needles, California

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

On behalf of
Pacific Gas and Electric Company

December 15, 2015

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



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Jay Piper
CH2M HILL Project Manager

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Acronyms and Abbreviations

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

Introduction

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

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

This report presents the monitoring data from PG&E's GMP, RMP, and PMP, collected from July 1, 2015 through October 31, 2015 (hereafter referred to as the reporting period, or Third Quarter 2015). The data collected as part of the GMP and RMP are presented in Section 3. The data collected as part of the PMP are presented in Section 4. This combined PMP and GMP (including RMP) reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC, 2009). On July 23, 2010, DTSC approved a new sampling event timing and reporting schedule for the PMP, GMP, and RMP programs (DTSC, 2010a). On June 27, 2014, DTSC approved changes to the reporting schedule that added 2 weeks to the preparation of the third quarter report (DTSC, 2014) and included changes to the sample frequencies. On June 29, 2015, the Arizona Department of Environmental Quality (ADEQ) recommended that PG&E increase the sampling frequency of MW-55-120 from semiannually to quarterly (ADEQ, 2015). Table 1-1 shows the reporting schedule. (Tables are located at the end of the report.)

Starting in Third Quarter 2014, the groundwater sample collection method for most monitoring wells was switched from the traditional three-volume method to the minimal drawdown method, as approved by DTSC (DTSC, 2014). Chromium results tables following in this report indicate the method used for groundwater sample collection. Minimal drawdown sample collection is conducted following the standard operating procedures detailed in the *Sampling and Analysis Field Procedures Topock Program Manual, Revision 1, Pacific Gas and Electric Company, Topock Project* (CH2M HILL, 2005a) and relevant updates.

1.1 Site-wide Groundwater and Surface Water Monitoring Program

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

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

Background information (including well construction details) and descriptions of the current groundwater and surface water sampling, analyses, and monitoring programs are discussed in PG&E's *Fourth Quarter 2014 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*, dated March 13, 2015 (CH2M HILL, 2015a).

In compliance with the requirements for the GMP and RMP directive of April 2005 (DTSC, 2005a), this document presents the Third Quarter 2015 GMP and RMP report for the monitoring activities from July 1, 2015 through October 31, 2015.

1.1.1 Groundwater Monitoring Program and Surface Water Monitoring Program Networks

Figure 1-2 shows the current locations and sampling frequencies of the monitoring wells in the GMP. The complete GMP includes over 140 wells that monitor groundwater in the Alluvial Aquifer and the bedrock and consist of the following:

- One hundred twenty-nine monitoring wells in California, including two normally dry wells
- Eight monitoring wells in Arizona
- Two water supply wells
- Two active extraction wells
- Five test wells

Sampling frequencies for the GMP wells were revised in Third Quarter 2014, following the DTSC direction given on June 27, 2014 (DTSC, 2014), and again in Third Quarter 2015, following ADEQ's recommendation given on June 29, 2015 (ADEQ, 2015). Figure 1-2 shows the current sampling frequencies, with the sampling purge method indicated by the font of the well identification labels to distinguish wells sampled by minimal drawdown methods. Proposed modifications to GMP analytical plans including new Title 22 metals and annual water quality sampling plans were presented in the Fourth Quarter and Annual Report in response to that DTSC request and are undergoing Agency review (CH2M HILL, 2015a).

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

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

1.2 Interim Measure Performance Monitoring Program

In compliance with the requirements for IM monitoring and reporting outlined in the DTSC IM performance directive of February 2005 and in subsequent directives from the DTSC in 2007 (DTSC, 2005b, 2007a-c), this report presents the Third Quarter 2015 PMP evaluation results for the IM monitoring activities from July 1, 2015 through October 31, 2015.

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

In a letter dated February 14, 2005, DTSC established the criteria for evaluating the performance of the IM (DTSC, 2005c). As defined by DTSC, the performance standard for this IM is to "establish and maintain a net

landward hydraulic gradient, both horizontally and vertically, that ensures that hexavalent chromium [Cr(VI)] concentrations at or greater than 20 micrograms per liter [$\mu\text{g/L}$] in the floodplain are contained for removal and treatment” (DTSC, 2005b). A *Draft Performance Monitoring Plan for Interim Measures in the Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California* (CH2M HILL, 2005b) was submitted to DTSC on April 15, 2005 (herein referred to as the Performance Monitoring Plan or PMP).

The February 2005 DTSC directive also defined the monitoring and reporting requirements for the IM (DTSC, 2005b-c). In October 2007, DTSC modified the reporting requirements for the PMP (DTSC, 2007a) to discontinue monthly performance monitoring reports (the quarterly and annual reporting requirements were unchanged). Additional updates and modifications to the PMP were approved by DTSC in letters dated October 12, 2007; July 14, 2008; July 17, 2008; July 23, 2010, and June 27, 2014 (DTSC, 2007a, 2008a-b, 2010a, 2014). On July 20, 2015, DTSC conditionally approved the proposal to modify the IM-3 pumping regime by allowing PE-1 to be shut off and pumping shifted to TW-3D and TW-2D or TW-2S so long as gradient targets are maintained (DTSC, 2015). Because PE-1 pumps water with low concentrations of chromium (typically less than 5 $\mu\text{g/L}$), shifting more pumping to a higher concentration extraction well can increase the rate of chromium removal from the floodplain.

1.2.1 Performance Monitoring Program Monitoring Networks

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

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

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

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

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

1.3 Sustainability

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

As approved by the California Regional Water Quality Control Board in 2006, groundwater sampling purge water is disposed via the onsite IM-3 treatment plant and injection process, eliminating offsite transport and disposal of sampling purge water. In 2011, onsite IM-3 staff were trained to take on the role of groundwater sampling support in place of an offsite support contractor. The current local monitoring team also designed a groundwater sampling truck that was locally fabricated. The current use of IM-3 onsite local staff, an onsite field local quality manager, and a local sampling truck eliminated mobilizations from the Los Angeles area by offsite sampling contractors. Additionally, the current RMP boat contractor has always been a local Lake Havasu City-based business. Benefits of using local resources for sampling support are reduced fuel consumption and greenhouse gas emissions, and increased local business support. The analytical laboratory services supporting Topock monitoring migrated from a Los Angeles-based lab to the current Las Vegas-based lab, reducing lab courier travel by more than half. Lab courier mileage and greenhouse gas emissions were further reduced with use of the 14-day holding time Nitrate method to replace the previous 48-hour holding time method. This followed the DTCS's approval in 2007 to stop using USEPA Method SW846 Method 7199 for Cr(VI), which has a 24-hour holding time and to start using USEPA Method 218.6, which has a 28-day holding time. For the PG&E Topock site, the new method reduced courier travel mileage, and increased field efficiency with less frequent sample pickups. The use of the DTSC website and electronic report submittal has reduced the number of report hard copies and conserved natural resources. The number of report hard copies has been reduced over the years from 16 to 10 for the quarterly reports and from 18 to 12 for the annual reports to conserve resources.

To reduce the potential for impacts to floodplain areas with nesting habitat for sensitive avian species, water level data telemetry systems were installed from 2011-2012 at the five key gradient compliance well locations. The telemetry systems are still currently used. The solar-powered data telemetry systems eliminated the need for weekly download visits (reduced mobilizations of off-set technical support resources) and allows for monthly or less-frequent visits for key well transducer calibrations and maintenance.

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

Third Quarter 2015 Monitoring Activities

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

2.1 Groundwater Monitoring Program

2.1.1 Monthly

Groundwater was sampled from the active IM extraction wells (PE-1 and TW-3D) in July, August, September, and October 2015 and from extraction well TW-2S in September, and was analyzed for Cr(VI), chromium, total dissolved solids (TDS), pH, and several additional analytes.

2.1.2 Quarterly

The Third Quarter 2015 GMP quarterly groundwater monitoring event was conducted from September 28, 2015 through October 21, 2015. Field parameters recorded during well purging included oxidation-reduction potential and pH. Groundwater samples were analyzed for Cr(VI), chromium, and specific conductance.

During the Third Quarter 2015, sampling event groundwater samples collected at GMP wells were submitted for laboratory analysis of Cr(VI) and other constituents, including the following:

- Chemicals of potential concern (COPCs), including molybdenum, nitrate as nitrogen (referred to as nitrate hereafter), selenium, potential in situ byproducts (manganese and arsenic), and other analytes. In an email dated March 3, 2010, DTSC directed monitoring of these COPCs, potential in situ byproducts, and other analytes at select wells (DTSC, 2010c, 2011). That frequency was modified with the June 27, 2014 email from DTSC.
- Arsenic from a subset of wells screened in fluvial sediments, as directed by DTSC in the Corrective Measures Study review comment No. 186 (CH2M HILL, 2009c).
- Arsenic from bedrock monitoring wells.

2.1.3 Well Maintenance

PG&E performs quarterly inspections and takes corrective actions as necessary to ensure that the monitoring wells are in good working condition (DTSC, 2013; CH2M HILL, 2005a-b). Table A-1 in Appendix A summarizes the quarterly inspection log, field observations, and mitigation actions, if any, for well maintenance.

2.1.4 Well Sampling Method Trial at Well Clusters MW-38 and MW-40

In conformance with the June 27, 2014 direction email from DTSC, PG&E began conducting a sampling method trial at MW-38S, MW-38D, MW-40S, and MW-40D during Fourth Quarter 2014. At MW-38S and MW-38D, both minimal drawdown and three-volume purge samples are being collected for comparison at regular sampling intervals. At MW-40S and MW-40D, both HydraSleeve and three-volume purge samples are being collected for comparison at regular sampling intervals. Sample results from this comparison study will be evaluated in the 2015 annual GMP report.

2.1.5 Flow in Bat Cave Wash

During the week of July 27, 2015, there was a rainfall event that caused significant water to flow in Bat Cave Wash. During Third Quarter 2015 event, wells MW-9, MW-10, and MW-11 were sampled for additional analytes in response to this flow event.

2.1.6 Arizona Monitoring Well MW-55-120

On June 29, 2015, the Arizona Department of Environmental Quality (ADEQ) recommended that PG&E increase the sampling frequency of MW-55-120 from semiannually to quarterly and redevelop the same well

(ADEQ, 2015a). On August 13, 2015, PG&E agreed to increase the sampling frequency to quarterly at MW-55-120 for one year and then re-evaluate sampling frequency (PG&E, 2015a). On August 26, 2015, ADEQ accepted PG&E's August 13, 2015 letter (ADEQ, 2015b). On September 21, 2015 PG&E submitted a letter plan for redevelopment at MW-55-120 (PGE, 2015b), which was conditionally approved by ADEQ on September 29, 2015 (ADEQ, 2015c).

2.2 Surface Water Monitoring Program

Quarterly surface water sampling was conducted on September 16 and 17, 2015 from the complete RMP monitoring network. Samples were analyzed for Cr(VI), chromium, specific conductance, and pH. Samples were also analyzed for COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and geochemical indicator parameters (barium and total suspended solids) to develop baseline concentrations for future remedy performance evaluation.

2.3 Performance Monitoring Program

Groundwater samples for the PMP were collected during the GMP quarterly sampling event. In addition, PMP pressure transducers, which are used to monitor hydraulic gradients of the Alluvial Aquifer, were downloaded in the first week of every month (July, August, September, and October). The transducers in the key monitoring wells (MW-27-085, MW-31-125, MW-33-150, MW-34-100, and MW-45-095a, shown on Figure 1-4) are downloaded via a cellular telemetry system.

2.3.1 Pumping off at PE-1

On July 20, 2015, DTSC conditionally approved the proposal to modify IM-3 pumping to allow for PE-1 to be shut off (DTSC, 2015). Pumping at PE-1 was stopped from September 1-11, 2015. On September 12, 2015, PE-1 was turned back on in order to meet gradient targets. Conditional approval required that PG&E alert DTSC if chromium from individual floodplain monitoring wells within approximately 800 feet of TW-3D exhibited concentrations greater than the maximum detected chromium concentrations from 2014 (or most recent year if a well was not sampled in 2014). No third quarter chromium results from floodplain monitoring wells exceeded this new criterion.

Results for Site-wide Groundwater Monitoring and Surface Water Sampling

3.1 Groundwater Results for Hexavalent Chromium and Chromium

Table 3-1 presents the results for Cr(VI), chromium, laboratory-specific conductance, field oxidation-reduction potential, field pH, and field turbidity in groundwater samples collected during the Third Quarter 2015. The maximum detected Cr(VI) concentration was 32,000 µg/L at well MW-68-180. The laboratory reports from Third Quarter 2015 sampling are presented in Appendix B.

Figures 3-1a and 3-1b present the Cr(VI) results for wells monitoring the shallow (upper-depth interval) and deep (lower-depth interval) wells, respectively, of the Alluvial Aquifer and bedrock from Third Quarter 2015. The mid-depth map (normally Figure 3-1b) was not included in this report because there were no samples collected from the mid-depth sampling interval this quarter. Figures 3-1a and 3-1b each show the approximate outline of Cr(VI) concentration contours greater than 32 µg/L for the Alluvial Aquifer and bedrock. These contour outlines are based on results from groundwater sampling events conducted in Second Quarter 2015, where a larger number of wells were sampled, and Third Quarter 2015. The value of 32 µg/L is based on the calculated natural background upper tolerance limit for Cr(VI) in groundwater from the background study (CH2M HILL, 2008, 2009a).

The areas where Cr(VI) concentrations are greater than 32 µg/L in the shallow, mid-depth, and deep intervals of the Alluvial Aquifer and bedrock wells are generally similar to the previous quarterly monitoring events (CH2M HILL, 2011a-d, 2012a-d, 2013a-d, 2014a-d, and 2015a-c).

3.2 Other Groundwater Monitoring Results

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

Table 3-2 presents the COPCs and in situ byproducts for groundwater monitoring wells sampled in Third Quarter 2015. The wells where maximum concentrations of these analytes were reported are summarized as follows:

- MW-46-175 with a molybdenum concentration of 160 µg/L
- MW-68-180 with a nitrate concentration of 30.0 milligrams per liter (mg/L)
- MW-68-180 with a selenium concentration of 18.0 µg/L
- MW-64BR with a manganese concentration of 1,000 µg/L
- MW-72BR-200 with an arsenic concentration of 16.0 µg/L

3.2.2 Arsenic Sampling in Monitoring Wells

Select Alluvial Aquifer and bedrock wells were sampled for arsenic in the Third Quarter 2015 event. Selected arsenic results are presented with the COPCs and in situ byproducts results in Table 3-2. Additional arsenic results are presented in Appendix C, Table C-1. Arsenic concentrations were within expected ranges for the wells sampled.

3.2.3 Additional Analytes after Flow in Bat Cave Wash

Select Alluvial Aquifer wells (MW-9, MW-10, and MW-11) were sampled for Cr(VI), chromium, calcium, magnesium, sodium, dissolved iron, boron, arsenic, manganese, molybdenum, selenium, bromide, chloride, sulfate, total dissolved solids, alkalinity, and nitrate/nitrite as nitrogen in the Third Quarter 2015 after a rainfall event that caused significant water to flow in Bat Cave Wash. This list of analytes is consistent with

previous post-rainfall sampling for assessment of water quality in Bat Cave Wash. Concentrations of all analytes were consistent with historical data for all three wells, indicating the rainfall events of late August/early September did not demonstrate an impact on general water quality in the shallow aquifer beneath Bat Cave Wash based on samples collected one month after the events. This conclusion is consistent with observations made following past flow events. Additional analytical results are presented in Appendix C, Table C-2.

3.3 Surface Water Sampling Results

Table 3-3 presents results of Cr(VI), chromium, specific conductance, and lab pH from the surface water sampling event conducted during this reporting period. Neither Cr(VI) nor chromium was detected above reporting limits at any in-channel, shoreline, or other surface water monitoring locations.

Table 3-4 presents results for the COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and other geochemical indicator parameters for surface water samples. Arsenic (less than 3 µg/L), barium (less than 150 µg/L), molybdenum (less than 5.5 µg/L), and selenium (less than 2 µg/L) concentrations were detected at all sampled locations. The nitrate/nitrite and nitrogen results were less than 1.0 mg/L, except at R63. The dissolved manganese results were above laboratory reporting limits in samples collected at C-MAR, C-R22a, R-19, R-28, R63, and RRB where values of 7.6, 0.64, 1.4, 1.3, 7.1, and 8.4 µg/L were reported, respectively. Dissolved iron results were above reporting limits in the samples collected from C-MAR, C-R27, R-19, and RRB.

The C-MAR sample location is near the east side of the Colorado River at the mouth of the Topock Marsh area as shown on Figure 1-3. This location is out of the main river channel and adjacent to an area of naturally reducing geochemical conditions in groundwater. The RRB location is also located off the main river channel in a small embayment that is partially or completely cut off from the river during low water and where reducing conditions likely exist in nearby shallow groundwater. Elevated manganese and iron concentrations are typical of reduced geochemical environments. Detections of these metals may also occur occasionally in more oxidized environments due to the presence of suspended solids (colloids) in the filtered samples.

3.4 Data Validation and Completeness

Laboratory (lab) analytical data from the Third Quarter 2015 sampling events were reviewed by project chemists to assess data quality and to identify deviations from analytical requirements.

The following list summarizes the notable analytical qualifications in data reported this quarter:

- Four Cr(VI) (USEPA Method 218.6) results exhibited a matrix interference issue that required a dilution to achieve satisfactory matrix spike recovery, resulting in an elevated reporting limit. No flags were applied.
- Twelve Cr(VI) (USEPA Method 218.6) samples were associated with an ambient blank result (0.23 µg/L) that exceeded the reporting limit (RL) for Cr(VI) (0.2 µg/L). All the associated samples were non-detect (ND) at the reporting limit. No flags were applied.
- One sample had a Cr(VI) (USEPA Method 218.6) concentration that exceeded the chromium (USEPA Method SW846 6020) concentration by a relative percent difference of 20 percent or more. The lab performed additional analysis that confirmed the initial results, so the initial results were reported. The sample results were qualified as estimated and flagged "J". As explained in table footnotes, a "J" flag indicates that the concentration as reported is considered to be an estimate.
- Five samples had results with a relative percent difference greater than 20 percent between the hexavalent chromium (USEPA Method 218.6 or Standards Methods SM3500) result and chromium

(USEPA Method SW846 6020) result. The lab performed additional analysis that confirmed the initial results, so the initial results were reported. No flags were applied.

- Ten samples were associated with matrix spike recoveries that were outside the control limits for one or more of the following Methods: USEPA 200.7, USEPA 200.8, USEPA 300.0, SM4500, SW846 6010, SW846 6020. Four of those samples had results (for one or more of the following analytes: nitrate/nitrite, iron, dissolved iron, or bromide) that were qualified as estimated and flagged “J”. The remaining results were either greater than 4 times the spiked concentration or were ND results and associated with spike recoveries greater than the upper control limit and therefore the spike recovery is considered to have no effect.
- Based on the March 2007 USEPA ruling and reaffirmed in the May 2012 USEPA ruling, pH has a 15-minute holding time. As a result, all samples analyzed in a certified lab by Method SM4500-HB (pH) are analyzed outside the USEPA recommended holding time. Therefore, the pH results for the Third Quarter 2015 sampling events analyzed in a certified lab were qualified as estimated and flagged “J”.

Additional details are provided in the data validation reports, which are kept in the project file and are available upon request.

Interim Measure Performance Monitoring Program Evaluation

4.1 Water Quality Results for Performance Monitoring Program Wells

The PMP wells are sampled annually (one well sampled biennially) during the Fourth Quarter sampling events. Figure 1-4 shows the locations of the monitoring wells sampled for the performance monitoring parameters.

In July 2008 and June 2014, DTSC approved modifications to the PMP IM chemical performance monitoring parameters (DTSC, 2008b, 2014). For the complete annual general chemistry results, see Table F-1 in Appendix F in the *Fourth Quarter 2014 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*, dated March 13, 2015 (CH2M HILL, 2015a).

4.2 Hexavalent Chromium Distribution and Trends in Performance Monitoring Program Wells

The Third Quarter 2015 distribution of Cr(VI) in the upper (shallow wells), middle (mid-depth wells), and lower (deep wells) intervals of the Alluvial Aquifer is shown in plan view and cross-section on Figure 4-1.¹ Figure 4-2 presents the Third Quarter 2015 Cr(VI) results for cross-section B, oriented parallel to the Colorado River. The location of cross-section B is shown on Figure 1-4. The Cr(VI) concentration contours shown for the Alluvial Aquifer on these figures are based on results for groundwater samples collected in Third Quarter 2015.

Figure 4-3 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through October 2015. Sampling results are plotted for wells MW-34-100, MW-36-90, MW-36-100, MW-44-115, MW-44-125, and MW-46-175. The locations of the deep wells selected for performance evaluation are shown on Figure 1-4. Appendix D includes Cr(VI) concentration trend graphs (Figures D-1 through D-19) for selected monitoring wells through October 2015.

Wells showing marked decreases in concentration over time are generally in the floodplain area where IM pumping is removing chromium contaminated groundwater. Wells with historical detections near or at reporting limits (for chromium, a typical reporting limit is 0.2 to 1.0 µg/L) remained at these low levels during Third Quarter 2015. A review of Figure 4-3 and Appendix D indicates that Cr(VI) concentrations have remained steady or have decreased in many wells since IM and PE-1 pumping began in 2004 and 2006, respectively.

Key Cr(VI) and chromium trends for PMP groundwater monitoring wells (data are provided in Appendix D; see Figure 1-4 for locations) sampled during Third Quarter 2015 include the following:

- As shown on Figure 4-3 and on Figure D-6 in Appendix D, Cr(VI) results for MW-34-100 generally declined from June 2006 through 2010. Since 2011, concentrations have fluctuated showing a consistent

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

seasonally affected trend. The secondary seasonal effect in concentration is related to high (spring/summer) and low (winter) Colorado River levels.

- Cr(VI) results for MW-44-115 and MW-44-125 have shown declining trends since these wells were first sampled in 2006, as shown on Figure 4-3 and on Figure D-10 in Appendix D. The October 2015 Cr(VI) results for MW-44-115 were the lowest reported to date.
- Superimposed on a longer-term decreasing trend for Cr(VI), a secondary trend of seasonal fluctuation in Cr(VI) is also seen in monitoring well MW-46-175 (similar to MW-34-100) (see Figure 4-3 and Figure D-11 in Appendix D). River levels are discussed in Section 4.6.
- The latest Cr(VI) result for MW-62-110 is ND as shown on Figure D-14 in Appendix D. The previous quarter's result was 1000 µg/L. The ND result is anomalous. This well will continue to be monitored to verify consistency.

4.3 Performance Monitoring Program Contingency Plan Hexavalent Chromium Monitoring

The Topock Interim Measures Contingency Plan (IMCP) was developed to detect and control any possible migration of the Cr(VI) plume toward the Colorado River. Currently, the IMCP consists of 24 wells (CH2M HILL, 2005b, 2006; PG&E, 2007, 2008). Appendix D includes Cr(VI) concentration trend graphs for the IMCP wells. The IMCP well Cr(VI) results in Third Quarter 2015 were below the trigger levels requiring contingency actions.

4.3.1 Chromium Concentrations from Wells Within 800 feet of TW-3D when PE-1 Pumping is Turned Off

Pumping from PE-1 ceased from September 1 to September 11, 2015. Table D-1 in Appendix D compares Cr(VI) and chromium concentrations to the maximum detected chromium concentrations from 2014. All Third Quarter 2015 Cr(VI) and chromium results were below the 2014 (or for biennial wells, the 2013 maximum) levels thereby requiring no contingency actions.

4.4 Extraction Systems Operations

Pumping data for the IM-3 groundwater extraction system for the reporting period of July 1 through October 31, 2015 are presented in Table 4-1. From July 1, 2015 through October 31, 2015, the volume of groundwater extracted and treated by the IM-3 system was 22,770,209 gallons. This resulted in the removal of an estimated 111 pounds (50.5 kilograms) of chromium from the aquifer during the period from June 1, 2015 through September 30, 2015.² Through September 2015, the IMs have removed approximately 8,390 pounds of chromium from the floodplain at the Topock site.

During Third Quarter 2015, extraction wells TW-3D and PE-1 operated at a combined pumping rate of 128.6 gallons per minute (gpm), including periods of planned and unplanned downtime. The average monthly pumping rates during the reporting period were 131.2 (July), 114.8 (August), 135.0 (September), and 133.5 (October). Extraction well TW-2S was operated for a brief time on August 31, 2015 and on September 1 through September 3, 2015 while extraction well TW-2D was operated on July 8 and July 9, 2015 and on September 2 and September 3, 2015. The operational runtime percentage for the IM extraction system was 94.5 percent during this reporting period. The operations log for the extraction system during Third Quarter 2015, including planned and unplanned downtime, is included in Appendix E.

² Chromium removed this reporting period includes the period of June 1 through September 30, 2015. On July 23, 2010, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from June 1 through September 30, 2015.

The concentrate (saline water) from the reverse osmosis system was shipped offsite as nonhazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona, for treatment and disposal. Ten containers (roll-off bins) of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada, during Third Quarter 2015.

During the reporting period, Cr(VI) concentrations in TW-3D remained stable, ranging from a maximum value of 720 µg/L in September to a minimum value of 700 µg/L in October, as shown in Table 4-2. TDS concentrations in TW-3D for this reporting period have also remained stable, as shown in Table 4-2.

The Cr(VI) concentrations in the extracted groundwater at well PE-1 on the floodplain ranged from 0.43 to 3.2 µg/L during the reporting period, as shown in Table 4-2. TDS concentrations in PE-1 for this reporting period have also remained stable.

4.5 Hydraulic Gradient and River Levels during Quarterly Period

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

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

Average Third Quarter 2015 groundwater elevations for the shallow, mid-depth, and deep wells are presented and contoured in plan view on Figures 4-4a through 4-4c. Average Third Quarter 2015 groundwater elevations for wells on floodplain cross-section A are presented and contoured on Figure 4-5. Several monitoring wells are significantly deeper than other wells in the lower depth interval. Due to vertical gradients present at the Topock site, water levels in deeper wells tend to be higher than water levels in shallower wells.

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

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

Table 4-3 presents the average monthly hydraulic gradients measured between the gradient well pairs in Third Quarter 2015. Figure 4-6 presents graphs of the hydraulic gradients, monthly average pumping rates, and river levels for the quarterly period. Strong landward gradients were measured each month. The overall average gradients for all well pairs ranged from 0.0022 to 0.0058 feet per foot (ft/ft), which is 2.2 to 5.8 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 1.8 to 2.3 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from 2.9 to 11.5 times the target gradient. The southern well pair gradients averaged 1.2 to 4.0 times the target gradient for the reporting period.

4.6 Projected River Levels during Next Quarter

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

Figure 4-7 shows river stage measured at I-3 superimposed on the projected I-3 river levels. Projected river levels for future months are based on the USBR projections of Davis Dam discharge and Lake Havasu levels from the preceding month. As an example, the projected river level for November 2015 is based on the October 2015 USBR data of Davis Dam release and Lake Havasu level, not the actual release and level values. The variability between measured and projected river levels is due to the difference between measured and actual Davis Dam release and Lake Havasu levels. The more recent data plotted on Figure 4-7 are summarized in Table 4-4. The future projections shown on Figure 4-7 are based on USBR long-range projections of Davis Dam releases and Lake Havasu levels from October 2015. There is more uncertainty in these projections at longer times in the future because water demand is based on various elements including climatic factors.

Current USBR projections, presented in Table 4-4, show that the average projected Davis Dam release for November 2015 (10,000 cubic feet per second) will be less than the actual release in October 2015 (10,653 cubic feet per second). Based on November 2015 USBR predictions, it is anticipated that the Colorado River level at the I-3 gauge location in November 2015 will be approximately 0.60 foot lower compared to the actual levels in October 2015. Current projections show that the water levels will continue to decrease through the rest of the next quarterly reporting period (November through December), as shown on Figure 4-7.

4.7 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from July through October 2015 performance monitoring indicate that the minimum landward gradient target of 0.001 ft/ft was exceeded each month during the quarterly reporting period. The overall average landward gradients during Third Quarter 2015 were 2.2 to 5.8 times the required minimum magnitude. The current gradient well pairs are adequate to define the capture of the Cr(VI) plume while pumping from extraction wells TW-3D and PE-1. When PE-1 is not pumping, the current southern gradient control well pair is not aligned with the westerly flow direction in the TW-3D cone of depression (there is a direction difference of about 45° in azimuth) and therefore underestimates the true gradient. Based on the hydraulic and monitoring data and evaluation presented in this report, the IM performance standard has been met for the Third Quarter 2015 reporting period. All wells sampled in the third quarter GMP event met the new criterion for PE-1 shutdown monitoring, with no results exceeding the 2014 maximum concentrations (or for biennial wells, the 2013 maximum).

A total of 22,770,209 gallons of groundwater was extracted from July through October 2015 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during Third Quarter 2015, including system downtime, was 128.6 gpm. An estimated 111 pounds (50.5 kilograms) of chromium were removed and treated between June 1 and September 30, 2015. To date, the IMs have removed approximately 8,390 pounds of chromium from the floodplain at the Topock site through September 2015.

The wells that are monitored to detect trends in Cr(VI) in the IM pumping area (for example, MW-36-100, MW-34-100, MW-44-115, MW-44-125, and MW-46-175) continue to show overall stable or declining Cr(VI) concentrations relative to prior monitoring results, as shown in Appendix D.

Upcoming Operation and Monitoring Events

Reporting of the IM extraction and monitoring activities will continue as described in the PMP and under direction from DTSC. Monitoring results, operations, and performance monitoring data will be reported in the Fourth Quarter 2015 monitoring report, which will be submitted by March 15, 2016.

5.1 Groundwater Monitoring Program

5.1.1 Quarterly Monitoring

The Fourth Quarter monitoring event is planned for December 2015.

5.1.2 Monthly Monitoring

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

5.1.3 Well Inspections

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

5.2 Surface Water Monitoring Program

The Fourth Quarter 2015 surface water monitoring event is planned at locations in the RMP monitoring network for November or December 2015. Results will be reported in the Fourth Quarter 2015 monitoring report.

5.3 Performance Monitoring Program

5.3.1 Extraction

Per DTSC direction, PG&E will continue to operate wells TW-3D and PE-1 at a target combined pumping rate of 135 gpm during Fourth Quarter 2015, except for periods when planned and unplanned downtime occur. It is not anticipated that PE-1 will be turned off during the Fourth Quarter due to the difficulty of maintaining gradient targets in the current set of gradient control wells during the season of declining and low river levels. Extracted groundwater treated at the IM-3 facility will be discharged into the IM-3 injection wells in accordance with compliance requirements of the waste discharge applicable, relevant, and appropriate requirements. Saline water and solids generated as byproducts of the treatment process will continue to be transported for offsite disposal.

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

5.3.2 Transducer Download

Downloads of the transducers in the key gradient control wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, and MW-45-095) will continue to be conducted via telemetry during Fourth Quarter 2015. Downloads of the remainder of the transducers will occur during the first week of each month during Fourth Quarter 2015.

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Tables

Table 1-1

Topock Monitoring Reporting Schedule
*Third Quarter 2015 Interim Measures Performance Monitoring and
Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Program	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Groundwater Monitoring Program	January - March	April - June	July - October	November - December
Surface Water Monitoring Program	January - March	April - June	July - October	November - December
Performance Monitoring Program	January - March	April - June	July - October	November - December
IM-3 Monitoring (Chromium removed)	January - February	March - May	June - September	October - December

TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-9	SA	02-Dec-14	MD	210	210	2,700	-68	7.4	1.0
		12-May-15	MD	230	230	---	-170	7.6	1.0
		07-Oct-15	MD	200	230	---	89	7.3	1.0
MW-10	SA	02-Dec-14	MD	200	220	2,400	-66	7.4	15.0
		12-May-15	MD	280	290	---	-170	7.4	16.0
		07-Oct-15	MD	190	210	---	71	7.4	20.0
MW-11	SA	02-Dec-14	MD	130	120	2,100	-5	7.2	20.0
		02-Dec-14	FD MD	130	120	2,100	FD	FD	FD
		12-May-15	MD	130	130	---	-140	7.5	2.0
		07-Oct-15	MD	130	130	---	75	7.4	17.0
MW-12	SA	15-Dec-14	MD	2,300	2,300	7,100	-59	7.6	1.0
		19-May-15	MD	1,900	2,200	---	-81	7.7	1.0
MW-13	SA	13-Nov-14	MD	21.0	21.0	2,000	30	7.3	4.0
MW-14	SA	12-Nov-14	MD	15.0	16.0	1,900	12	7.5	18.0
		06-May-15	MD	16.0	18.0	---	-110	7.5	6.0
MW-15	SA	11-Nov-14	MD	13.0	13.0	1,700	28	7.4	2.0
MW-18	SA	13-Nov-14	MD	21.0	21.0	1,300	24	7.5	1.0
MW-19	SA	10-Dec-14	MD	630	680	2,300	-78	7.6	3.0
		14-May-15	MD	630	690	---	-110	7.4	15.0
MW-20-70	SA	15-Dec-14	MD	2,000	2,100	1,900	-86	7.7	1.0
		19-May-15	MD	1,900	2,200	---	-180	7.3	4.0
		19-May-15	FD MD	1,900	2,200	---	FD	FD	FD
MW-20-100	MA	15-Dec-14	MD	1,900	1,900	2,600	-83	7.5	6.0
		19-May-15	MD	2,400	2,800	---	-190	7.2	3.0
MW-20-130	DA	15-Dec-14	MD	6,600	6,600	11,000	-150	7.5	1.0
		15-Dec-14	FD MD	6,500	6,300	11,000	FD	FD	FD
		19-May-15	MD	7,600	7,900	---	-250	7.2	2.0
MW-21	SA	11-Nov-14	MD	2.4	2.7	9,300	-13	7.1	7.0
		06-May-15	MD	1.5	1.4	---	-340	7.2	36.0
MW-22	SA	18-Dec-14	MD	ND (1.0)	ND (5.0)	27,000	-42	6.6	6.0
		22-Apr-15	MD	ND (1.0)	ND (1.0)	---	-390	6.9	5.0
MW-23-060	BR	10-Nov-14	3V	38.0	32.0	15,000	-62	9.2	1.0

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-23-060	BR	30-Apr-15	3V	38.0	34.0	---	70	8.9	1.0
MW-23-080	BR	10-Nov-14	3V	5.3	5.2	15,000	-220	10.0	1.0
		30-Apr-15	3V	3.0	2.5	---	-140	10.1	1.0
MW-24A	SA	04-Nov-14	MD	ND (0.20)	ND (5.0)	1,800	-200	8.1	15.0
		29-Apr-15	MD	0.28	ND (1.0)	---	-200	8.3	5.0
		29-Apr-15	FD MD	0.30	ND (1.0)	---	FD	FD	FD
MW-24B	DA	18-Dec-14	MD	ND (1.0)	5.4	18,000	-250	8.3	5.0
		29-Apr-15	MD	ND (1.0)	1.8	---	-280	7.7	3.0
MW-24BR	BR	04-Dec-14	3V	ND (1.0)	ND (1.0)	14,000	-190	7.9	6.0
MW-25	SA	02-Dec-14	MD	140	130	1,600	-42	7.4	1.0
		11-May-15	MD	91.0	87.0	---	-140	8.0	1.0
MW-26	SA	15-Dec-14	MD	2,400	2,300	4,300	-60	7.4	2.0
		15-Dec-14	FD MD	2,200	2,300	4,300	FD	FD	FD
		19-May-15	MD	2,400	2,500	---	-240	7.5	2.0
MW-27-20	SA	04-Nov-14	MD	ND (0.20)	ND (1.0)	890	-21	7.5	2.0
MW-27-60	MA	04-Nov-14	MD	ND (0.20)	ND (1.0)	970	-120	7.6	4.0
		04-Nov-14	FD MD	ND (0.20)	ND (1.0)	980	FD	FD	FD
MW-27-85	DA	04-Nov-14	MD	ND (0.20)	ND (1.0)	8,500	-25	7.4	1.0
		20-Apr-15	MD	ND (0.20)	ND (1.0)	---	-39	7.4	1.0
		20-Apr-15	FD MD	ND (0.20)	ND (1.0)	---	FD	FD	FD
MW-28-25	SA	11-Nov-14	MD	ND (0.20)	ND (1.0)	1,000	110	7.1	1.0
		21-Apr-15	MD	ND (0.20)	ND (1.0)	---	-280	7.0	1.0
MW-28-90	DA	11-Nov-14	MD	ND (0.20)	ND (1.0)	6,200	-28	7.1	7.0
		21-Apr-15	MD	ND (0.20)	ND (1.0)	---	-38	7.1	10.0
MW-29	SA	10-Nov-14	MD	ND (0.20)	ND (1.0)	2,100	-110	7.3	1.0
		21-Apr-15	MD	ND (0.20)	ND (1.0)	---	-310	7.2	1.0
MW-30-30	SA	10-Nov-14	MD	0.21	ND (1.0)	10,000	-120	7.6	2.0
MW-30-50	MA	10-Nov-14	MD	ND (0.20)	ND (1.0)	1,000	7.3	7.6	1.0
		10-Nov-14	FD MD	ND (0.20)	ND (1.0)	1,000	FD	FD	FD
MW-31-60	SA	03-Dec-14	MD	600	660	2,700	-10	7.7	25.0
		13-May-15	MD	480	490	---	-190	7.5	1.0

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TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-31-135	DA	05-Nov-14	MD	12.0	12.0	10,000	-200	7.8	8.0
MW-32-20	SA	11-Nov-14	MD	ND (1.0)	ND (5.0)	37,000	-94	6.8	4.0
		11-Nov-14	FD MD	ND (1.0)	ND (5.0)	37,000	FD	FD	FD
MW-32-35	SA	11-Nov-14	MD	ND (1.0)	ND (1.0)	11,000	-110	7.1	11.0
		20-Apr-15	MD	ND (0.20)	ND (1.0)	---	-260	7.5	5.0
MW-33-40	SA	11-Nov-14	MD	ND (1.0)	ND (1.0)	14,000	100	7.6	1.0
		27-Apr-15	MD	ND (0.20)	ND (1.0)	---	-250	8.0	3.0
MW-33-90	MA	12-Nov-14	MD	7.9	7.7	9,300	140	7.4	1.0
		27-Apr-15	MD	6.8	5.7	---	-310	7.2	4.0
MW-33-150	DA	12-Nov-14	MD	0.86	ND (1.0)	14,000	110	7.4	2.0
		27-Apr-15	MD	4.0	3.2	---	-250	7.5	4.0
MW-33-210	DA	12-Nov-14	MD	13.0	12.0	18,000	140	7.4	8.0
		27-Apr-15	MD	7.9 J	6.4 J	---	-270	7.3	3.0
		27-Apr-15	FD MD	7.7 J	6.3 J	---	FD	FD	FD
MW-34-55	MA	06-Nov-14	MD	ND (0.20)	ND (1.0)	840	-35	7.6	1.0
MW-34-80	DA	06-Nov-14	MD	ND (0.20)	ND (1.0)	5,900	-4	7.3	2.0
		20-Apr-15	MD	ND (0.20)	ND (1.0)	---	-160	7.9	1.0
MW-34-100	DA	02-Oct-14	MD	100	89.0	---	-230	7.4	1.0
		01-Dec-14	MD	220	230	17,000	-62	7.6	2.0
		01-Dec-14	FD MD	230	220	17,000	FD	FD	FD
		16-Feb-15	MD	230	210	---	-270	8.0	2.0
		20-Apr-15	MD	7.6 J	5.4 J	---	-410	7.7	3.0
		20-Apr-15	FD MD	7.7 J	5.7 J	---	FD	FD	FD
		06-Oct-15	MD	70.0	67.0	---	10	7.7	1.0
MW-35-60	SA	13-Nov-14	MD	21.0	20.0	6,700	-97	7.3	1.0
		07-May-15	MD	24.0	24.0	---	-220	7.3	2.0
MW-35-135	DA	13-Nov-14	MD	30.0	28.0	10,000	-200	7.6	2.0
		07-May-15	MD	28.0	25.0	---	---	7.3	4.0
MW-36-20	SA	15-Dec-14	MD	ND (0.20)	ND (1.0)	11,000	-130	7.5	1.0
MW-36-40	SA	15-Dec-14	MD	0.34	ND (1.0)	1,200	-110	7.9	1.0
MW-36-50	MA	15-Dec-14	MD	ND (0.20)	ND (1.0)	1,200	-35	7.7	1.0
MW-36-70	MA	15-Dec-14	MD	ND (0.20)	ND (1.0)	1,000	-24	7.8	1.0

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-36-90	DA	15-Dec-14	MD	ND (0.20)	ND (1.0)	1,200	16	8.5	1.0
		23-Apr-15	MD	ND (0.20)	ND (1.0)	---	-360	7.8	2.0
MW-36-100	DA	13-Nov-14	MD	65.0	62.0	7,400	-20	7.2	2.0
		23-Apr-15	MD	59.0	51.0	---	---	7.3	3.0
MW-37S	MA	12-Nov-14	MD	11.0	11.0	5,500	-88	7.6	4.0
MW-37D	DA	02-Dec-14	MD	8.0	7.5	14,000	-190	7.6	3.0
		27-Apr-15	MD	8.3 J	6.7 J	---	-220	7.6	4.0
MW-38S	SA	22-Sep-14	3V	ND (0.20)	ND (1.0)	---	---	7.9	1.0
		05-Nov-14	3V	ND (0.20)	ND (1.0)	1,500	-260	7.8	1.0
		09-Feb-15	3V	ND (0.20)	ND (1.0)	---	-230	7.5	2.0
		30-Apr-15	3V	ND (0.20)	ND (1.0)	---	-290	7.6	1.0
		28-Sep-15	3V	ND (0.20)	ND (1.0)	---	-110	7.7	1.0
MW-38D	DA	05-Nov-14	3V	17.0	15.0	20,000	-260	8.3	2.0
		30-Apr-15	3V	16.0	14.0	---	-280	7.9	1.0
MW-39-40	SA	16-Dec-14	MD	ND (0.20)	ND (1.0)	1,400	-130	8.0	2.0
MW-39-50	MA	16-Dec-14	MD	ND (0.20)	ND (1.0)	1,300	8.9	7.8	1.0
MW-39-60	MA	16-Dec-14	MD	ND (0.20)	ND (1.0)	1,500	39	8.0	1.0
		16-Dec-14	FD MD	ND (0.20)	ND (1.0)	1,500	FD	FD	FD
MW-39-70	MA	16-Dec-14	MD	ND (0.20)	ND (1.0)	2,200	25	7.9	1.0
MW-39-80	DA	16-Dec-14	MD	ND (0.20)	ND (1.0)	4,400	44	7.7	1.0
MW-39-100	DA	01-Dec-14	MD	57.0	49.0	15,000	-310	6.7	2.0
		21-Apr-15	MD	7.4 J	5.9 J	---	-220	7.6	1.0
MW-40S	SA	04-Dec-14	MD	7.6	7.1	2,100	-37	7.2	8.0
MW-40D	DA	04-Dec-14	MD	160	140	13,000	-89	7.5	2.0
		12-May-15	MD	120	110	---	-310	7.0	9.0
MW-41S	SA	04-Nov-14	MD	17.0	17.0	4,900	-110	7.6	2.0
MW-41M	DA	04-Nov-14	MD	9.5	8.8	13,000	-110	7.0	1.0
		04-Nov-14	FD MD	9.5	9.0	13,000	FD	FD	FD
MW-41D	DA	17-Dec-14	MD	ND (1.0)	1.0	22,000	-94	7.3	1.0
		06-May-15	MD	ND (1.0)	ND (1.0)	---	-270	6.9	1.0
MW-42-30	SA	05-Nov-14	MD	0.54	ND (1.0)	2,400	-170	8.0	13.0

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TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-42-55	MA	06-Nov-14	MD	0.35	2.8	1,200	-71	8.2	7.0
		20-Apr-15	MD	0.22	1.7	---	-310	8.3	4.0
MW-42-65	MA	06-Nov-14	MD	ND (0.20)	ND (1.0)	6,000	22	7.4	2.0
		20-Apr-15	MD	ND (0.20)	ND (1.0)	---	-350	7.5	2.0
MW-43-25	SA	05-Nov-14	MD	ND (0.20)	ND (1.0)	1,400	-140	7.3	2.0
MW-43-75	DA	05-Nov-14	MD	ND (0.20)	ND (1.0)	9,200	-87	7.1	8.0
MW-43-90	DA	05-Nov-14	MD	ND (1.0)	ND (1.0)	15,000	-40	6.9	42.0
MW-44-70	MA	11-Nov-14	MD	ND (0.20)	ND (1.0)	2,000	29	7.6	4.0
		23-Apr-15	MD	ND (0.20)	ND (1.0)	---	-340	7.1	3.0
MW-44-115	DA	23-Sep-14	MD	37.0	32.0	---	---	8.0	5.0
		23-Sep-14	FD MD	37.0	31.0	---	FD	FD	FD
		12-Nov-14	MD	32.0	30.0	11,000	52	7.9	8.0
		17-Feb-15	MD	37.0	31.0	---	-200	7.1	8.0
		17-Feb-15	FD MD	37.0	31.0	---	FD	FD	FD
		23-Apr-15	MD	31.0	28.0	---	-300	6.9	5.0
		06-Oct-15	MD	27.0	27.0	---	55	7.9	8.0
		06-Oct-15	FD MD	27.0	26.0	---	FD	FD	FD
MW-44-125	DA	12-Nov-14	MD	4.0 J	5.9	8,100	-51	7.5	2.0
		12-Nov-14	FD MD	2.9 J	4.8	8,400	FD	FD	FD
		23-Apr-15	MD	1.2 J	5.4	---	-340	7.1	3.0
		23-Apr-15	FD MD	1.5 J	6.2	---	FD	FD	FD
MW-46-175	DA	23-Sep-14	MD	14.0	13.0	---	-300	8.4	1.0
		13-Nov-14	MD	23.0	25.0	19,000	65	8.2	6.0
		16-Feb-15	MD	25.0	21.0	---	-270	8.2	2.0
		21-Apr-15	MD	13.0 J	9.4 J	---	-310	8.2	1.0
		06-Oct-15	MD	11.0	11.0	---	46	8.3	1.0
MW-46-205	DA	13-Nov-14	MD	1.5	1.9	2,200	130	8.1	2.0
		21-Apr-15	MD	1.4	ND (1.0)	---	-280	8.2	1.0
MW-47-55	SA	11-Nov-14	MD	16.0	16.0	4,600	-74	7.5	1.0
		07-May-15	MD	15.0	15.0	---	-170	7.8	2.0
MW-47-115	DA	11-Nov-14	MD	19.0	17.0	13,000	-290	7.3	2.0
		07-May-15	MD	23.0	22.0	---	---	7.2	8.0

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TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-48	BR	06-Nov-14	3V	ND (1.0)	ND (1.0)	16,000	-83	7.0	5.0
		07-May-15	3V	ND (1.0)	ND (1.0)	---	-37	6.4	9.0
MW-49-135	DA	22-Dec-14	MD	2.3	2.0	14,000	-230	7.7	12.0
MW-49-275	DA	17-Dec-14	MD	ND (1.0)	1.2	27,000	-150	8.0	5.0
MW-49-365	DA	17-Dec-14	MD	ND (1.0)	ND (5.0)	39,000	-190	7.8	1.0
		17-Dec-14	FD MD	ND (1.0)	ND (5.0)	39,000	FD	FD	FD
MW-50-095	MA	11-Nov-14	MD	13.0	12.0	4,900	-73	7.5	2.0
		06-May-15	MD	14.0	13.0	---	-200	7.6	2.0
MW-50-200	DA	16-Dec-14	MD	4,800	5,200	21,000	-7	7.7	10.0
		20-May-15	MD	3,800	4,000	---	-240	6.9	1.0
MW-51	MA	15-Dec-14	MD	4,400	4,800	12,000	-130	7.5	1.0
		20-May-15	MD	4,600	5,100	---	-270	7.5	1.0
MW-52S	MA	17-Dec-14	Slant	ND (1.0)	ND (1.0)	9,100	-88	6.8	1.0
		22-Apr-15	Slant	ND (0.20)	ND (1.0)	---	---	6.9	1.0
MW-52M	DA	17-Dec-14	Slant	ND (1.0)	ND (1.0)	16,000	-120	7.5	1.0
		22-Apr-15	Slant	ND (1.0)	ND (1.0)	---	---	7.7	1.0
MW-52D	DA	17-Dec-14	Slant	ND (1.0)	ND (1.0)	22,000	-150	7.9	1.0
		22-Apr-15	Slant	ND (1.0)	ND (1.0)	---	---	8.0	1.0
MW-53M	DA	17-Dec-14	Slant	ND (1.0)	ND (1.0)	20,000	-160	8.0	1.0
		22-Apr-15	Slant	ND (1.0)	ND (1.0)	---	-400	7.8	1.0
MW-53D	DA	17-Dec-14	Slant	ND (1.0)	ND (5.0)	27,000	-150	8.2	1.0
		22-Apr-15	Slant	ND (1.0)	ND (1.0)	---	-320	8.1	1.0
MW-54-85	DA	18-Nov-14	MD	ND (0.20)	ND (1.0)	10,600	-220	7.3	7.0
		18-Nov-14	FD MD	ND (0.20)	ND (1.0)	10,500	FD	FD	FD
		28-Apr-15	MD	ND (1.0)	ND (1.0)	---	-240	7.5	2.0
MW-54-140	DA	18-Nov-14	MD	ND (0.20)	ND (1.0)	12,900	-240	7.7	4.0
		28-Apr-15	MD	ND (1.0)	ND (1.0)	---	-260	7.5	4.0
MW-54-195	DA	18-Nov-14	MD	ND (2.0)	ND (1.0)	19,500	-290	7.9	1.0
		28-Apr-15	MD	ND (2.0)	ND (1.0)	---	-270	8.0	4.0
MW-55-45	MA	18-Nov-14	MD	ND (1.0)	ND (1.0)	1,470	-270	7.4	34.0
		29-Apr-15	MD	ND (0.20)	ND (1.0)	---	-180	7.7	3.0
		29-Apr-15	FD MD	ND (0.20)	ND (1.0)	---	FD	FD	FD

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-55-120	DA	18-Nov-14	MD	7.5	7.2	8,930	-87	7.7	3.0
		29-Apr-15	MD	6.7	7.0	---	-150	7.7	9.0
		21-Oct-15	MD	7.6 J	7.0	---	60	7.9	7.0
		21-Oct-15 ^b	MD	7.8 J	6.3 J	---	60	7.9	7.0
MW-56S	SA	18-Dec-14	Slant	ND (0.20)	ND (1.0)	7,080	-72	7.0	1.0
		28-Apr-15	Slant	ND (0.20)	ND (1.0)	---	-260	7.0	1.0
MW-56M	DA	18-Dec-14	Slant	ND (1.0)	ND (5.0)	14,100	-90	7.2	1.0
		28-Apr-15	Slant	ND (2.0)	ND (1.0)	---	-240	7.2	2.0
MW-56D	DA	18-Dec-14	Slant	ND (1.0)	ND (5.0)	2,040	-140	7.6	1.0
		28-Apr-15	Slant	ND (2.0)	ND (1.0)	---	-280	7.7	3.0
MW-57-070	BR	10-Dec-14	3V	530	520	2,700	-30	7.0	8.0
		21-May-15	3V	410	420	---	-240	7.2	2.0
MW-57-185	BR	10-Nov-14	3V	9.5	8.9	17,000	-220	9.2	1.0
		11-May-15	3V	10.0	9.0	---	-300	9.1	1.0
MW-58BR	BR	24-Sep-14	MD	2.1	2.2	---	---	7.5	1.0
		09-Dec-14	MD	3.6	3.0	8,800	-180	7.6	0.50
		10-Feb-15	MD	3.6	3.5	---	-220	7.6	1.0
		18-May-15	MD	ND (0.20)	ND (1.0)	---	-220	7.2	1.0
		30-Sep-15	MD	ND (0.20)	ND (1.0)	---	-53	7.5	7.0
MW-59-100	SA	15-Dec-14	MD	4,100	4,100	11,000	-30	7.1	1.0
		15-Dec-14	FD MD	4,200	3,900	11,000	FD	FD	FD
		19-May-15	MD	3,900	4,300	---	-120	7.0	2.0
MW-60-125	BR	10-Dec-14	3V	950	980	8,900	-130	7.4	5.0
		14-May-15	3V	1,100	1,200	---	-170	7.0	4.0
MW-60BR-245	BR	25-Sep-14	3V	1.5	3.0	---	---	8.4	1.0
		04-Dec-14	3V	ND (1.0)	ND (1.0)	16,000	-240	7.8	2.0
		10-Feb-15	3V	3.6	5.2	---	-240	7.9	2.0
		14-May-15	3V	ND (1.0)	ND (1.0)	---	---	7.4	2.0
		29-Sep-15	3V	ND (1.0)	1.4	---	-100	8.2	4.0
MW-61-110	BR	10-Dec-14	3V	570	540	16,000	-120	7.1	5.0
		13-May-15	3V	440	500	---	-140	7.3	2.0
MW-62-065	BR	23-Sep-14	3V	540	500	---	---	7.4	2.0
		09-Dec-14	3V	530	500	6,000	-110	7.4	4.0

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-62-065	BR	16-Feb-15	3V	520	510	---	-30	7.1	2.0
		16-Feb-15	FD 3V	530	510	---	FD	FD	FD
		13-May-15	3V	580	620	---	-98	7.4	2.0
		13-May-15	FD 3V	580	620	---	FD	FD	FD
		07-Oct-15	3V	560	610	---	70	7.3	10.0
MW-62-110	BR	23-Sep-14	Flute	1,000	1,000	---	---	7.5	0.30
		09-Dec-14	Flute	1,200	1,200	8,500	-50	6.9	0.50
		11-Feb-15	Flute	1,200	1,300	---	72	7.0	2.0
		19-May-15	Flute	1,000	1,100	---	-120	6.5	2.0
		01-Oct-15	Flute	ND (10)	2.6	---	-59	6.6	1.0
MW-62-190	BR	09-Dec-14	Flute	ND (1.0)	ND (1.0)	17,000	-59	6.7	0.60
		19-May-15	Flute	ND (0.20)	ND (1.0)	---	-280	6.4	2.0
MW-63-065	BR	22-Sep-14	3V	1.6	1.4	---	---	7.2	2.0
		05-Nov-14	3V	1.6	1.6	6,400	-21	7.0	8.0
		10-Feb-15	3V	1.5	1.9	---	-70	7.2	6.0
		29-Apr-15	3V	1.4	1.3	---	-160	7.1	6.0
		28-Sep-15	3V	1.3	1.2	---	68	7.1	2.0
MW-64BR	BR	30-Sep-14	MD	ND (1.0)	ND (1.0)	---	-190	7.3	16.0
		08-Dec-14	MD	ND (1.0)	ND (1.0)	14,000	-140	7.3	6.0
		18-Feb-15	MD	ND (1.0)	1.3	---	-190	7.3	621
		18-May-15	MD	ND (5.0)	11.0	---	-170	7.4	>1,000
		01-Oct-15	MD	ND (1.0)	1.5	---	-76	7.4	23.0
MW-65-160	SA	25-Sep-14	MD	90.0	83.0	---	---	7.3	12.0
		03-Dec-14	MD	97.0	92.0	3,400	-82	7.2	219
		24-Mar-15	MD	140	120	---	-130	7.0	1.0
		11-May-15	MD	110	110	---	-240	8.0	2.0
		11-May-15	FD MD	110	110	---	FD	FD	FD
		30-Sep-15	MD	140	150	---	56	7.2	8.0
MW-65-225	DA	25-Sep-14	MD	130	110	---	---	7.5	75.0
		03-Dec-14	MD	120	130	15,000	-60	7.4	10.0
		17-Feb-15	MD	150	140	---	-140	7.3	9.0
		11-May-15	MD	160	140	---	-140	7.1	6.0
		30-Sep-15	MD	180	210	---	29	7.4	9.0
MW-66-165	SA	10-Dec-14	MD	590	580	4,400	-73	7.2	10.0

Refer to table footnotes for data qualifier explanation.

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Groundwater Sampling Results, July 2014 through October 2015
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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-66-165	SA	13-May-15	MD	650	760	---	-180	7.4	8.0
MW-66-230	DA	22-Dec-14	MD	5,500	6,400	19,000	-81	7.6	7.0
		21-May-15	MD	6,500	7,000	---	---	7.0	1.0
MW-66BR-270	BR	16-Dec-14	3V	ND (1.0)	ND (5.0)	18,000	-380	8.8	9.0
		18-May-15	3V	ND (0.20)	ND (1.0)	---	---	8.4	28.0
MW-67-185	SA	11-Dec-14	MD	1,900	1,600	6,200	-48	7.1	10.0
		20-May-15	MD	1,800	2,100	---	-150	7.7	7.0
MW-67-225	MA	11-Dec-14	MD	3,200	3,200	7,300	-130	7.6	116
		20-May-15	MD	3,200	3,400	---	-280	7.4	8.0
MW-67-260	DA	11-Dec-14	MD	740	680	18,000	-200	8.4	10.0
		20-May-15	MD	700	730	---	---	8.6	1.0
MW-68-180	SA	30-Sep-14	MD	27,000	28,000	---	5.0	7.3	24.0
		09-Dec-14	MD	30,000	31,000	4,300	-58	7.6	10.0
		18-Feb-15	MD	31,000	33,000	---	-54	7.5	4.0
		18-May-15	MD	12,000	13,000	---	-140	7.7	8.0
		30-Sep-15	MD	32,000	44,000	---	70	7.3	8.0
		30-Sep-15	FD MD	32,000	44,000	---	FD	FD	FD
MW-68-240	DA	18-Dec-14	MD	2,100	2,200	16,000	-81	7.1	1.0
		21-May-15	MD	2,200	2,500	---	---	7.1	1.0
MW-68BR-280	BR	18-Dec-14	3V	ND (1.0)	ND (5.0)	21,000	-200	8.7	5.0
		27-May-15	3V	ND (1.0)	ND (1.0)	---	-370	8.2	4.0
MW-69-195	BR	25-Sep-14	3V	860	950	---	---	7.3	4.0
		25-Sep-14	FD 3V	930	990	---	FD	FD	FD
		11-Dec-14	3V	950	970	3,600	0.0	7.1	1.0
		17-Feb-15	3V	930	800	---	-75	7.6	2.0
		14-May-15	3V	970	1,100	---	-110	7.0	1.0
		14-May-15	FD 3V	980	1,100	---	FD	FD	FD
		01-Oct-15	3V	890	940	---	79	7.3	1.0
MW-70-105	BR	02-Dec-14	3V	130	120	3,400	-240	7.7	2.0
		07-May-15	3V	150	130	---	-250	7.7	1.0
MW-70BR-225	BR	16-Dec-14	3V	1,900	2,200	14,000	-190	7.4	0.40
		27-May-15	3V	2,300	2,400	---	---	7.5	1.0
MW-71-035	SA	06-Nov-14	MD	1.2	15.0	14,000	-69	6.7	362

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
MW-71-035	SA	06-May-15	MD	ND (1.0)	ND (1.0)	---	-170	6.9	313
MW-72-080	BR	22-Sep-14	3V	140	120	---	---	7.7	2.0
		01-Dec-14	3V	130	110	16,000	-280	7.6	2.0
		11-Feb-15	3V	130	110	---	-150	7.9	5.0
		11-May-15	3V	92.0	85.0	---	-210	7.5	2.0
		29-Sep-15	3V	130	120	---	48	7.7	1.0
MW-72BR-200	BR	24-Sep-14	3V	5.4	4.5	---	---	8.3	1.0
		17-Nov-14	3V	5.8	6.0	16,000	-300	8.2	1.0
		11-Feb-15	3V	6.5	5.6	---	-280	8.3	1.0
		04-May-15	3V	4.3	3.7	---	-310	8.1	1.0
		29-Sep-15	3V	4.2	4.1	---	25	8.2	1.0
MW-73-080	BR	23-Sep-14	3V	27.0	23.0	---	100	7.1	100
		02-Dec-14	3V	41.0	37.0	10,000	11	6.6	30.0
		10-Feb-15	3V	21.0	20.0	---	-86	8.2	88.0
		06-May-15	3V	42.0	41.0	---	-160	7.6	36.0
		29-Sep-15	3V	51.0	45.0	---	47	7.4	16.0
MW-74-240	BR	11-Dec-14	3V	ND (0.20)	ND (1.0)	990	-190	8.3	48.0
		14-May-15	3V	ND (0.20)	1.2	---	-390	8.4	84.0
OW-3S	SA	12-Nov-14	3V	23.0	23.0	1,400	18	7.7	13.0
		12-Nov-14	FD 3V	23.0	24.0	1,400	FD	FD	FD
OW-3M	MA	12-Nov-14	MD	16.0	15.0	5,700	-110	7.7	2.0
OW-3D	DA	12-Nov-14	MD	11.0	10.0	8,800	-140	7.7	1.0
PE-1	DA	01-Jul-14	Tap	3.6	3.7	4,420	---	---	---
		05-Aug-14	Tap	3.7	3.9	4,320	---	---	---
		02-Sep-14	Tap	3.8	4.0	4,260	---	---	---
		07-Oct-14	Tap	3.7	4.2	4,160	---	---	---
		04-Nov-14	Tap	4.0	4.7	4,230	---	---	---
		02-Dec-14	Tap	4.2	4.9	4,230	---	---	---
		06-Jan-15	Tap	5.1	4.2	4,300	---	---	---
		03-Feb-15	Tap	4.7	3.8	3,900	---	---	---
		17-Mar-15	Tap	4.0	3.4	3,700	---	---	---
		07-Apr-15	Tap	3.6	3.6	4,200	---	---	---
		05-May-15	Tap	2.9	2.5	4,200	---	---	---
		02-Jun-15	Tap	3.4	3.1	4,200	---	7.5	---

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Groundwater Sampling Results, July 2014 through October 2015
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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters		
							ORP (mV)	Field pH	Turbidity NTU
PE-1	DA	07-Jul-15	Tap	3.2	3.1	4,100	---	---	---
		04-Aug-15	Tap	3.2	2.9	4,300	---	---	---
		01-Sep-15	Tap	0.43	1.4	4,100	---	---	---
		06-Oct-15	Tap	3.2	2.7	4,200	---	---	---
PGE-7BR	BR	04-Dec-14	3V	ND (1.0)	ND (1.0)	17,000	-190	6.9	19.0
PGE-8 ^a	BR	07-Jan-15	3V	ND (1.0)	ND (1.0)	17,000	-420	8.2	1.0
Park Moabi-3	MA	23-Dec-14	Tap	9.2	8.6	1,500	-38	7.4	0.68
		17-Mar-15	Tap	9.3	8.4 UF	---	-42	7.3	0.70
Park Moabi-4	MA	23-Dec-14	Tap	18.0	16.0	2,000	-39	7.5	0.76
		17-Mar-15	Tap	18.0	17.0 UF	---	-46	7.4	0.80
TW-1	SA-MA-DA	22-Dec-14	3V	2,100	2,200	7,200	-120	7.3	1.0
		27-May-15	3V	2,500	2,600	---	---	7.1	1.0
TW-2S ^a	SA-MA	13-Jan-15	Tap	590	570	2,100	-42	7.5	1.0
		01-Sep-15	Tap	330	330	2,400	---	---	---
TW-2D	DA	15-Dec-14	Tap	48.0	44.0	7,300	99	7.6	1.0
		15-Dec-14	FD Tap	47.0	43.0	7,300	FD	FD	FD
TW-3D	DA	01-Jul-14	Tap	720	736	8,180	---	---	---
		05-Aug-14	Tap	704	695	8,020	---	---	---
		02-Sep-14	Tap	703	729	8,070	---	---	---
		07-Oct-14	Tap	720	733	7,910	---	---	---
		04-Nov-14	Tap	711	706	7,990	---	---	---
		02-Dec-14	Tap	733	757	8,110	---	---	---
		06-Jan-15	Tap	790	790	8,400	---	---	---
		03-Feb-15	Tap	790	760	7,300	---	---	---
		17-Mar-15	Tap	740	690	7,800	---	---	---
		07-Apr-15	Tap	730	730	8,400	---	---	---
		05-May-15	Tap	700	640	7,500	---	---	---
		02-Jun-15	Tap	700	650	7,700	---	7.6	---
		07-Jul-15	Tap	710	770	7,300	---	---	---
		04-Aug-15	Tap	710	670	7,800	---	---	---
		01-Sep-15	Tap	720	720	7,700	---	---	---
06-Oct-15	Tap	700	680	7,700	---	---	---		

Refer to table footnotes for data qualifier explanation.

TABLE 3-1

Groundwater Sampling Results, July 2014 through October 2015
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Notes:

(---) = data not collected, available, rejected, or field instrument malfunction.

3V = three volume.

FD = field duplicate sample.

Flute = flexible liner underground technologies sampling system.

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

mV = millivolts.

MD = minimal drawdown.

ND = not detected at listed RL.

NTU = nephelometric turbidity unit.

ORP = oxidation-reduction potential.

RL = reporting limit.

Slant = slant (non vertical) wells MW-52, MW-53, MW-56 are sampled from dedicated Barcad screens, using a peristaltic pump.

Tap = sampled from tap or port of extraction or supply well.

UF = unfiltered.

µg/L = micrograms per liter.

µS/cm = microSiemens per centimeter.

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

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

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

b Results are not from an AZ certified lab. The sample was analyzed for dissolved chromium within the EPA recommended holding time in both laboratories (Method SW 6020A). The hexavalent chromium analysis was performed within the EPA recommended holding time (28 days) in the ASSET laboratory, but missed the EPA recommended holding by 5 days in the EMAX laboratory (Arizona certified).

Fourth Quarter 2014 data were collected January 2015 due to field logistical issue.

ORP is reported to two significant figures. Specific conductance is reported to three significant figures.

Wells are assigned to separate aquifer zones for results reporting:

SA: shallow interval of Alluvial Aquifer.

MA: mid-depth interval of Alluvial Aquifer.

DA: deep interval of Alluvial Aquifer.

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

Refer to table footnotes for data qualifier explanation.

TABLE 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, Third Quarter 2015
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Well ID	Aquifer Zone	Sample Date	Sample Method	Arsenic Dissolved (µg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-9	SA	07-Oct-15	MD	1.6	2.7	5.6	ND (0.50)	10.0
MW-10	SA	07-Oct-15	MD	3.4	20.0	6.1	6.9	11.0
MW-11	SA	07-Oct-15	MD	1.4	5.4	4.6	ND (0.50)	6.00
MW-34-100	DA	06-Oct-15	MD	1.4	61.0	ND (0.50)	38.0	0.290
MW-38S	SA	28-Sep-15	3V	14.0	37.0	ND (0.50)	250	ND (0.050)
MW-44-115	DA	06-Oct-15	MD	5.9	85.0	ND (0.50)	5.7	0.170
		06-Oct-15	FD MD	5.9	80.0	ND (0.50)	6.4	0.170
MW-46-175	DA	06-Oct-15	MD	---	160	0.81	---	0.990
MW-58BR	BR	30-Sep-15	MD	2.9	22.0	0.58	490	0.0960
MW-60BR-245	BR	29-Sep-15	3V	5.9	63.0	1.4	28.0	0.140
MW-62-065	BR	07-Oct-15	3V	1.3	13.0	3.7	1.2	4.10
MW-62-110	BR	01-Oct-15	Flute	6.8	72.0	ND (0.50)	91.0	0.110
MW-63-065	BR	28-Sep-15	3V	1.3	16.0	0.96	3.3	1.10
MW-64BR	BR	01-Oct-15	MD	3.2	62.0	ND (0.50)	1000	ND (0.050)
MW-65-160	SA	30-Sep-15	MD	0.61	30.0	7.2	1.1	11.0
MW-65-225	DA	30-Sep-15	MD	2.5	49.0	2.7	76.0	2.50
MW-68-180	SA	30-Sep-15	MD	2.5	43.0	17.0	ND (0.50)	30.0
		30-Sep-15	FD MD	2.4	43.0	18.0	ND (0.50)	30.0
MW-69-195	BR	01-Oct-15	3V	2.3	82.0	12.0	0.68	17.0
MW-72-080	BR	29-Sep-15	3V	12.0	73.0	1.3	24.0	1.10
MW-72BR-200	BR	29-Sep-15	3V	16.0	79.0	ND (0.50)	9.7	0.120
MW-73-080	BR	29-Sep-15	3V	1.3	22.0	4.1	16.0	4.00
PE-1	DA	07-Jul-15	WV	---	---	---	57.0	ND (0.050)
		04-Aug-15	WV	---	---	---	57.0	ND (0.050)
		01-Sep-15	WV	---	---	---	79.0	ND (0.050)
		06-Oct-15	WV	---	---	---	76.0	ND (0.050)
TW-2S ^a	SA-MA	01-Sep-15	WV	---	---	---	ND (0.50)	4.30
TW-3D	DA	07-Jul-15	WV	---	---	---	ND (0.50)	3.40
		04-Aug-15	WV	---	---	---	ND (0.50)	3.30
		01-Sep-15	WV	---	---	---	9.8	3.50
		06-Oct-15	WV	---	---	---	11.0	3.30

TABLE 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, Third Quarter 2015
*Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Notes:

(---) = data not collected, available, or rejected.
3V = three volume.
COPC = contaminants of potential concern.
FD = field duplicate sample.
Flute = flexible liner underground technologies sampling system.
J = concentration or reporting limit estimated by laboratory or data validation.
mg/L = milligrams per liter.
MD = minimal drawdown.
ND = not detected at listed reporting limit.
Tap = Sampled from tap or port of extraction or supply well.
µg/L = micrograms per liter.

Nitrate samples were analyzed using USEPA Method 4500NO₃, except for TW-3D and PE-1, which were analyzed using USEPA Method 300.0. USEPA Method 4500NO₃ reports a combination of nitrate and nitrite as nitrogen. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for USEPA Method 4500NO₃ are expected to be essentially the same as previous samples analyzed using USEPA Method 300.0 and reported as nitrate as nitrogen.

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

^a Fourth Quarter 2014 data were collected January 2015 due to field logistical issues.

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

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

TABLE 3-3
 Surface Water Sampling Results, Third Quarter 2015
*Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California*

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-BNS-D	09/16/2015	ND (0.20)	ND (1.0)	940	7.8 J
C-CON-S	09/17/2015	ND (0.20)	ND (1.0)	930	7.9 J
C-CON-D	09/17/2015	ND (0.20)	ND (1.0)	940	7.8 J
C-I-3-S	09/16/2015	ND (0.20)	ND (1.0)	940	7.9 J
C-I-3-D	09/16/2015	ND (0.20)	ND (1.0)	920	7.8 J
C-MAR-S	09/17/2015	ND (0.20)	ND (1.0)	930	7.9 J
C-NR1-S	09/17/2015	ND (0.20)	ND (1.0)	930	7.9 J
C-NR1-D	09/17/2015	ND (0.20)	ND (1.0)	930	7.9 J
C-NR3-S	09/17/2015	ND (0.20)	ND (1.0)	940	7.9 J
C-NR3-D	09/17/2015	ND (0.20)	ND (1.0)	930	7.9 J
C-NR4-S	09/17/2015	ND (0.20)	ND (1.0)	930	7.9 J
C-NR4-D	09/17/2015	ND (0.20)	ND (1.0)	930	7.9 J
C-R22a-S	09/16/2015	ND (0.20)	ND (1.0)	940	7.9 J
C-R22a-D	09/16/2015	ND (0.20)	ND (1.0)	940	7.9 J
C-R27-S	09/16/2015	ND (0.20)	ND (1.0)	920	7.9 J
C-R27-D	09/16/2015	ND (0.20)	ND (1.0)	940	7.9 J
C-TAZ-S	09/16/2015	ND (0.20)	ND (1.0)	940	7.9 J
C-TAZ-D	09/16/2015	ND (0.20)	ND (1.0)	940	7.9 J
Shoreline Samples					
R-19	09/16/2015	ND (0.20)	ND (1.0)	940	7.9 J
R-28	09/16/2015	ND (0.20)	ND (1.0)	940	7.9 J
R63	09/16/2015	ND (0.20)	ND (1.0)	940	7.7 J
RRB	09/17/2015	ND (0.20)	ND (1.0)	940	7.8 J
Other Surface Water Monitoring Locations					
SW1	09/17/2015	ND (0.20)	ND (1.0)	940	7.7 J
SW2	09/17/2015	ND (0.20)	ND (1.0)	950	7.8 J

TABLE 3-3

Surface Water Sampling Results, Third Quarter 2015
*Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Notes:

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

ND = not detected at listed reporting limit.

µg/L = micrograms per liter.

µS/cm = microSiemens per centimeter.

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

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

pH is reported to two significant figures.

TABLE 3-4

COPCs, In Situ Byproducts and Geochemical Indicator Parameters in Surface Water Samples, Third Quarter 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Arsenic, dissolved µg/L	Barium, dissolved µg/L	Iron, Total µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Molybdenum, dissolved µg/L	Nitrate/Nitrite as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations										
C-BNS-D	09/16/2015	2.7	130	70.0 J	ND (20.0)	ND (0.50)	4.3	0.380	1.5	ND (10.0)
C-CON-S	09/17/2015	2.6	130	46.0	ND (20.0)	ND (0.50)	5.0	0.380 J	1.6	ND (10.0)
C-CON-D	09/17/2015	2.6	140	37.0	ND (20.0)	ND (0.50)	4.9	0.390	1.5	ND (10.0)
C-I-3-S	09/16/2015	2.4	120	40.0	ND (20.0)	ND (0.50)	4.4	0.350	1.7	ND (10.0)
C-I-3-D	09/16/2015	2.4	120	70.0	ND (20.0)	ND (0.50)	4.0	0.380	1.6	ND (10.0)
C-MAR-S	09/17/2015	2.6	130	200	56.0	7.6	4.8	0.360	1.7	ND (10.0)
C-NR1-S	09/17/2015	2.5	120	51.0	ND (20.0)	ND (0.50)	4.5	0.370	1.5	ND (10.0)
C-NR1-D	09/17/2015	2.5	120	51.0	ND (20.0)	ND (0.50)	4.6	0.360	1.5	ND (10.0)
C-NR3-S	09/17/2015	2.5	120	69.0	ND (20.0)	ND (0.50)	4.6	0.380	1.4	ND (10.0)
C-NR3-D	09/17/2015	2.4	120	39.0	ND (20.0)	ND (0.50)	4.5	0.370	1.3	ND (10.0)
C-NR4-S	09/17/2015	2.6	130	32.0	ND (20.0)	ND (0.50)	4.9	0.370	1.6	ND (10.0)
C-NR4-D	09/17/2015	2.6	130	24.0 J	ND (20.0)	ND (0.50)	4.8	0.370	1.7	ND (10.0)
C-R22a-S	09/16/2015	2.5	120	94.0	ND (20.0)	0.64	4.2	0.350	1.6	ND (10.0)
C-R22a-D	09/16/2015	2.6	120	64.0	ND (20.0)	ND (0.50)	4.2	0.410	1.6	ND (10.0)
C-R27-S	09/16/2015	2.5	120	56.0	ND (20.0)	ND (0.50)	4.2	0.360	1.6	ND (10.0)
C-R27-D	09/16/2015	2.5	120	53.0	57.0	ND (0.50)	4.2	0.380	1.5	ND (10.0)
C-TAZ-S	09/16/2015	2.7	130	54.0	ND (20.0)	ND (0.50)	4.4	0.360	1.7	ND (10.0)
C-TAZ-D	09/16/2015	2.5	120	81.0	ND (20.0)	ND (0.50)	4.2	0.360	1.5	ND (10.0)
Shoreline Samples										
R-19	09/16/2015	2.5	130	52.0	21.0	1.4	4.1	0.340	1.4	ND (10.0)
R-28	09/16/2015	2.5	120	45.0	ND (20.0)	1.3	4.2	0.340	1.6	ND (10.0)
R63	09/16/2015	2.3	120	130	ND (20.0)	7.1	3.9	3.30	1.4	ND (10.0)
RRB	09/17/2015	2.4	120	110	31.0	8.4	5.0	0.320	1.5	ND (10.0)

Notes:

COPC = contaminants of potential concern (molybdenum, selenium, and nitrate).

mg/L = milligrams per liter.

ND = not detected at listed reporting limit.

TSS = total suspended solids.

µg/L = micrograms per liter.

USEPA = United States Environmental Protection Agency.

Geochemical indicator parameters (TSS and alkalinity).

In situ byproducts (arsenic, iron and manganese).

USEPA Methods:

Alkalinity - SM2320B.

Metals - SW6010B/SW6020A.

Nitrate - SM4500NO3.

Total Suspended Solids - SM2540D.

Table 4-1

Pumping Rate and Extracted Volume for IM System, Third Quarter 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Extraction Well ID	July 2015		August 2015		September 2015		October 2015		Third Quarter 2015	
	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)	Average ^a Pumping Rate (gpm)	Volume Pumped (gal)
TW-02S	0.00	0	0.25	11,253	0.90	38,822	0.00	0	0.29	50,075
TW-02D	0.10	4,606	0.00	0	1.27	54,709	0.00	0	0.34	59,315
TW-03D	103.27	4,610,029	90.88	4,056,769	114.55	4,948,388	105.24	4,697,756	103.48	18,312,942
PE-01	27.78	1,240,070	23.63	1,054,865	18.33	791,959	28.25	1,260,982	24.50	4,347,877
TOTAL	131.2	5,854,705	114.8	5,122,887	135.0	5,833,878	133.5	5,958,738	128.6	22,770,209

Chromium Removed This Quarter (kg) 50.5
 Chromium Removed Project to Date (kg) 3810
 Chromium Removed This Quarter (lb) 111
 Chromium Removed Project to Date (lb) 8390

Notes:

DTSC = Department of Toxic Substances Control.
 gal = gallons.
 gpm = gallons per minute.
 IM = Interim Measures.
 kg = kilograms.
 lb = pounds.

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

Chromium removed includes the period of June 1, 2015 through September 30, 2015. On July 23, 2010 DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from June 1, 2015 through September 30, 2015.

TABLE 4-2

Analytical Results for Extraction Wells, July 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Sample Date	Chromium, dissolved		Hexavalent Chromium		Total dissolved solids (mg/L)	pH (PHUNITS)	Alkalinity, bicarbonate as CaCO3 (mg/L)	Alkalinity, carbonate as CaCO3 (mg/L)	Alkalinity, hydroxide (mg/L)	Alkalinity, total as CaCO3 (mg/L)	Calcium, dissolved		Chloride (mg/L)	Iron, dissolved		Magnesium, dissolved		Manganese, dissolved		Nitrate as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Sodium, dissolved (µg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)
		(µg/L)	(µg/L)	(µg/L)	(µg/L)							(µg/L)	(µg/L)		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)					
TW-3D	01-Jul-14	736 LF	720 LF	4,970	7.3 J	136	ND (5.00)	---	136	198,000 LF	2,410	ND (20.0) LF	30,000 LF	7.1 LF	3.44	---	1,570,000 LF	8,180	531						
	05-Aug-14	695 LF	704 LF	4,830	7.4 J	154	ND (5.00)	---	154	213,000 LF	2,370	ND (20.0) LF	30,600 LF	7.5 LF	3.42	---	1,620,000 LF	8,020	536						
	02-Sep-14	729 LF	703 LF	5,150	7.4 J	134	ND (5.00)	---	134	211,000 LF	2,360	ND (20.0) LF	28,300 LF	7.1 LF	3.26	---	1,640,000 LF	8,070	525						
	07-Oct-14	733 LF	720 LF	5,000	7.4 J	136	ND (5.00)	---	136	215,000 LF	2,340	ND (20.0) LF	33,000 LF	8.6 LF	3.29	---	1,510,000 LF	7,910	540						
	04-Nov-14	706 LF	711 LF	4,980	7.5 J	157	ND (5.00)	---	157	208,000 LF	2,440	ND (20.0) LF	31,400 LF	8.6 LF	2.84	---	1,350,000 LF	7,990	478						
	02-Dec-14	757 LF	733 LF	4,810	7.6 J	143	ND (5.00)	---	143	212,000 LF	2,440	ND (20.0) LF	34,600 LF	9.4 LF	3.26	---	1,580,000 LF	8,110	547						
	06-Jan-15	790 LF	790 LF	4,800	7.5 J	140	ND (5.00)	ND (5.00)	140	240,000 LF	2,400	ND (20.0) LF	29,000 LF	ND (0.50) J LF	3.00	---	1,500,000 LF	8,400	510						
	03-Feb-15	760 FF	790 FF	4,800	7.5 J	140	ND (5.00)	ND (5.00)	140	210,000 FF	2,300	ND (20.0) FF	37,000 FF	ND (0.50) FF	3.10	---	1,600,000 FF	7,300	510						
	17-Mar-15	690 LF	740 LF	4,900	7.7 J	140	ND (5.00)	ND (5.00)	140	230,000 LF	2,200	ND (20.0) LF	34,000 LF	ND (0.50) LF	---	3.60	1,500,000 LF	7,800	520						
	07-Apr-15	730 LF	730 LF	4,700	7.5 J	140	ND (5.00)	ND (5.00)	140	230,000 LF	2,400	ND (20.0) LF	31,000 LF	ND (0.50) LF	---	3.40	1,600,000 LF	8,400	530						
	05-May-15	640 LF	700 LF	4,400	7.1 J	170 J	ND (5.00) J	ND (5.00) J	170 J	250,000 LF	2,100	ND (20.0) LF	29,000 LF	ND (0.50) LF	---	3.20	1,500,000 LF	7,500	470						
	02-Jun-15	650 LF	700 LF	4,400	---	140	ND (5.00)	ND (5.00)	140	230,000 LF	2,000	ND (20.0) LF	28,000 LF	ND (0.50) LF	---	3.50	1,400,000 LF	7,700	470						
	07-Jul-15	770 LF	710 FF	4,600	---	140	ND (5.00)	ND (5.00)	140	230,000 LF	2,100	ND (20.0) LF	27,000 LF	ND (0.50) LF	---	3.40	1,600,000 LF	7,300	470						
	04-Aug-15	670 LF	710 LF	4,600	---	130	ND (5.00)	ND (5.00)	130	210,000 LF	2,200	ND (20.0) LF	25,000 LF	ND (0.50) LF	---	3.30	1,400,000 LF	7,800	470						
	01-Sep-15	720 LF	720 LF	4,400	---	140	ND (5.00)	ND (5.00)	140	200,000 LF	2,200	ND (100) LF	27,000 LF	9.8 LF	---	3.50	1,400,000 LF	7,700	510						
06-Oct-15	680 LF	700 LF	4,600	---	140	ND (5.00)	ND (5.00)	140	190,000 LF	2,200	ND (20.0) LF	27,000 LF	11.0 LF	---	3.30	1,300,000 LF	7,700	520							
TW-2S	13-Jan-15	570 FF	590 FF	---	---	---	---	---	---	---	---	---	---	---	4.30	---	2,100	---							
	01-Sep-15	330 FF	330 LF	1,400	---	84.0	ND (5.00)	ND (5.00)	84.0	82,000 LF	560	28.0 LF	20,000 LF	ND (0.50) FF	---	4.30	370,000 LF	2,400	170						
PE-1	01-Jul-14	3.7 LF	3.6 LF	2,500	7.6 J	237	ND (5.00)	---	237	106,000 LF	1,060	ND (20.0) LF	22,700 LF	62.2 LF	ND (0.500)	---	805,000 LF	4,420	379						
	05-Aug-14	3.9 LF	3.7 LF	2,560	7.6 J	221	ND (5.00)	---	221	112,000 LF	1,030	ND (20.0) LF	24,400 LF	62.0 LF	ND (0.500)	---	786,000 LF	4,320	385						
	02-Sep-14	4.0 LF	3.8 LF	2,610	7.5 J	215	ND (5.00)	---	215	104,000 LF	1,140	ND (20.0) LF	21,000 LF	61.6 LF	ND (0.500)	---	848,000 LF	4,260	387						
	07-Oct-14	4.2 LF	3.7 LF	2,580	7.6 J	216	ND (5.00)	---	216	110,000 LF	962	28.5 LF	23,500 LF	61.7 LF	ND (0.500)	---	772,000 LF	4,160	391						
	04-Nov-14	4.7 LF	4.0 LF	2,500	7.6 J	220	ND (5.00)	---	220	101,000 LF	970	ND (20.0) LF	24,000 LF	67.6 LF	ND (0.500)	---	723,000 LF	4,230	387						
	02-Dec-14	4.9 LF	4.2 LF	2,560	7.6 J	227	ND (5.00)	---	227	108,000 LF	1,040	34.0 LF	24,700 LF	68.4 LF	ND (0.500)	---	794,000 LF	4,230	385						
	06-Jan-15	4.2 LF	5.1 LF	2,400	7.6 J	220	ND (5.00)	ND (5.00)	220	110,000 LF	1,000	ND (20.0) LF	21,000 LF	33.0 LF	ND (0.0500)	---	810,000 LF	4,300	360						
	03-Feb-15	3.8 FF	4.7 FF	2,500	7.7 J	220	ND (5.00)	ND (5.00)	220	98,000 FF	1,000	ND (20.0) FF	24,000 FF	36.0 FF	ND (0.0500)	---	810,000 FF	3,900	370						
	17-Mar-15	3.4 LF	4.0 LF	2,500	7.7 J	220	ND (5.00)	ND (5.00)	220	100,000 LF	970	ND (20.0) LF	23,000 LF	46.0 LF	---	ND (0.0500)	750,000 LF	3,700	360						
	07-Apr-15	3.6 LF	3.6 LF	2,500	7.6 J	220	ND (5.00)	ND (5.00)	220	110,000 LF	1,000	ND (20.0) LF	23,000 LF	58.0 LF	---	ND (0.0500)	790,000 LF	4,200	360						
	05-May-15	2.5 LF	2.9 LF	2,500	7.6 J	210 J	ND (5.00) J	ND (5.00) J	210 J	120,000 LF	1,000	ND (20.0) LF	24,000 LF	57.0 LF	---	ND (0.0500)	850,000 LF	4,200	350						
	02-Jun-15	3.1 LF	3.4 LF	2,400	---	200	ND (5.00)	ND (5.00)	200	120,000 LF	980	ND (20.0) LF	23,000 LF	54.0 LF	---	ND (0.0500)	780,000 LF	4,200	340						
	07-Jul-15	3.1 LF	3.2 LF	2,500	---	210	ND (5.00)	ND (5.00)	210	120,000 LF	960	ND (20.0) LF	23,000 LF	57.0 LF	---	ND (0.0500)	810,000 LF	4,100	350						
	04-Aug-15	2.9 LF	3.2 LF	2,500	---	210	ND (5.00)	ND (5.00)	210	110,000 LF	960	ND (20.0) LF	22,000 LF	57.0 LF	---	ND (0.0500)	780,000 LF	4,300	350						
	01-Sep-15	1.4 LF	0.43 LF	2,500	---	200	ND (5.00)	ND (5.00)	200	110,000 LF	970	ND (100) LF	23,000 LF	79.0 LF	---	ND (0.0500)	760,000 LF	4,100	370						
06-Oct-15	2.7 LF	3.2 LF	2,500	---	220	ND (5.00)	ND (5.00)	220	100,000 LF	1,100	ND (20.0) LF	22,000 LF	76.0 LF	---	ND (0.0500)	710,000 LF	4,200	380							

Notes:

-- = not collected or not available.

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

FF = field filtered.

LF = lab filtered.

mg/L = milligrams per liter.

µg/L = micrograms per liter.

µs/cm = microsiemens per centimeter.

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

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

TABLE 4-3

Average Hydraulic Gradients Measured at Well Pairs, Third Quarter 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well Pair^a	Reporting Period	Mean Landward^b Hydraulic Gradient (feet/foot)	Days in^c Monthly Average
Overall Average	July	0.0058	NA
	August	0.0039	NA
	September	0.0022	NA
	October	0.0058	NA
Northern Gradient Pair MW-31-135 / MW-33-150	July	0.0020	31 / 31
	August	0.0018	31 / 31
	September	0.0023	30 / 30
	October	0.0019	31 / 31
Central Gradient Pair MW-45-95 / MW-34-100	July	0.0115	31 / 31
	August	0.0073	31 / 31
	September	0.0029	30 / 30
	October	0.0113	31 / 31
Southern Gradient Pair MW-45-95 / MW-27-85	July	0.0040	31 / 31
	August	0.0025	31 / 31
	September	0.0012	30 / 30
	October	0.0040	31 / 31

Notes:

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

a Refer to Figure 1-4 for location of well pairs.

b For IM pumping, the target landward gradient for the selected well pairs is 0.001 feet/foot.

c Number of days transducers in both wells were operating correctly / total number of days in month.

Table 4-4

Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3
*Third Quarter 2015 Interim Measures Performance Monitoring and
 Site-wide Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California*

Month	Davis Dam Release			Colorado River Elevation at I-3		
	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft amsl)	Actual (ft amsl)	Difference (feet)
January 2014	8,300	8,970	-670	452.8	453.27	0.5
February 2014	11,600	11,850	-250	454.3	454.67	0.3
March 2014	16,600	17,473	-873	456.4	456.70	0.3
April 2014	18,200	17,718	482	457.1	457.08	0.0
May 2014	16,700	16,622	78	456.8	456.68	-0.1
June 2014	15,900	15,917	-17	456.6	456.64	0.1
July 2014	15,100	14,640	460	456.3	456.24	0.0
August 2014	12,300	11,336	964	455.2	455.26	0.1
September 2014	13,100	12,211	889	455.3	455.30	0.0
October 2014	10,700	10,434	266	454.3	454.81	0.5
November 2014	10,700	10,575	125	454.3	454.22	-0.1
December 2014	6,400	7,235	-835	452.4	452.93	0.5
January 2015	10,600	10,740	-140	454.3	454.39	0.1
February 2015	10,500	11,252	-752	454.2	454.52	0.3
March 2015	14,900	15,658	-758	455.9	456.29	0.4
April 2015	18,000	17,170	830	457.1	456.82	-0.3
May 2015	16,000	13,890	2,110	456.5	456.06	-0.5
June 2015	14,500	13,616	884	456.1	455.94	-0.2
July 2015	13,400	12,411	989	455.6	455.50	-0.1
August 2015	12,100	12,627	-527	455.1	455.45	0.4
September 2015	13,300	12,734	566	455.4	INC	NA
October 2015	11,300	10,653	647	454.7	454.80	0.1
November 2015	10,000			454.2		

NOTES:

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

INC = Data incomplete, less than 75% of data available over reporting period due to rejection or field equipment malfunction.

NA = Data unavailable during this time period.

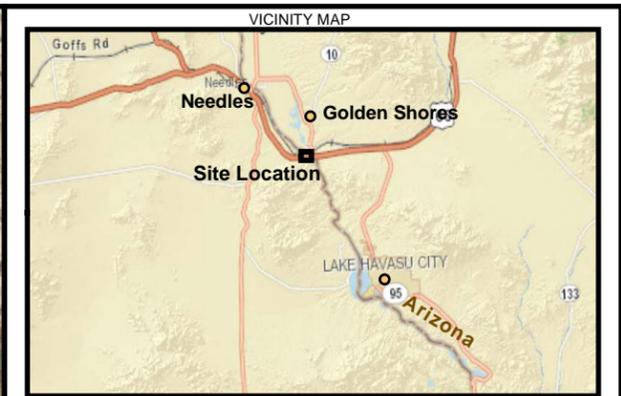
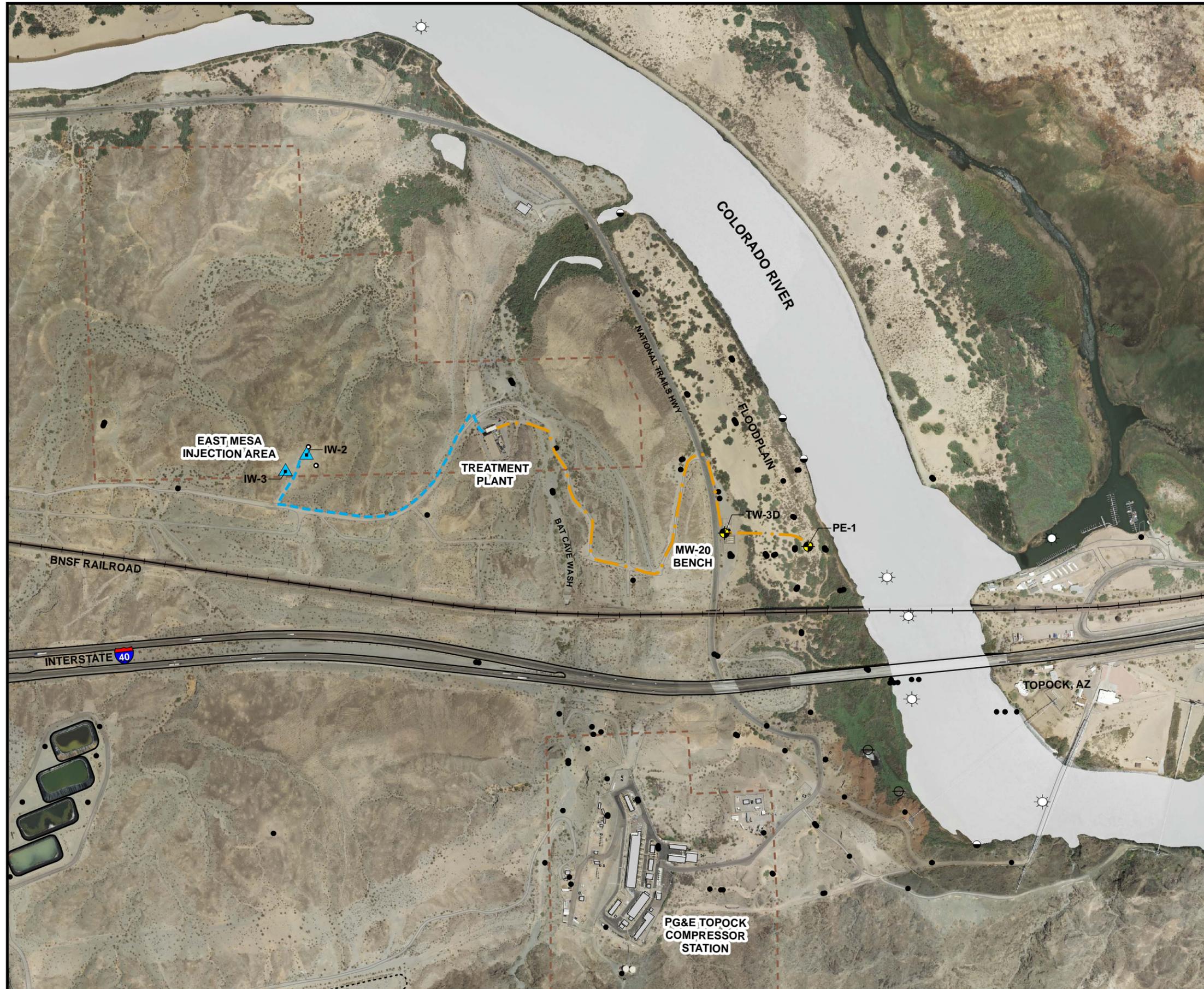
Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon November 2015 USBR projections. These data are reported monthly by the US Department of Interior, at <http://www.usbr.gov/lc/region/g4000/24mo.pdf>.

The difference in I-3 elevation is the difference between the I-3 elevation predicted and the actual elevation measured at I-3.

The source of this difference is differences between BOR projections and actual dam releases/Havasu reservoir levels, rather than the multiple regression error.

For data prior to 2014 please see: *Fourth Quarter 2014 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* (CH2MHILL, 2015)

Figures



LEGEND

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

Notes:

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

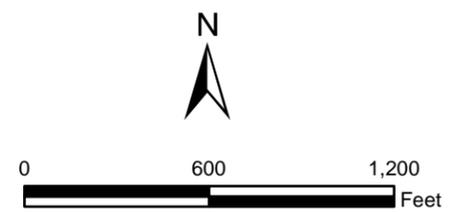
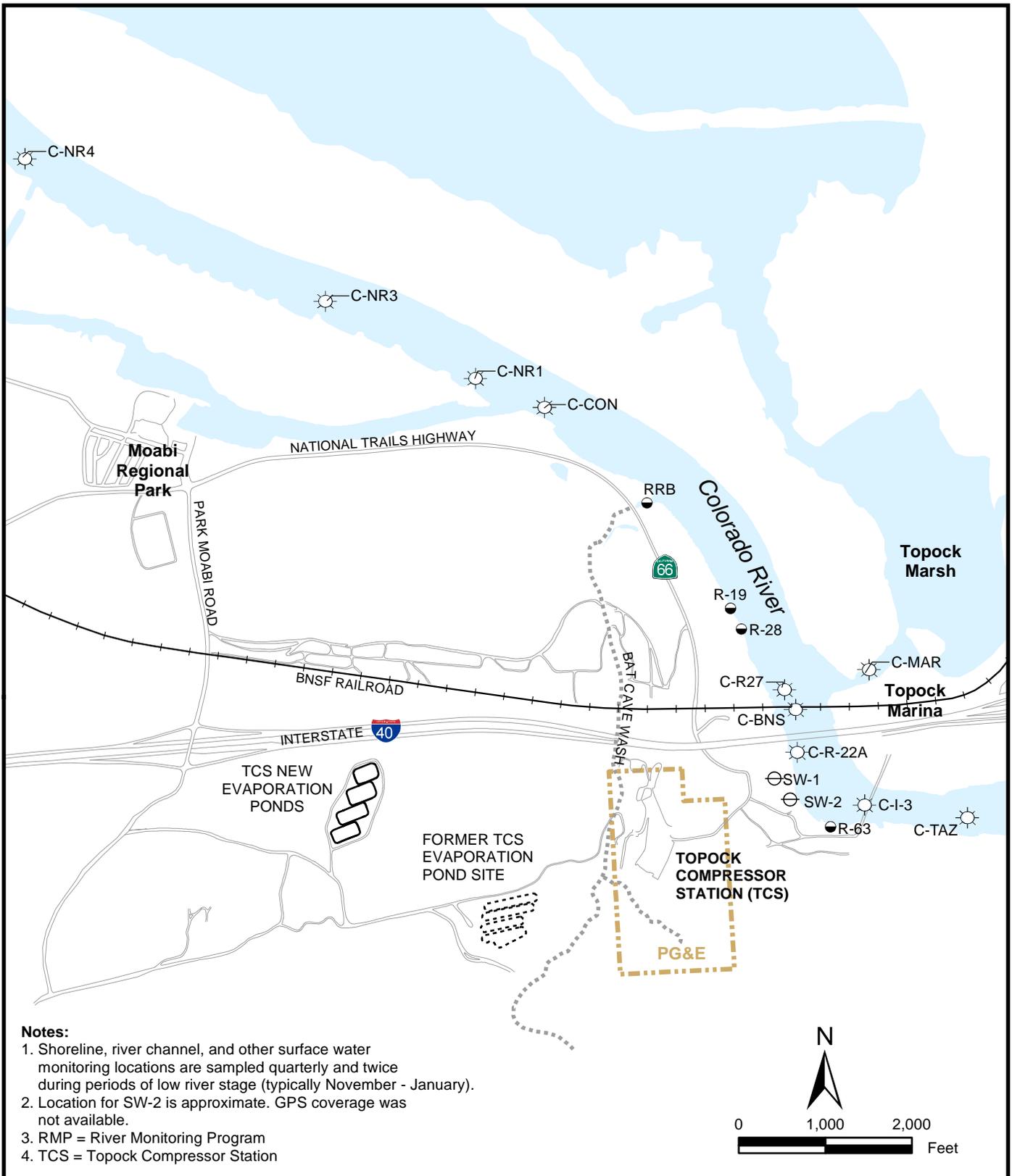


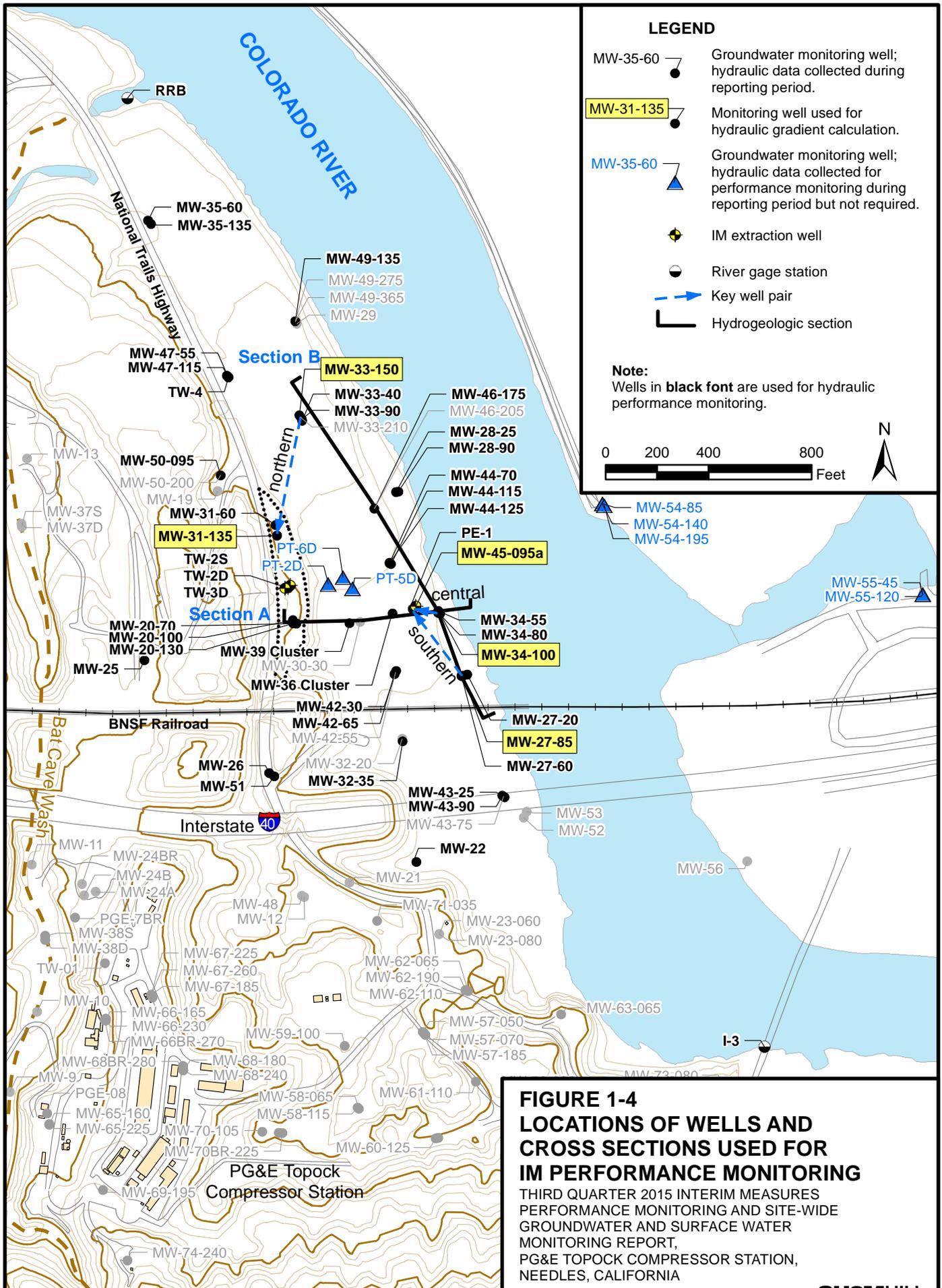
FIGURE 1-1
LOCATIONS OF IM-3 FACILITIES
AND MONITORING LOCATIONS
 THIRD QUARTER 2015 INTERIM MEASURES
 PERFORMANCE MONITORING AND SITE-WIDE
 GROUNDWATER AND SURFACE WATER
 MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

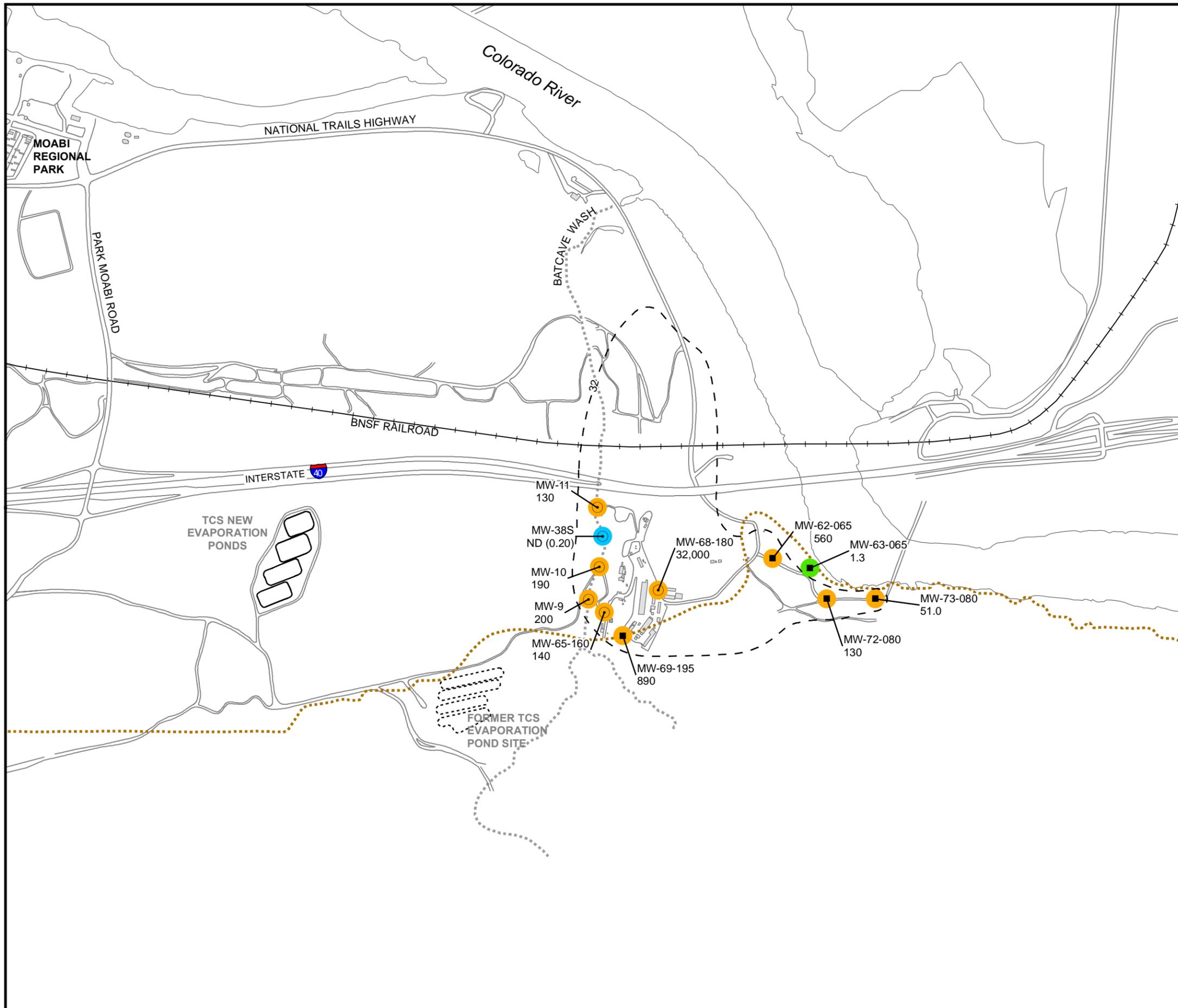


- Notes:**
1. Shoreline, river channel, and other surface water monitoring locations are sampled quarterly and twice during periods of low river stage (typically November - January).
 2. Location for SW-2 is approximate. GPS coverage was not available.
 3. RMP = River Monitoring Program
 4. TCS = Topock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

- LEGEND**
- Shoreline Surface Water Monitoring Location
 - ☀ River Channel Surface Water Monitoring Location
 - ⊖ Other Surface Water Monitoring Location

**FIGURE 1-3
MONITORING LOCATIONS AND
SAMPLING FREQUENCY FOR RMP**
THIRD QUARTER 2015 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE
GROUNDWATER AND SURFACE WATER
MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA





LEGEND

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

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

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

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

Cr(VI) Concentrations – Third Quarter 2015

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

--- Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L based on Second Quarter 2015 groundwater sampling results, where a larger number of wells were sampled, and Third Quarter 2015 groundwater sampling results.

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

Notes:

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

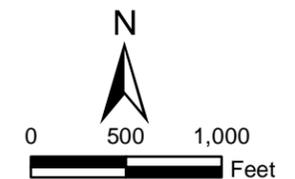
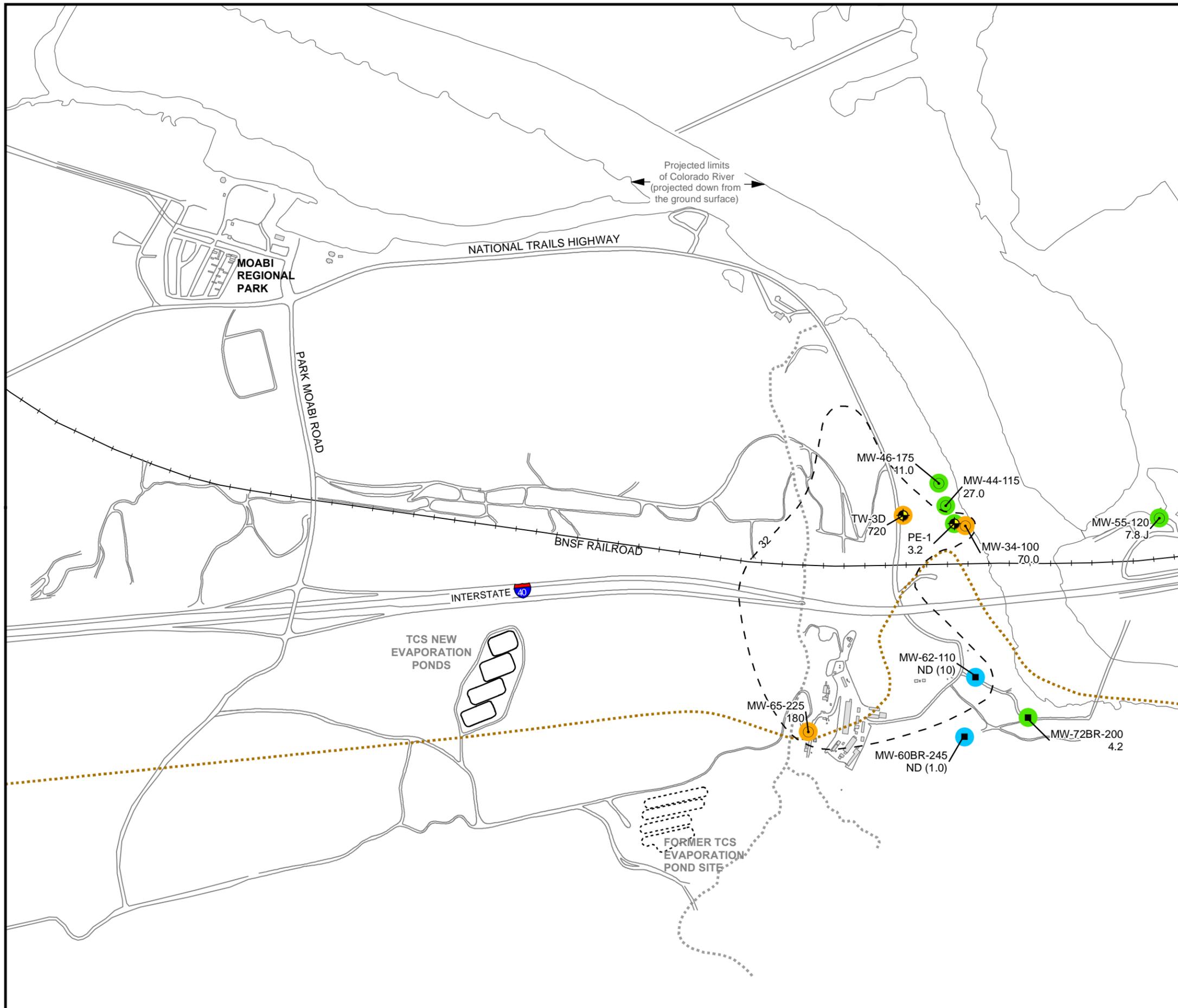


FIGURE 3-1a
Cr(VI) SAMPLING RESULTS,
SHALLOW WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, THIRD QUARTER 2015
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



LEGEND

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

6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L)
 Results shown are maximum concentrations in primary and duplicate samples from wells completed in **Deep zone** of Alluvial Aquifer and Bedrock.

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

Cr(VI) Concentrations – Third Quarter 2015

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

Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations > 32 µg/L based on Second Quarter 2015 groundwater sampling results, where a larger number of wells were sampled, and Third Quarter 2015 groundwater sampling results.

Approximate bedrock contact at 395 feet above mean sea level.

Notes:

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

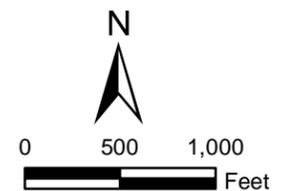
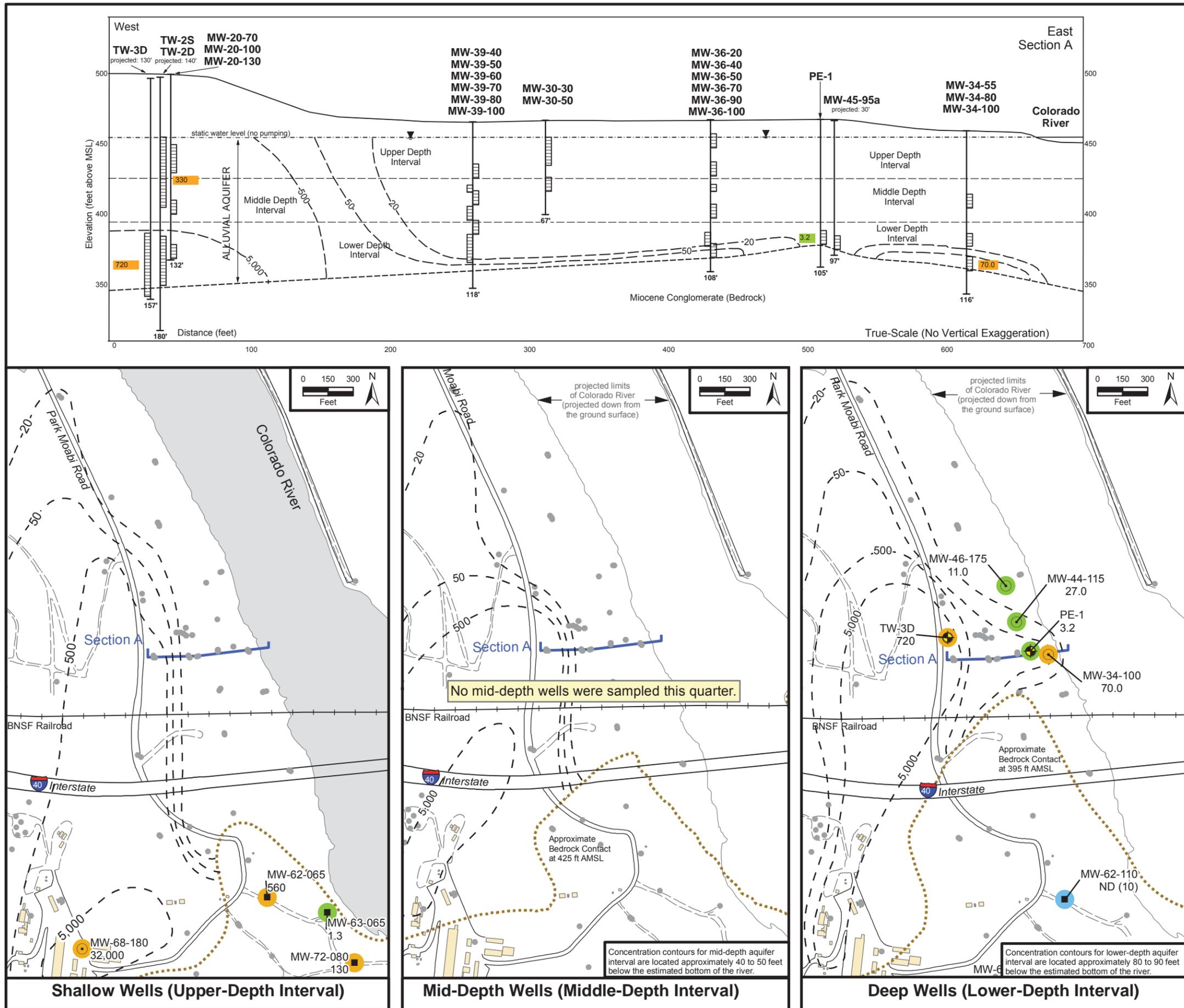


FIGURE 3-1b
Cr(VI) SAMPLING RESULTS,
DEEP WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, THIRD QUARTER 2015
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



LEGEND

- Alluvial Aquifer well sampled during sampling event
- Bedrock well sampled during sampling event
- ◆ Extraction well sampled during sampling event
- Well not sampled during sampling event

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

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

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

Cr(VI) Concentrations - Third Quarter 2015

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

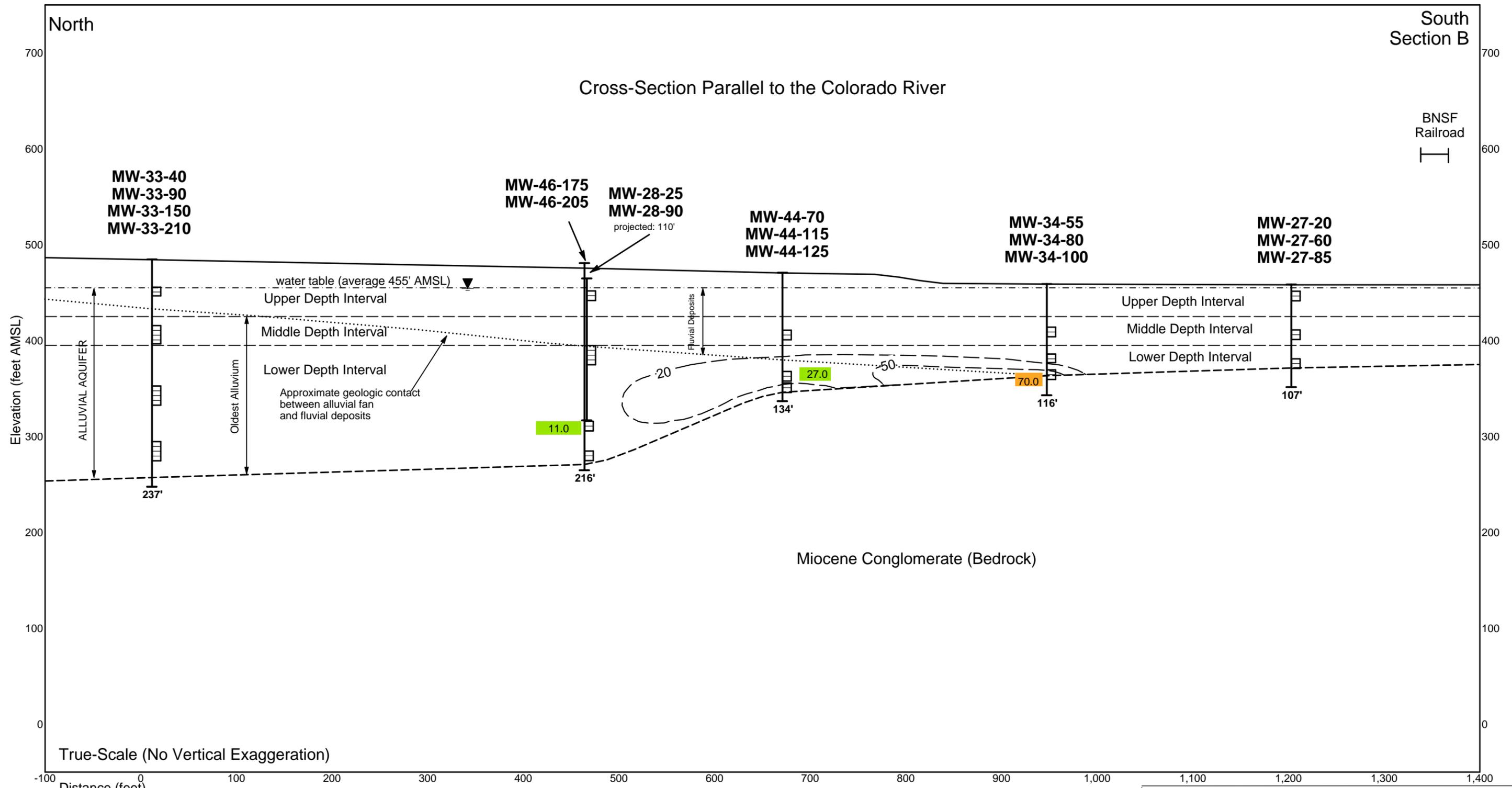
--- 50 --- Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations > 32 µg/L based on Second Quarter 2015 groundwater sampling results, where a larger number of wells were sampled, and Third Quarter 2015 groundwater sampling results.

Hydrogeologic Section A

Approximate bedrock contact

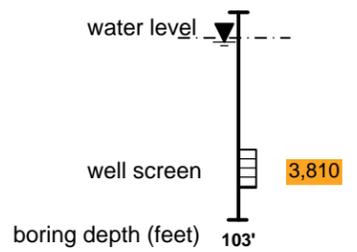
- Notes:**
1. The Cr(VI) concentration contours of 20 and 50 µg/L are shown in accordance with DTSC's 2005 IM performance monitoring directive. The IM performance standard was established for containment of Cr(VI) concentrations greater than 20 µg/L in the floodplain portion of the Alluvial Aquifer.
 2. Active Extraction wells PE-01 and TW-3D were not included in contour development.
 3. Long-screened wells and wells screened across more than one depth interval are generally not posted on plan view maps. See Table 3-1 for complete results.

FIGURE 4-1
MAXIMUM Cr(VI) CONCENTRATIONS
IN ALLUVIAL AQUIFER AND BEDROCK,
THIRD QUARTER 2015
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



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

1. See Table 3-1 for additional sampling data and prior results for wells on this figure.
2. See Figure 1-4 for location of this cross-section.



— 50 —
 Inferred hexavalent chromium contours (µg/L) in Alluvial Aquifer from Second Quarter 2015, where a larger number of wells were sampled, and Third Quarter 2015.

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

ND (0.2) Not detected at listed reporting limit

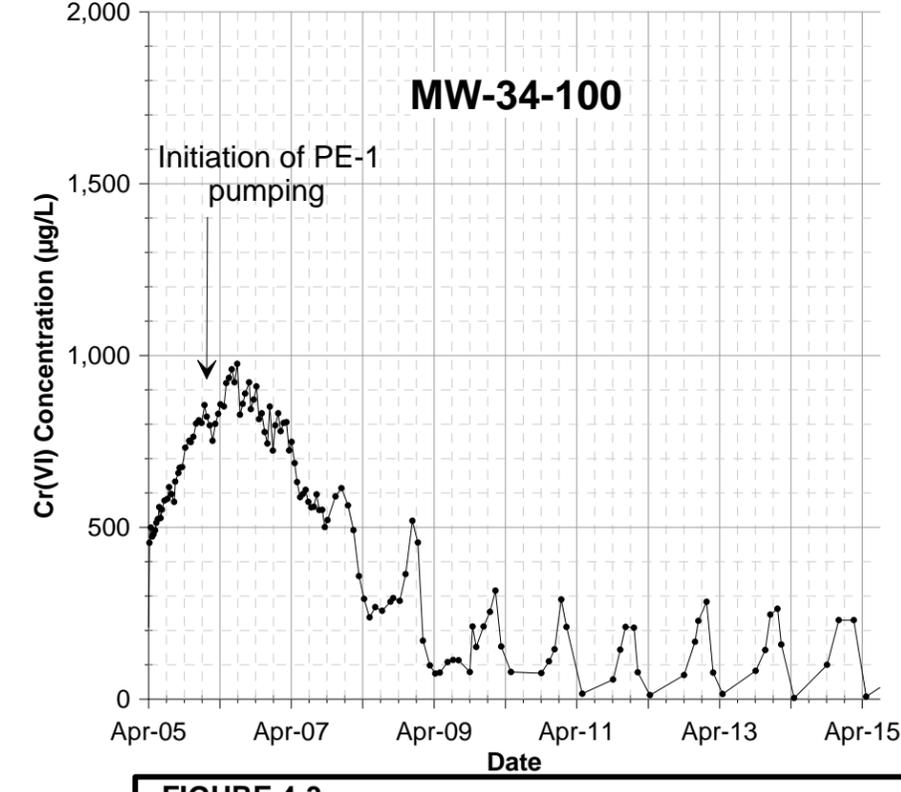
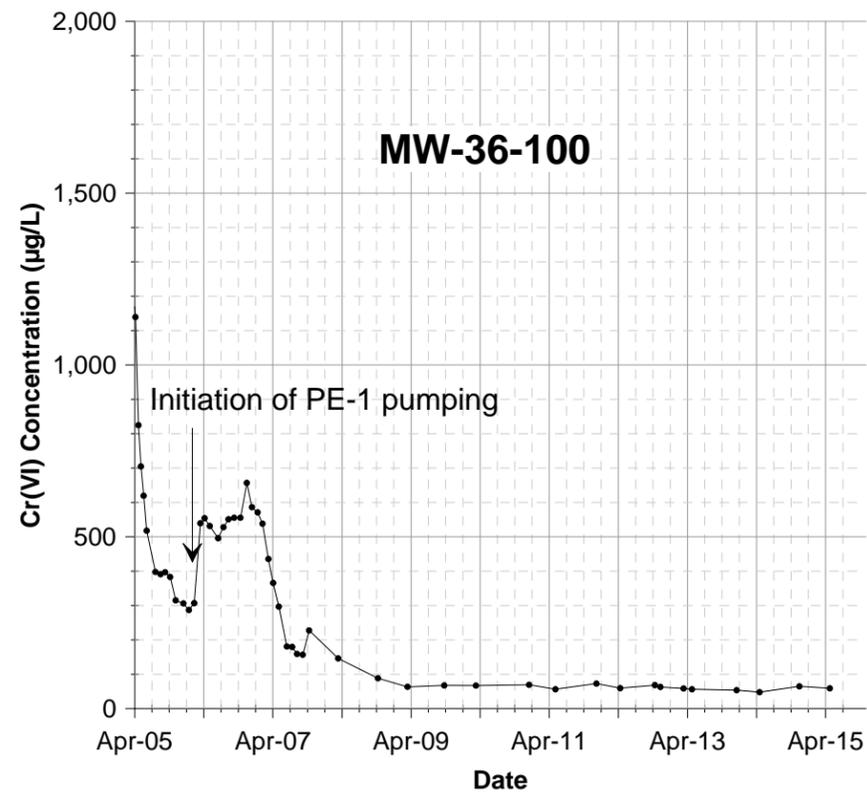
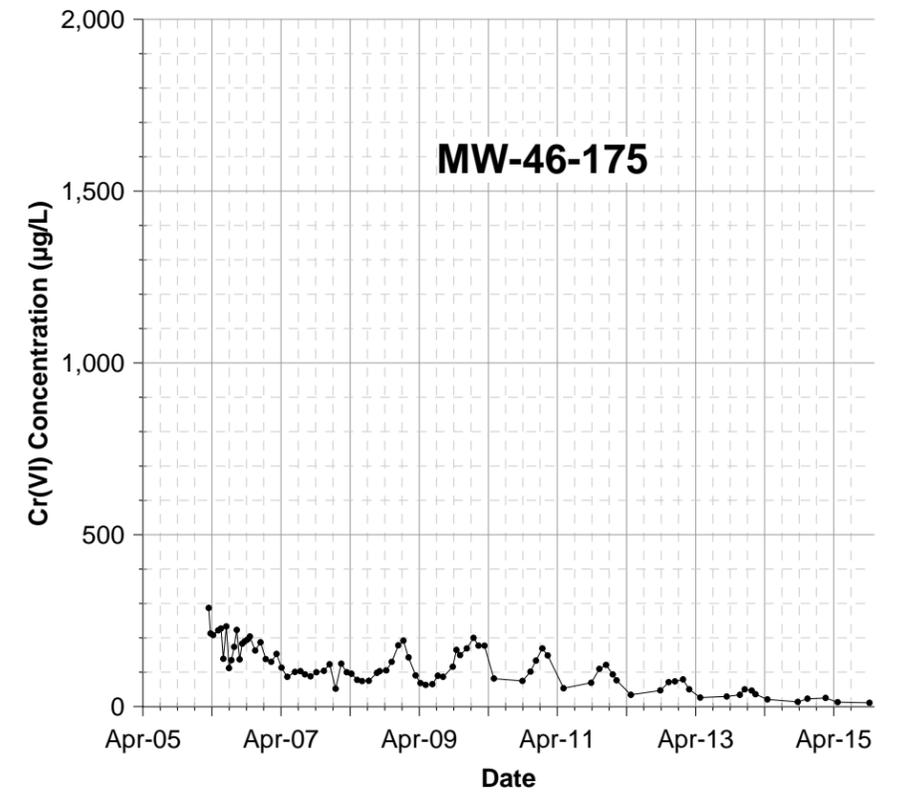
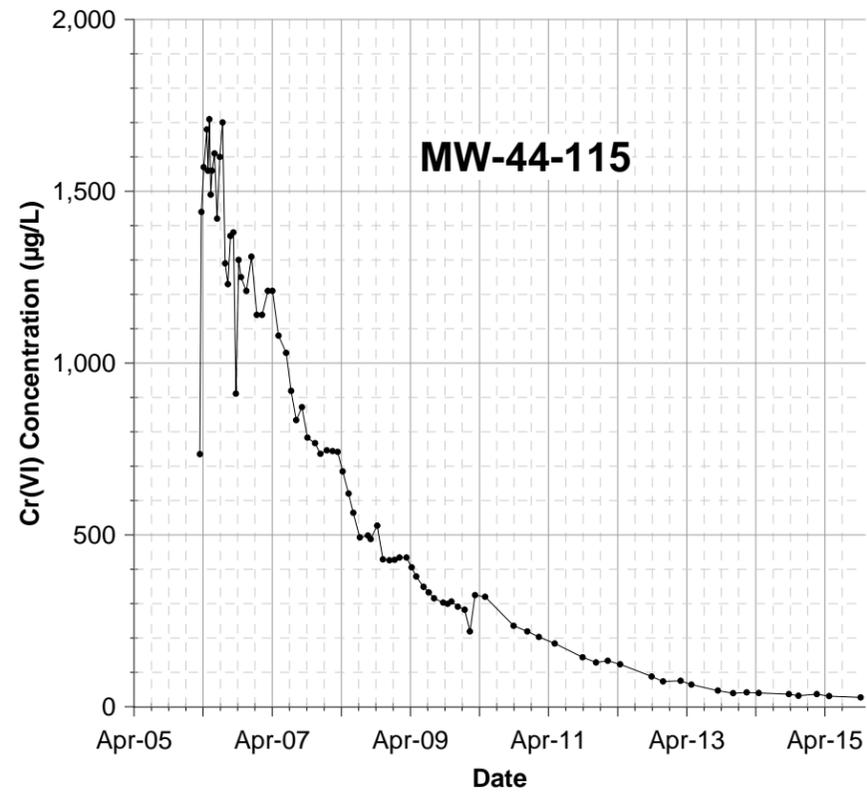
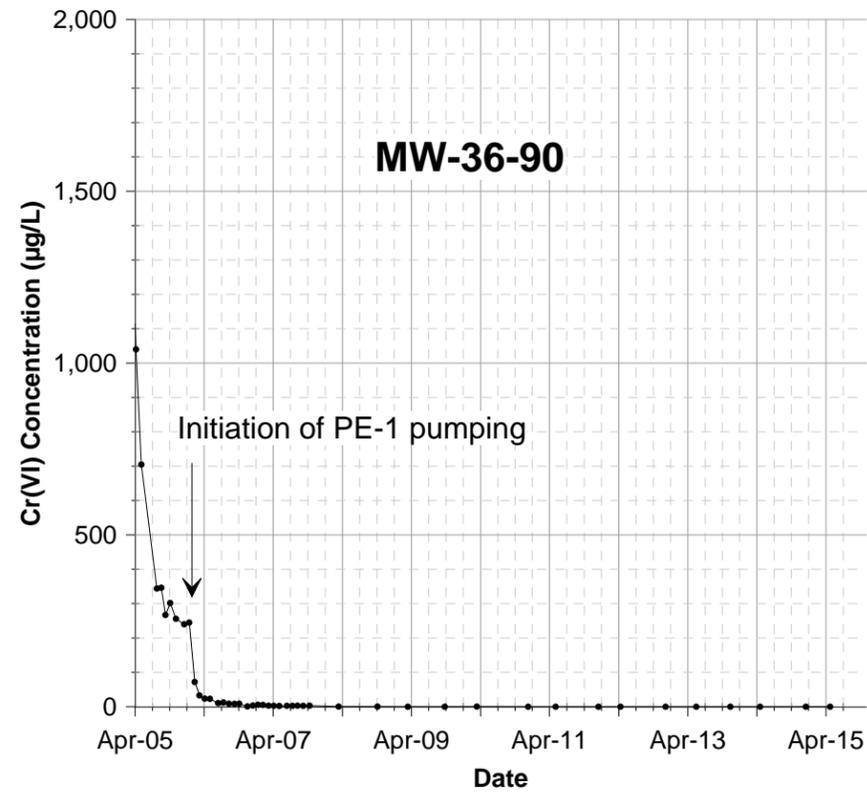
24.2 Concentration between reporting limit and 32 µg/L

203 Concentration greater than or equal to 32 µg/L

FIGURE 4-2
Cr(VI) CONCENTRATIONS
FLOODPLAIN CROSS-SECTION B,
THIRD QUARTER 2015

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



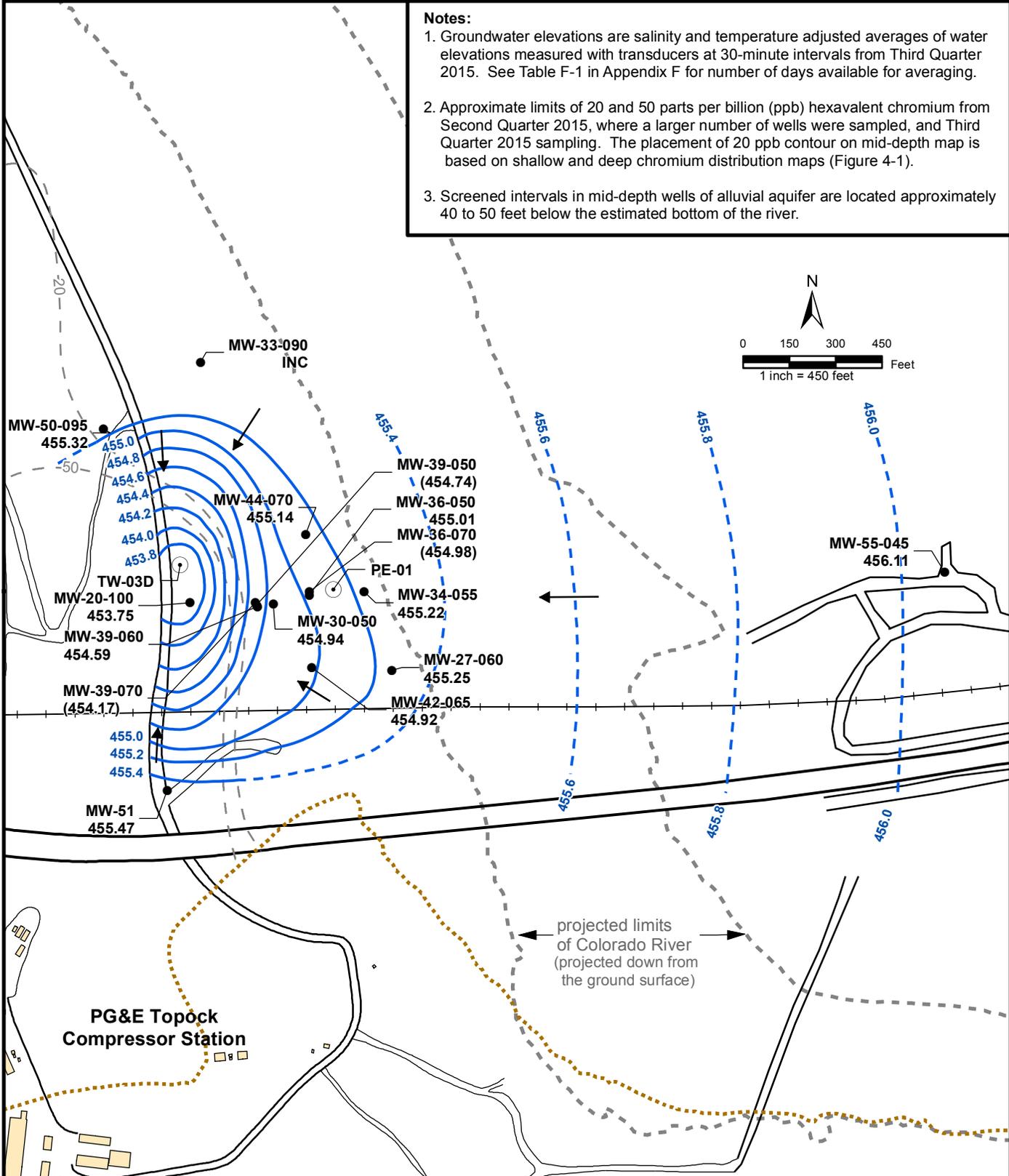
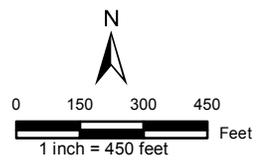
Notes:

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

FIGURE 4-3
Cr(VI) CONCENTRATION TRENDS IN
SELECTED PERFORMANCE MONITORING WELLS,
APRIL 2005 THROUGH OCTOBER 2015
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA
CH2MHILL

Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from Third Quarter 2015. See Table F-1 in Appendix F for number of days available for averaging.
2. Approximate limits of 20 and 50 parts per billion (ppb) hexavalent chromium from Second Quarter 2015, where a larger number of wells were sampled, and Third Quarter 2015 sampling. The placement of 20 ppb contour on mid-depth map is based on shallow and deep chromium distribution maps (Figure 4-1).
3. Screened intervals in mid-depth wells of alluvial aquifer are located approximately 40 to 50 feet below the estimated bottom of the river.



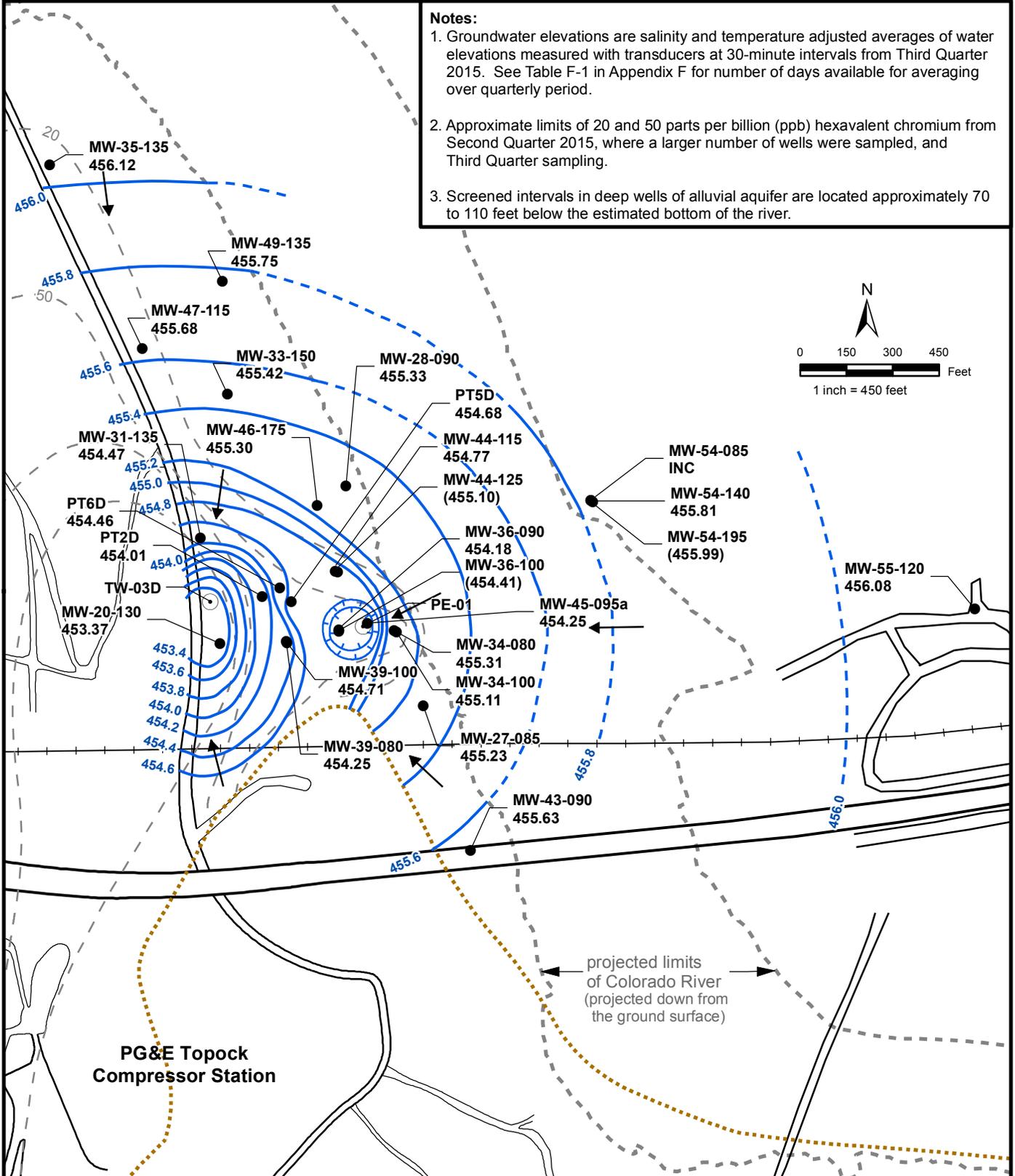
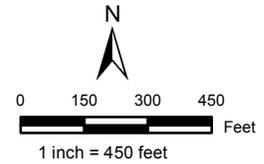
R:\PUGALLIANCE\TOPOCK\MAPFILES\2015\GMP-IMP\2015\G3\FIGURE4-4B_PMR_GWE_2015Q3_MID.MXD RB\RTLEY_CH2MHILL\ENV_11/18/2015 5:50:25 PM

●	MW-29 Average Groundwater Elevation at Monitoring Station (ft AMSL) 455.85	●	Monitoring Well
●	MW-29 (455.85) Average Groundwater Elevation at Monitoring Station (ft AMSL) Not Used for Contouring	○	Extraction Well
INC	Data Incomplete for Reporting Period	—	Groundwater Elevation Contour 0.2 ft (dashed where inferred)
—	Bedrock Contact at 425 ft AMSL	→	Interpreted Groundwater Flow Direction
- - -	Inferred Cr(VI) Concentration Contour		

FIGURE 4-4b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS, THIRD QUARTER 2015
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

Notes:

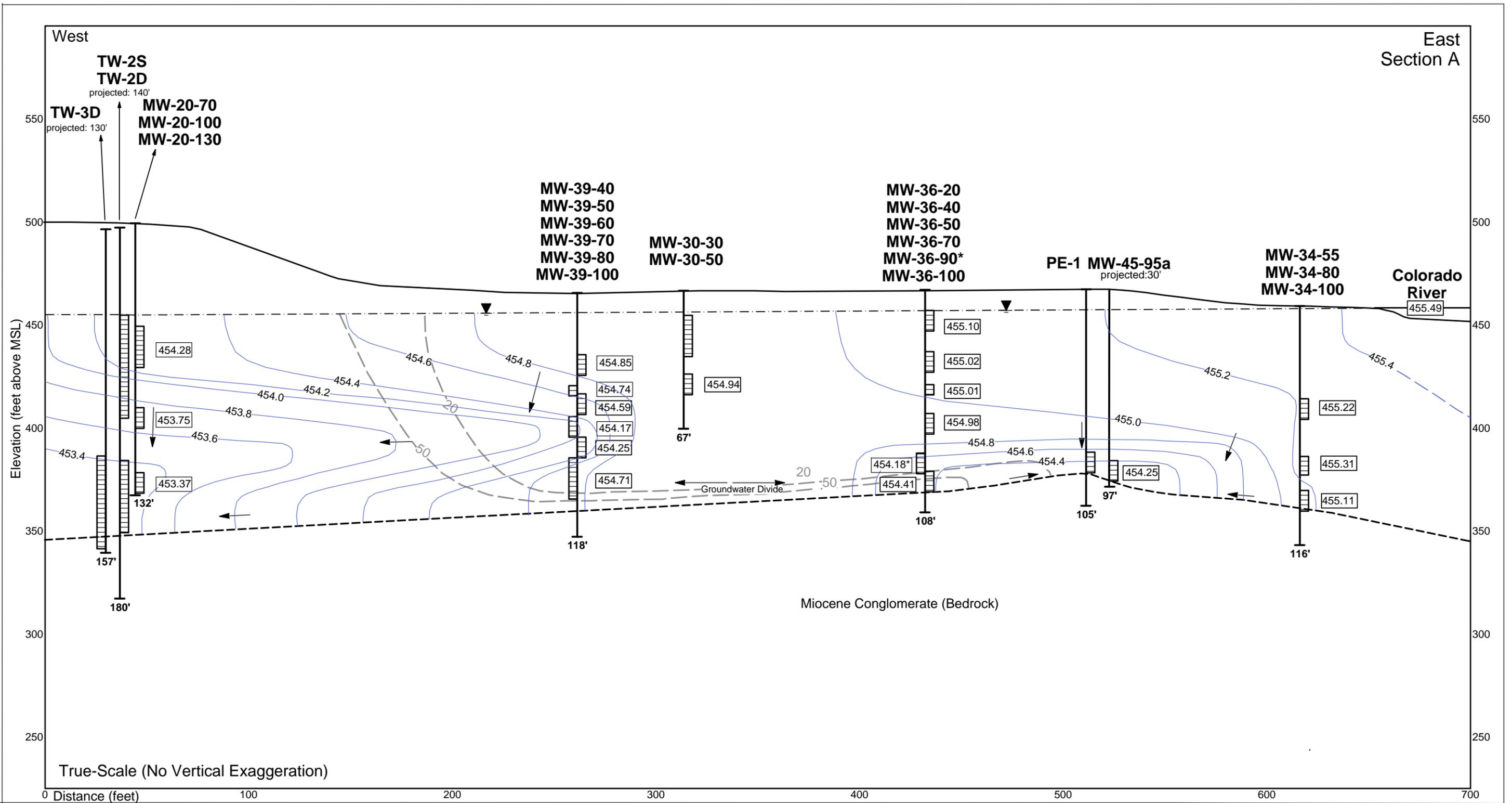
1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from Third Quarter 2015. See Table F-1 in Appendix F for number of days available for averaging over quarterly period.
2. Approximate limits of 20 and 50 parts per billion (ppb) hexavalent chromium from Second Quarter 2015, where a larger number of wells were sampled, and Third Quarter sampling.
3. Screened intervals in deep wells of alluvial aquifer are located approximately 70 to 110 feet below the estimated bottom of the river.



R:\PGE\ALLIANCE\TOPOCK\MAPFILES\2015\GMP-IMP\2015\Q3\FIGURE4-4C_PMR_GWE_2015\Q3_DEEP.MXD RBIRTLEY_CH2MHILL\ENV 11/18/2015 6:18:35 PM

- MW-29 Average Groundwater Elevation at Monitoring Station (ft AMSL) 455.85
- MW-29 (455.85) Average Groundwater Elevation at Monitoring Station (ft AMSL) Not Used for Contouring
- INC Data Incomplete for Reporting Period
- Bedrock Contact at 395 ft AMSL elevation
- - - Inferred Cr(VI) Concentration Contour
- Monitoring Well
- Extraction Well
- Groundwater Elevation Contour 0.2 ft (dashed where inferred)
- Interpreted Groundwater Flow Direction

FIGURE 4-4c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, THIRD QUARTER 2015
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Results show average groundwater elevations for July 1, 2015 through October 31, 2015 measured with transducers at 30 minute intervals.

Groundwater elevations adjusted for salinity and temperature. Well MW-36-90* is excluded from contouring.

River elevation (R-27) is the calculated average river level based upon the river gradient between RRB and I-3.

Legend:

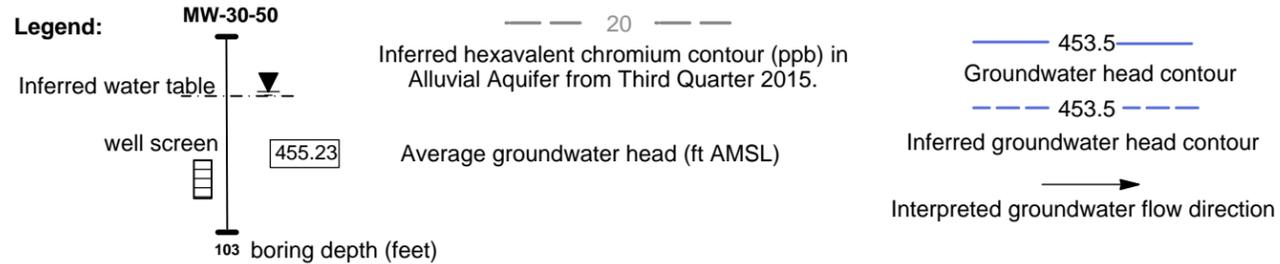
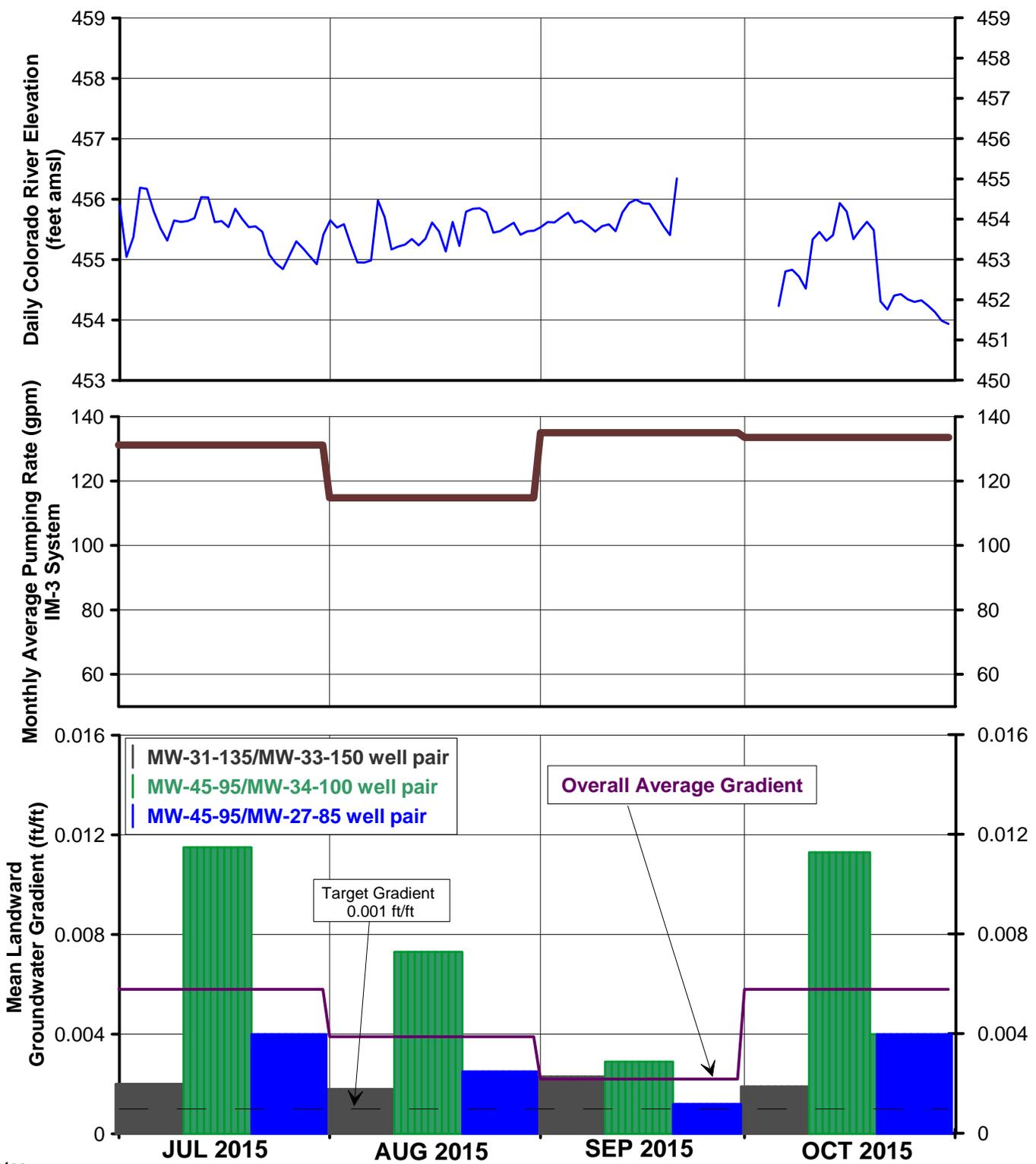


FIGURE 4-5
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A, THIRD QUARTER 2015

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

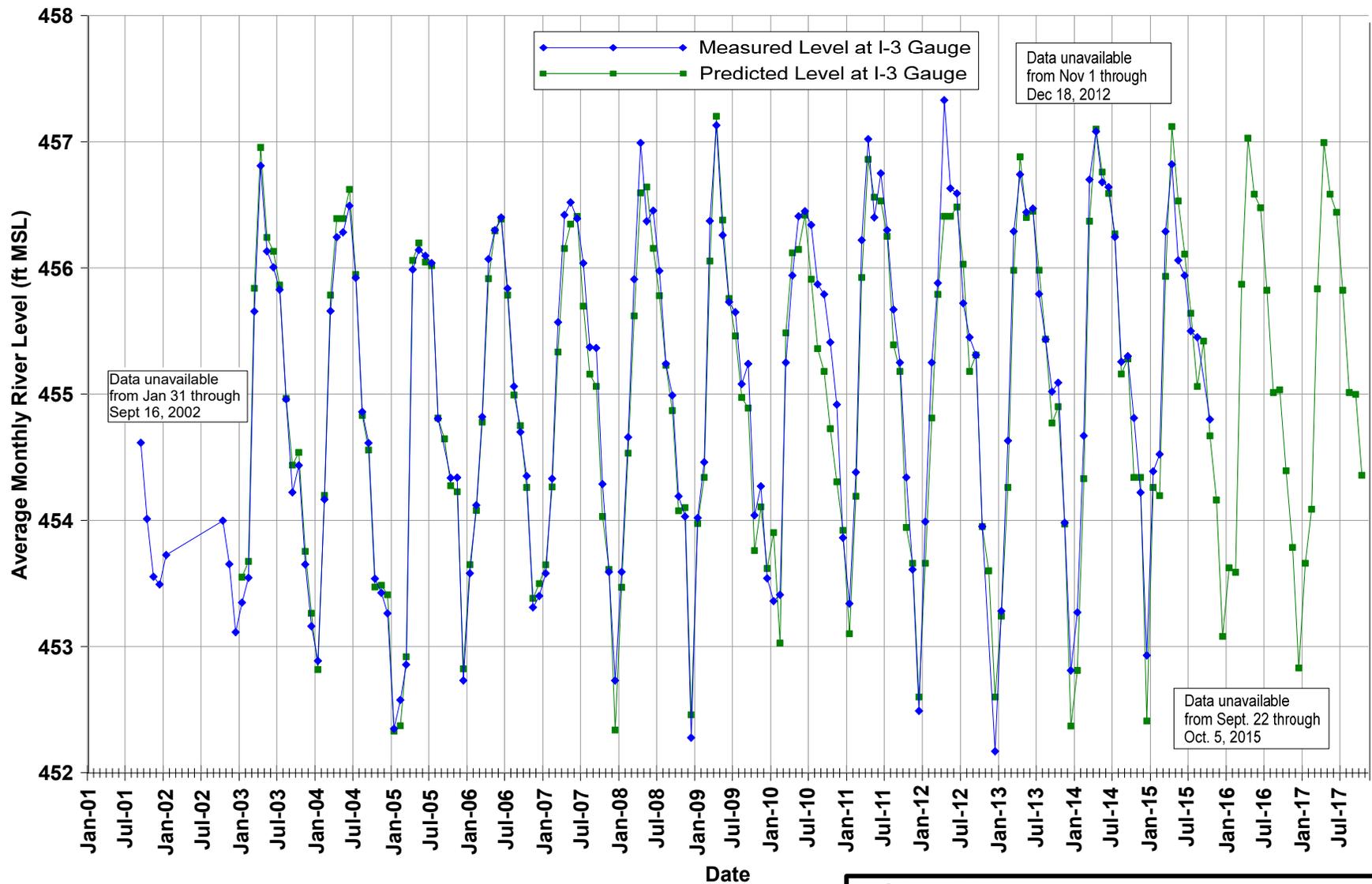


Notes:

1. For IM pumping, the target landward gradient for well pairs is 0.001 feet/foot.
 2. Refer to Table 4-1 and Section 4.4 for discussion of pumping data.
 3. Pumping rate plotted is the combined rate of extraction wells TW-3D and PE-1 in operation each month.
 4. Refer to Table 4-3 and Section 4.5 for discussion of gradient data.
 5. I-3 transducer data unavailable from September 22, 2015 through October 5, 2015 due to transducer malfunction.
- amsl = above mean sea level.
 ft/ft = feet/foot.
 gpm = gallons per minute.

**FIGURE 4-6
 MEASURED HYDRAULIC GRADIENTS,
 RIVER ELEVATIONS, AND PUMPING RATE,
 THIRD QUARTER 2015**

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Note:
 Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon November 2015 USBR projections. These data are reported monthly by the US Department of Interior, at <http://www.usbr.gov/lc/region/g4000/24mo.pdf>

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

THIRD QUARTER 2015 INTERIM MEASURES
 PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
 SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

Appendix A
Well Inspection and Maintenance Log,
Third Quarter 2015

Table A-1
Well Inspection Log, Second Quarter 2015
Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

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

Table A-1
Well Inspection Log, Second Quarter 2015
Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Notes	Required Actions	Action Completed? (Y/N)	Action Completed Date
MW-32-020	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-32-035	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-33-150	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-33-210	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-33-040	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-33-090	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-34-055	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-34-080	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-34-100	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-35-135	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-35-60	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-36-020		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-36-070	10/07/15																	
MW-36-090		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-36-040	10/07/15																	
MW-36-050		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-36-100	10/07/15																	
MW-37D	10/13/15	Y	N	Y	N	Y	N	Y	N	Y	Y	N	Y					
MW-37S	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-38S	09/28/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-38D	09/28/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-39-040		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-39-070	10/06/15																	
MW-39-050		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-39-080	10/06/15																	
MW-39-060		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-39-100	10/06/15																	
MW-40D	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-40S	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-41D	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-41M	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-41S	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-42-030	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-42-055	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-42-065	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-43-025	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-43-075	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-43-090	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-44-125		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-44-070	10/06/15																	
MW-44-115	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-45-095a		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-45-095b	10/05/15																	
MW-46-175		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-46-205	10/05/15																	
MW-47-055		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-47-115	10/05/15																	

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MW-48	10/05/15	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y					
MW-49-135																		
MW-49-275		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-49-365	10/05/15																	
MW-50-095		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-50-200	10/06/15																	
MW-51	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-52D/M/S	10/06/15	NA	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-53D/M/S	10/06/15	NA	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-54-085																		
MW-54-140	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-54-195	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-55-045		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-55-120	10/05/15																	
MW-56 D/S/M	10/05/15	NA	N	Y	N	Y	Y	Y	N	Y	Y	N	Y					
MW-57-050	09/28/15	Y	N	N	N	Y	NA	Y	N*	Y	Y	N	Y		Soil deposition			
MW-57-070	09/28/15	Y	N	N	N	Y	NA	Y	N*	Y	Y	N	Y		Soil deposition			
MW-57-185	09/28/15	Y	N	N	N	Y	NA	Y	N*	Y	Y	N	Y		Soil deposition			
MW-58BR	09/30/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-58-065	09/30/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-59-100	09/29/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-60-125	09/29/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-60BR-245	09/29/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-61-110	09/29/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-62-110																		
MW-62-190	09/30/15	N	N	N	N	Y	NA	Y	N	Y	Y	N	Y		Flute wells - cant lock. No DTW measurements			
MW-62-065	10/07/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-63-065	09/28/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-64BR	10/01/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-65-160		Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-65-225	09/30/15																	
MW-66-165		Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-66-230	10/22/15																	
MW-66BR-270	10/22/15	Y	N	Y	N	Y	NA	Y	N*	Y	Y	N	Y		Slight soil deposition near well			
MW-67-185	10/22/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-67-225		Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-67-260	10/22/15																	
MW-68BR-280	10/22/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-68-180																		
MW-68-290	09/30/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-69-195	10/01/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-70BR-225	10/22/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-70-105	10/22/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
MW-71-035	10/22/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-72-080	09/29/15	Y	N	N	N	Y	NA	Y	N*	Y	Y	N	Y		Soil deposition			
MW-72BR-200	09/29/15	Y	N	N	N	Y	NA	Y	N*	Y	Y	N	Y		Soil deposition			

Table A-1
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Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Notes	Required Actions	Action Completed? (Y/N)	Action Completed Date
MW-73-080	09/29/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MW-74-240	10/22/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
MWP-08	10/19/15	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y					
MWP-10	10/19/15	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y					
OW-1D	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-1M	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-1S	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-2D	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-2M	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-2S	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-3D	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-3M	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-3S	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-5D	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-5M	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
OW-5S	10/13/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
P2	10/19/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PG&E-8	09/30/15	Y	N	Y	N	Y	Y	Y	N	Y	Y	N	Y					
PGE-7	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PT-1 3 WELLS	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PT-2 3 WELLS	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PT-3 3 WELLS	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PT-4 3 WELLS	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PT-5 3 WELLS	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PT-6 3 WELLS	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PT-7 S/D	10/07/15	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y					
PT-7M	10/07/15	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y					
PT-8 S/D	10/07/15	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y					
PT-8M	10/07/15	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y					
PT-9 S/D	10/07/15	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y					
PT-9M	10/07/15	Y	N	NA	N	Y	NA	Y	N	Y	Y	N	Y					
PTI-1D	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PTI-1M	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
PTI-1S	10/07/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
TW-01	10/07/15	Y	N	N	N	Y	NA	Y	N	Y	Y	N	Y					
TW-04	10/06/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					
TW-05	10/05/15	Y	N	Y	N	Y	NA	Y	N	Y	Y	N	Y					

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

Appendix B
Lab Reports, Third Quarter 2015

(Provided on CD-ROM only with hard copy submittal)

July 21, 2015

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.: N016187

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on July 07, 2015 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,



Glen Gesmundo
QA Manager

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NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N016187

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium on QC samples N016187-001B-MS and N016187-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium on QC samples N016188-002E-MS and N016188-002E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 21-Jul-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N016187
Contract No: IM3PLANT-EW

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016187-001A	PE-01-232	Water	7/7/2015 10:41:00 AM	7/7/2015	7/21/2015
N016187-001B	PE-01-232	Water	7/7/2015 10:41:00 AM	7/7/2015	7/21/2015
N016187-001C	PE-01-232	Water	7/7/2015 10:41:00 AM	7/7/2015	7/21/2015
N016187-001D	PE-01-232	Water	7/7/2015 10:41:00 AM	7/7/2015	7/21/2015
N016187-002A	TW-03D-232	Water	7/7/2015 10:50:00 AM	7/7/2015	7/21/2015
N016187-002B	TW-03D-232	Water	7/7/2015 10:50:00 AM	7/7/2015	7/21/2015
N016187-002C	TW-03D-232	Water	7/7/2015 10:50:00 AM	7/7/2015	7/21/2015
N016187-002D	TW-03D-232	Water	7/7/2015 10:50:00 AM	7/7/2015	7/21/2015



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-232
Lab Order: N016187	Collection Date: 7/7/2015 10:41:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150708B	QC Batch: R101084				PrepDate		Analyst: LR
Specific Conductance	4100	0.10	0.10		umhos/cm	1	7/8/2015 11:30 AM

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



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-232
Lab Order: N016187	Collection Date: 7/7/2015 10:50:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150708B	QC Batch: R101084			PrepDate			Analyst: LR
Specific Conductance	7300	0.10	0.10	umhos/cm	1		7/8/2015 11:30 AM

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



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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N016187-002A DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 101084						
Client ID: ZZZZZZ	Batch ID: R101084	TestNo: EPA 120.1	Analysis Date: 7/8/2015	SeqNo: 2034394							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7340.000	0.10						7330	0.136	10	

Sample ID N016188-003A DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 101084						
Client ID: ZZZZZZ	Batch ID: R101084	TestNo: EPA 120.1	Analysis Date: 7/8/2015	SeqNo: 2034399							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	30100.000	0.10						30000	0.333	10	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL **Client Sample ID:** PE-01-232
Lab Order: N016187 **Collection Date:** 7/7/2015 10:41:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N016187-001

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

TOTAL FILTERABLE RESIDUE

SM2540C

RunID: **WETCHEM_150708D** QC Batch: **50848** PrepDate: **7/8/2015** Analyst: **LR**
Total Dissolved Solids (Residue, Filterable) 2500 33 33 mg/L 1 7/8/2015 02:17 PM

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



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL **Client Sample ID:** TW-03D-232
Lab Order: N016187 **Collection Date:** 7/7/2015 10:50:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N016187-002

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

TOTAL FILTERABLE RESIDUE

SM2540C

RunID: **WETCHEM_150708D** QC Batch: **50848** PrepDate: **7/8/2015** Analyst: **LR**
Total Dissolved Solids (Residue, Filterable) 4600 50 50 mg/L 1 7/8/2015 02:17 PM

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



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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-50848	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 7/8/2015	RunNo: 101093						
Client ID: PBW	Batch ID: 50848	TestNo: SM2540C		Analysis Date: 7/8/2015	SeqNo: 2034827						
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-50848	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 7/8/2015	RunNo: 101093						
Client ID: LCSW	Batch ID: 50848	TestNo: SM2540C		Analysis Date: 7/8/2015	SeqNo: 2034828						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		988.000	10	1000	0	98.8	80	120			

Sample ID N016188-003A-DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 7/8/2015	RunNo: 101093						
Client ID: ZZZZZ	Batch ID: 50848	TestNo: SM2540C		Analysis Date: 7/8/2015	SeqNo: 2034836						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		20720.000	200					20200	2.54	5	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-232
Lab Order: N016187	Collection Date: 7/7/2015 10:41:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_150709B	QC Batch: 50855			PrepDate	7/9/2015	Analyst: HG
Calcium	120000	31	500	µg/L	1	7/9/2015 12:53 PM
Iron	ND	17	20	µg/L	1	7/9/2015 12:53 PM
Magnesium	23000	86	100	µg/L	1	7/9/2015 12:53 PM
Sodium	810000	290	12000	µg/L	25	7/15/2015 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	



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-232
Lab Order: N016187	Collection Date: 7/7/2015 10:50:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_150709B	QC Batch: 50855			PrepDate	7/9/2015	Analyst: HG
Calcium	230000	31	500	µg/L	1	7/9/2015 12:59 PM
Iron	ND	17	20	µg/L	1	7/9/2015 12:59 PM
Magnesium	27000	86	100	µg/L	1	7/9/2015 12:59 PM
Sodium	1600000	1500	62000	µg/L	125	7/15/2015 06:28 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
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	DO Surrogate Diluted Out	



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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPBB

Sample ID MB-50855	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 7/9/2015	RunNo: 101104						
Client ID: PBW	Batch ID: 50855	TestNo: EPA 200.7		Analysis Date: 7/9/2015	SeqNo: 2035103						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID LCS-50855	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 7/9/2015	RunNo: 101104						
Client ID: LCSW	Batch ID: 50855	TestNo: EPA 200.7		Analysis Date: 7/9/2015	SeqNo: 2035104						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	10108.724	500	10000	0	101	85	115				
Iron	108.561	20	100.0	0	109	85	115				
Magnesium	9851.929	100	10000	0	98.5	85	115				

Sample ID N016188-002E-MS	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 7/9/2015	RunNo: 101104						
Client ID: ZZZZZ	Batch ID: 50855	TestNo: EPA 200.7		Analysis Date: 7/9/2015	SeqNo: 2035111						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	151120.541	500	10000	144600	65.3	75	125				S
Iron	100.283	20	100.0	0	100	75	125				
Magnesium	33349.484	100	10000	25180	81.7	75	125				

Sample ID N016188-002E-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 7/9/2015	RunNo: 101104						
Client ID: ZZZZZ	Batch ID: 50855	TestNo: EPA 200.7		Analysis Date: 7/9/2015	SeqNo: 2035112						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	148863.961	500	10000	144600	42.7	75	125	151100	1.50	20	S
Iron	99.944	20	100.0	0	99.9	75	125	100.3	0.338	20	
Magnesium	32983.772	100	10000	25180	78.1	75	125	33350	1.10	20	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPBB

Sample ID MB-50867	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 7/10/2015	RunNo: 101207						
Client ID: PBW	Batch ID: 50867	TestNo: EPA 200.7		Analysis Date: 7/15/2015	SeqNo: 2040687						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium	19.780	500									
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Sample ID LCS-50867	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 7/10/2015	RunNo: 101207						
Client ID: LCSW	Batch ID: 50867	TestNo: EPA 200.7		Analysis Date: 7/15/2015	SeqNo: 2040688						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium	19694.489	500	20000	0	98.5	85	115				
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Sample ID N016187-001B-MS	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 7/10/2015	RunNo: 101207						
Client ID: ZZZZZ	Batch ID: 50867	TestNo: EPA 200.7		Analysis Date: 7/15/2015	SeqNo: 2040693						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium	824914.918	12000	20000	814200	53.3	75	125				S
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Sample ID N016187-001B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 7/10/2015	RunNo: 101207						
Client ID: ZZZZZ	Batch ID: 50867	TestNo: EPA 200.7		Analysis Date: 7/15/2015	SeqNo: 2040694						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium	858381.631	12000	20000	814200	221	75	125	824900	3.98	20	S
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Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis 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: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-232
Lab Order: N016187	Collection Date: 7/7/2015 10:41:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: ICP7_150709A	QC Batch: 50841	PrepDate	7/8/2015	Analyst: CEI
Manganese	57	0.023	0.50	µg/L
				1
				7/9/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL **Client Sample ID:** TW-03D-232
Lab Order: N016187 **Collection Date:** 7/7/2015 10:50:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N016187-002

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

DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: **ICP7_150709A** QC Batch: **50841** PrepDate: **7/8/2015** Analyst: **CEI**
Manganese ND 0.023 0.50 µg/L 1 7/9/2015 01:50 PM

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



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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID MB-50841	SampType: MBLK	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 7/8/2015	RunNo: 101124
Client ID: PBW	Batch ID: 50841	TestNo: EPA 200.8		Analysis Date: 7/9/2015	SeqNo: 2036200
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	ND	0.50			

Sample ID LCS-50841	SampType: LCS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 7/8/2015	RunNo: 101124
Client ID: LCSW	Batch ID: 50841	TestNo: EPA 200.8		Analysis Date: 7/9/2015	SeqNo: 2036201
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	94.900	0.50	100.0	0	94.9 85 115

Sample ID N016183-001B-MS	SampType: MS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 7/8/2015	RunNo: 101124
Client ID: ZZZZZ	Batch ID: 50841	TestNo: EPA 200.8		Analysis Date: 7/9/2015	SeqNo: 2036213
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	97.871	0.50	100.0	6.411	91.5 75 125

Sample ID N016183-001B-MSD	SampType: MSD	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 7/8/2015	RunNo: 101124
Client ID: ZZZZZ	Batch ID: 50841	TestNo: EPA 200.8		Analysis Date: 7/9/2015	SeqNo: 2036214
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	97.476	0.50	100.0	6.411	91.1 75 125 97.87 0.405 20

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-232
Lab Order: N016187	Collection Date: 7/7/2015 10:41:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150709A	QC Batch: R101139				PrepDate		Analyst: RB
Hexavalent Chromium	3.2	0.015	0.20		µg/L	1	7/9/2015 02:22 PM

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_150709A	QC Batch: 50841				PrepDate	7/8/2015	Analyst: CEI
Chromium	3.1	0.086	1.0		µg/L	1	7/9/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-232
Lab Order: N016187	Collection Date: 7/7/2015 10:50:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_150720C	QC Batch: R101293				PrepDate		Analyst: QBM
Chromium, Hexavalent	710	2.8	20		µg/L	2	7/20/2015

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_150714B	QC Batch: 50841				PrepDate	7/8/2015	Analyst: CEI
Chromium	770	0.43	5.0		µg/L	5	7/14/2015 04:22 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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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID MB-50841	SampType: MBLK	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 7/8/2015	RunNo: 101124
Client ID: PBW	Batch ID: 50841	TestNo: EPA 200.8		Analysis Date: 7/9/2015	SeqNo: 2036097
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	ND	1.0			

Sample ID LCS-50841	SampType: LCS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 7/8/2015	RunNo: 101124
Client ID: LCSW	Batch ID: 50841	TestNo: EPA 200.8		Analysis Date: 7/9/2015	SeqNo: 2036098
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	9.615	1.0	10.00	0	96.1 85 115

Sample ID N016183-001B-MS	SampType: MS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 7/8/2015	RunNo: 101124
Client ID: ZZZZZ	Batch ID: 50841	TestNo: EPA 200.8		Analysis Date: 7/9/2015	SeqNo: 2036110
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	10.353	1.0	10.00	1.053	93.0 75 125

Sample ID N016183-001B-MSD	SampType: MSD	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 7/8/2015	RunNo: 101124
Client ID: ZZZZZ	Batch ID: 50841	TestNo: EPA 200.8		Analysis Date: 7/9/2015	SeqNo: 2036111
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	10.361	1.0	10.00	1.053	93.1 75 125 10.35 0.0822 20

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R101139	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: PBW	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037354						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	ND	0.20									
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Sample ID LCS-R101139	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: LCSW	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037355						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	4.919	0.20	5.000	0	98.4	90	110				
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Sample ID N016182-001ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: ZZZZZZ	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037357						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	3.154	0.20						3.181	0.856	20	
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Sample ID N016182-001AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: ZZZZZZ	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037358						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	8.351	0.20	5.000	3.181	103	90	110				
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Sample ID N016182-001AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: ZZZZZZ	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037359						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	8.253	0.20	5.000	3.181	101	90	110	8.351	1.18	20	
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Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis 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: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N016187-001CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: ZZZZZZ	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037368						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	8.154	0.20	5.000	3.183	99.4	90	110				

Sample ID N016188-001CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: ZZZZZZ	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037370						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	792.980	10	250.0	543.4	99.8	90	110				

Sample ID N016188-002CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: ZZZZZZ	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037372						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.121	0.20	1.000	0.1226	99.9	90	110				

Sample ID N016188-003BMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101139						
Client ID: ZZZZZZ	Batch ID: R101139	TestNo: EPA 218.6		Analysis Date: 7/9/2015	SeqNo: 2037376						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.533	1.0	5.000	0.4340	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: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID LCS-R101293	SampType: LCS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101293						
Client ID: LCSW	Batch ID: R101293	TestNo: SM 3500-Cr B		Analysis Date: 7/20/2015	SeqNo: 2044366						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	96.766	10	100.0	0	96.8	85	115				

Sample ID MB-R101293	SampType: MBLK	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101293						
Client ID: PBW	Batch ID: R101293	TestNo: SM 3500-Cr B		Analysis Date: 7/20/2015	SeqNo: 2044367						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	10									

Sample ID N016187-002CDUP	SampType: DUP	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101293						
Client ID: ZZZZZ	Batch ID: R101293	TestNo: SM 3500-Cr B		Analysis Date: 7/20/2015	SeqNo: 2044369						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	716.706	20						711.1	0.783	20	

Sample ID N016187-002CMS	SampType: MS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101293						
Client ID: ZZZZZ	Batch ID: R101293	TestNo: SM 3500-Cr B		Analysis Date: 7/20/2015	SeqNo: 2044370						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1221.228	20	500.0	711.1	102	85	115				

Sample ID N016187-002CMSD	SampType: MSD	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101293						
Client ID: ZZZZZ	Batch ID: R101293	TestNo: SM 3500-Cr B		Analysis Date: 7/20/2015	SeqNo: 2044371						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1231.166	20	500.0	711.1	104	85	115	1221	0.810	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: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-232
Lab Order: N016187	Collection Date: 7/7/2015 10:41:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_150708C	QC Batch: R101085			PrepDate		Analyst: LR
Alkalinity, Bicarbonate (As CaCO3)	210	1.2	5.0	mg/L	1	7/8/2015 10:15 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	7/8/2015 10:15 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	7/8/2015 10:15 AM
Alkalinity, Total (As CaCO3)	210	1.2	5.0	mg/L	1	7/8/2015 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: 21-Jul-15

CLIENT: CH2M HILL

Client Sample ID: TW-03D-232

Lab Order: N016187

Collection Date: 7/7/2015 10:50:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N016187-002

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_150708C	QC Batch: R101085				PrepDate	Analyst: LR	
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0		mg/L	1	7/8/2015 10:15 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	7/8/2015 10:15 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	7/8/2015 10:15 AM
Alkalinity, Total (As CaCO3)	140	1.2	5.0		mg/L	1	7/8/2015 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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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID	LCS-R101085	SampType:	LCS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	101085			
Client ID:	LCSW	Batch ID:	R101085	TestNo:	SM 2320 B			Analysis Date:	7/8/2015	SeqNo:	2034400			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)		98.712		5.0	100.0	0		98.7	85	115				
Alkalinity, Total (As CaCO3)		98.712		5.0	100.0	0		98.7	85	115				

Sample ID	MB-R101085	SampType:	MBLK	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	101085			
Client ID:	PBW	Batch ID:	R101085	TestNo:	SM 2320 B			Analysis Date:	7/8/2015	SeqNo:	2034401			
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	N016187-001ADUP	SampType:	DUP	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	101085			
Client ID:	ZZZZZ	Batch ID:	R101085	TestNo:	SM 2320 B			Analysis Date:	7/8/2015	SeqNo:	2034403			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)		212.446		5.0							211.4	0.506	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)		212.446		5.0							211.4	0.506	30	

Sample ID	N016187-002AMS	SampType:	MS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	101085			
Client ID:	ZZZZZ	Batch ID:	R101085	TestNo:	SM 2320 B			Analysis Date:	7/8/2015	SeqNo:	2034405			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)		239.270		5.0	100.0	137.3		102	75	125				
Alkalinity, Total (As CaCO3)		239.270		5.0	100.0	137.3		102	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID N016187-002AMSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 101085						
Client ID: ZZZZZZ	Batch ID: R101085	TestNo: SM 2320 B		Analysis Date: 7/8/2015	SeqNo: 2034406						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	238.197	5.0	100.0	137.3	101	75	125	239.3	0.449	20	
Alkalinity, Total (As CaCO3)	238.197	5.0	100.0	137.3	101	75	125	239.3	0.449	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: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-232
Lab Order: N016187	Collection Date: 7/7/2015 10:41:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150708A	QC Batch: R101092				PrepDate		Analyst: QBM
Chloride	960	6.3	100		mg/L	200	7/8/2015 12:46 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150708A	QC Batch: R101092				PrepDate		Analyst: QBM
Sulfate	350	1.6	25		mg/L	50	7/8/2015 01:00 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: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-232
Lab Order: N016187	Collection Date: 7/7/2015 10:50:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150708A	QC Batch: R101092				PrepDate		Analyst: QBM
Chloride	2100	16	250		mg/L	500	7/8/2015 01:15 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150708A	QC Batch: R101092				PrepDate		Analyst: QBM
Sulfate	470	3.3	50		mg/L	100	7/8/2015 01:59 PM

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



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CLIENT: CH2M HILL
Work Order: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R101092_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101092			
Client ID:	PBW	Batch ID:	R101092	TestNo:	EPA 300.0			Analysis Date:	7/8/2015	SeqNo:	2034766			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		ND		0.50										

Sample ID	LCS-R101092_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101092			
Client ID:	LCSW	Batch ID:	R101092	TestNo:	EPA 300.0			Analysis Date:	7/8/2015	SeqNo:	2034767			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		2.392		0.50	2.500	0		95.7	90	110				

Sample ID	N016187-001ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101092			
Client ID:	ZZZZZ	Batch ID:	R101092	TestNo:	EPA 300.0			Analysis Date:	7/8/2015	SeqNo:	2034772			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		984.000		100							958.6	2.62	20	

Sample ID	N016187-002AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101092			
Client ID:	ZZZZZ	Batch ID:	R101092	TestNo:	EPA 300.0			Analysis Date:	7/8/2015	SeqNo:	2034773			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		3352.500		250	1250	2118		98.8	80	120				

Sample ID	N016187-002AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101092			
Client ID:	ZZZZZ	Batch ID:	R101092	TestNo:	EPA 300.0			Analysis Date:	7/8/2015	SeqNo:	2034774			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		3409.000		250	1250	2118		103	80	120	3352	1.67	20	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-232
Lab Order: N016187	Collection Date: 7/7/2015 10:41:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150716D	QC Batch: R101241	PrepDate	Analyst: RB
Nitrate/Nitrite as N	ND	0.022 0.050	mg/L 1 7/16/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 21-Jul-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-232
Lab Order: N016187	Collection Date: 7/7/2015 10:50:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016187-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150716D	QC Batch: R101241			PrepDate			Analyst: RB
Nitrate/Nitrite as N	3.4	0.11	0.25	mg/L	5		7/16/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: N016187
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R101241	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101241
Client ID: PBW	Batch ID: R101241	TestNo: SM4500-NO3		Analysis Date: 7/16/2015	SeqNo: 2042186
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-R101241	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101241
Client ID: LCSW	Batch ID: R101241	TestNo: SM4500-NO3		Analysis Date: 7/16/2015	SeqNo: 2042187
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.506	0.050	0.5000	0	101 85 115

Sample ID N016187-001DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101241
Client ID: ZZZZZ	Batch ID: R101241	TestNo: SM4500-NO3		Analysis Date: 7/16/2015	SeqNo: 2042189
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	ND	0.050			0 0 20

Sample ID N016187-001DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101241
Client ID: ZZZZZ	Batch ID: R101241	TestNo: SM4500-NO3		Analysis Date: 7/16/2015	SeqNo: 2042190
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.567	0.050	0.5000	0	113 75 125

Sample ID N016187-001DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101241
Client ID: ZZZZZ	Batch ID: R101241	TestNo: SM4500-NO3		Analysis Date: 7/16/2015	SeqNo: 2042191
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.569	0.050	0.5000	0	114 75 125 0.5666 0.335 20

Qualifiers:

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

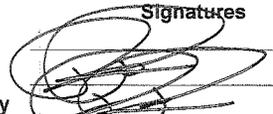
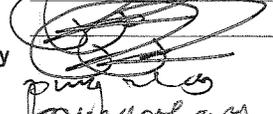
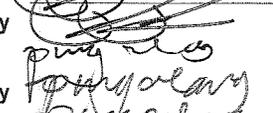
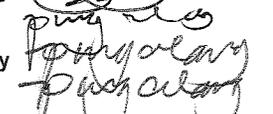
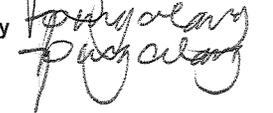


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Project Name PG&E Topock Location Topock Project Number 658274.01.IM.OP.00 Project Manager Scott O'Donnell Sample Manager Shawn Duffy Task Order Project IM3PLANT-EW-232 Turnaround Time 10 Days Shipping Date: COC Number: 232	Container:	1 Liter Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	250 ml Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	Number of Containers	COMMENTS	
	Preservatives:	4°C	4°C	4°C	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C			
	Filtered:	NA	NA	NA	Lab	Lab	NA	NA	NA	NA			
	Holding Time:	7	7	7	180	180	1	28	1	7			
		ALKALINITY (SM2320B)	Anions (E300.0) Cl, SO4	CONDUCTIVITY (E120.1)	Diss Metals(E200.7) Ca,Mg,Na,Fe LabFill	Diss Metals(E200.8) Cr & Mn LabFill	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	SM3500-C16 LabFill	TDS (SM2540C)			
DATE	TIME	Matrix	X	X	X	X	X	X	X	X			
PE-01-232	7-7-15	10:41 10:50	Water	X	X	X	X	X	X	X		N016187-01	4
TW-03D-232	7-7-15	10:50	Water	X	X	X	X	X	X	X		-02	4
TOTAL NUMBER OF CONTAINERS											8		

Approved by		Signatures	Date/Time	Shipping Details
Sampled by			7-7-15 10:50	Method of Shipment: FedEx
Relinquished by			7-7-15 13:30	On Ice: <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no <i>2-6-02</i>
Received by			7-7-15 1330	Airbill No: <i>1242</i>
Relinquished by			7/7/15 1919	Lab Name: ASSET Laboratories
Received by				Lab Phone: (702) 307-2659

ATTN:

Sample Custody
and
Glen Gesmundo

Special Instructions:

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: 7/7/2015 Workorder: N016187
 Rep sample Temp (Deg C): 2.6 IR Gun ID: 2
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input checked="" type="checkbox"/>
Yes <input type="checkbox"/> | No <input type="checkbox"/>
No <input type="checkbox"/> | NA <input type="checkbox"/>
NA <input checked="" type="checkbox"/> |

Comments Samples were lab filtered and lab preserved.

Checklist Completed B JPG  07/08/15

Reviewed By:  07/13/15

List of Analysts

ASSET Laboratories Work Order: N016187

Item	Pages
Quennie Manimtim	EPA 300.0, SM 3500-CR B
Claire Ignacio	EPA 200.8
Ryan Balilu	EPA 218.6, SM 4500- NO3F
Hanah Glodoviza	EPA 200.7
Lilia Ramit	EPA 120.1,SM 2540C,SM 2320B



August 19, 2015

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.: N016514

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on August 04, 2015 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,



Glen Gesmundo
QA Manager

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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N016514

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium on QC samples N016514-002B-MS2 and N016514-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium on QC samples N016514-001B-MS1 and N016514-001B-MSD1 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:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Manganese on QC sample N016515-002E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 19-Aug-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N016514
Contract No: IM3PLANT-EW

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016514-001A	PE-01-233	Water	8/4/2015 9:05:00 AM	8/4/2015	8/19/2015
N016514-001B	PE-01-233	Water	8/4/2015 9:05:00 AM	8/4/2015	8/19/2015
N016514-001C	PE-01-233	Water	8/4/2015 9:05:00 AM	8/4/2015	8/19/2015
N016514-001D	PE-01-233	Water	8/4/2015 9:05:00 AM	8/4/2015	8/19/2015
N016514-002A	TW-03D-233	Water	8/4/2015 9:10:00 AM	8/4/2015	8/19/2015
N016514-002B	TW-03D-233	Water	8/4/2015 9:10:00 AM	8/4/2015	8/19/2015
N016514-002C	TW-03D-233	Water	8/4/2015 9:10:00 AM	8/4/2015	8/19/2015
N016514-002D	TW-03D-233	Water	8/4/2015 9:10:00 AM	8/4/2015	8/19/2015



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-233
Lab Order: N016514	Collection Date: 8/4/2015 9:05:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016514-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150805D	QC Batch: R101578			PrepDate			Analyst: LR
Specific Conductance	4300	0.10	0.10	umhos/cm	1		8/5/2015 03:35 PM

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL

Client Sample ID: TW-03D-233

Lab Order: N016514

Collection Date: 8/4/2015 9:10:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N016514-002

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150805D	QC Batch: R101578				PrepDate		Analyst: LR
Specific Conductance	7800	0.10	0.10		umhos/cm	1	8/5/2015 03:35 PM

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N016514-002ADUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 101578						
Client ID: ZZZZZZ	Batch ID: R101578	TestNo: EPA 120.1	Analysis Date: 8/5/2015	SeqNo: 2057676							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7780.000	0.10						7770	0.129	10	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-233
Lab Order: N016514	Collection Date: 8/4/2015 9:05:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016514-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_150805E	QC Batch: 51129			PrepDate	8/5/2015		Analyst: LR
Total Dissolved Solids (Residue, Filterable)	2500	33	33	mg/L	1		8/5/2015 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: 19-Aug-15

CLIENT: CH2M HILL **Client Sample ID:** TW-03D-233
Lab Order: N016514 **Collection Date:** 8/4/2015 9:10:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N016514-002

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

TOTAL FILTERABLE RESIDUE

SM2540C

RunID: **WETCHEM_150805E** QC Batch: **51129** PrepDate: **8/5/2015** Analyst: **LR**
Total Dissolved Solids (Residue, Filterable) 4600 50 50 mg/L 1 8/5/2015 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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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-51129	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 8/5/2015	RunNo: 101579						
Client ID: PBW	Batch ID: 51129	TestNo: SM2540C		Analysis Date: 8/5/2015	SeqNo: 2057679						
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-51129	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 8/5/2015	RunNo: 101579						
Client ID: LCSW	Batch ID: 51129	TestNo: SM2540C		Analysis Date: 8/5/2015	SeqNo: 2057680						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		992.000	10	1000	0	99.2	80	120			

Sample ID N016514-002A-DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 8/5/2015	RunNo: 101579						
Client ID: ZZZZZ	Batch ID: 51129	TestNo: SM2540C		Analysis Date: 8/5/2015	SeqNo: 2057688						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4465.000	50					4620	3.41	5	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL

Client Sample ID: PE-01-233

Lab Order: N016514

Collection Date: 8/4/2015 9:05:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N016514-001

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_150806B	QC Batch: 51122			PrepDate	8/5/2015	Analyst: CEI
Calcium	110000	31	500	µg/L	1	8/6/2015 01:41 PM
Iron	ND	17	20	µg/L	1	8/6/2015 01:41 PM
Magnesium	22000	86	100	µg/L	1	8/6/2015 01:41 PM
Sodium	780000	580	25000	µg/L	50	8/6/2015 10:34 AM

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL
Lab Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N016514-002

Client Sample ID: TW-03D-233
Collection Date: 8/4/2015 9:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_150806B	QC Batch: 51122			PrepDate	8/5/2015	Analyst: CEI
Calcium	210000	31	500	µg/L	1	8/6/2015 01:47 PM
Iron	ND	17	20	µg/L	1	8/6/2015 01:47 PM
Magnesium	25000	86	100	µg/L	1	8/6/2015 01:47 PM
Sodium	1400000	580	25000	µg/L	50	8/6/2015 10:38 AM

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



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPBB

Sample ID MB-51122	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101596						
Client ID: PBW	Batch ID: 51122	TestNo: EPA 200.7		Analysis Date: 8/6/2015	SeqNo: 2057999						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium	13.185	500									
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Sample ID LCS2-51122	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101596						
Client ID: LCSW	Batch ID: 51122	TestNo: EPA 200.7		Analysis Date: 8/6/2015	SeqNo: 2058000						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium	19894.604	500	20000	0	99.5	85	115				
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Sample ID N016514-002B-MS2	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101596						
Client ID: ZZZZZZ	Batch ID: 51122	TestNo: EPA 200.7		Analysis Date: 8/6/2015	SeqNo: 2058007						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium	1479549.253	25000	20000	1430000	249	75	125				S
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Sample ID N016514-002B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101596						
Client ID: ZZZZZZ	Batch ID: 51122	TestNo: EPA 200.7		Analysis Date: 8/6/2015	SeqNo: 2058008						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium	1480519.632	25000	20000	1430000	254	75	125	1480000	0.0656	20	S
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Sample ID MB-51122	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101597						
Client ID: PBW	Batch ID: 51122	TestNo: EPA 200.7		Analysis Date: 8/6/2015	SeqNo: 2058042						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	ND	500									
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Iron	ND	20									
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Magnesium	ND	100									
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Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
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- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGPPB

Sample ID	LCS1-51122	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101597					
Client ID:	LCSW	Batch ID: 51122	TestNo: EPA 200.7	Analysis Date: 8/6/2015	SeqNo: 2058043						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	8893.942	500	10000	0	88.9	85	115				
Iron	97.977	20	100.0	0	98.0	85	115				
Magnesium	9253.843	100	10000	0	92.5	85	115				

Sample ID	N016514-001B-MS1	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101597					
Client ID:	ZZZZZ	Batch ID: 51122	TestNo: EPA 200.7	Analysis Date: 8/6/2015	SeqNo: 2058049						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	120948.185	500	10000	106200	147	75	125				S
Iron	95.222	20	100.0	0	95.2	75	125				
Magnesium	30682.463	100	10000	21960	87.3	75	125				

Sample ID	N016514-001B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101597					
Client ID:	ZZZZZ	Batch ID: 51122	TestNo: EPA 200.7	Analysis Date: 8/6/2015	SeqNo: 2058050						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	120788.738	500	10000	106200	146	75	125	120900	0.132	20	S
Iron	95.786	20	100.0	0	95.8	75	125	95.22	0.590	20	
Magnesium	30925.300	100	10000	21960	89.7	75	125	30680	0.788	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: 19-Aug-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-233
Lab Order: N016514	Collection Date: 8/4/2015 9:05:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016514-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: ICP7_150806A	QC Batch: 51121	PrepDate	8/5/2015	Analyst: CEI
Manganese	57	0.023	0.50	µg/L
				1
				8/6/2015 12:36 PM

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-233
Lab Order: N016514	Collection Date: 8/4/2015 9:10:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016514-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: ICP7_150806A	QC Batch: 51121	PrepDate: 8/5/2015	Analyst: CEI
Manganese	ND 0.023 0.50	µg/L	1 8/6/2015 12:42 PM

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



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID MB-51121	SampType: MBLK	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101607
Client ID: PBW	Batch ID: 51121	TestNo: EPA 200.8		Analysis Date: 8/6/2015	SeqNo: 2058631
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Manganese	ND	0.50			
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Sample ID LCS-51121	SampType: LCS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101607
Client ID: LCSW	Batch ID: 51121	TestNo: EPA 200.8		Analysis Date: 8/6/2015	SeqNo: 2058632
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Manganese	95.818	0.50	100.0	0	95.8 85 115
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Sample ID N016515-002E-MS	SampType: MS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101607
Client ID: ZZZZZ	Batch ID: 51121	TestNo: EPA 200.8		Analysis Date: 8/6/2015	SeqNo: 2058647
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Manganese	222.556	2.5	100.0	98.61	124 75 125
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Sample ID N016515-002E-MSD	SampType: MSD	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101607
Client ID: ZZZZZ	Batch ID: 51121	TestNo: EPA 200.8		Analysis Date: 8/6/2015	SeqNo: 2058648
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Manganese	223.627	2.5	100.0	98.61	125 75 125 222.6 0.480 20 S
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Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-233
Lab Order: N016514	Collection Date: 8/4/2015 9:05:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016514-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150807A	QC Batch: R101594				PrepDate		Analyst: RB
Hexavalent Chromium	3.2	0.015	0.20		µg/L	1	8/7/2015 12:49 PM

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_150806A	QC Batch: 51121				PrepDate	8/5/2015	Analyst: CEI
Chromium	2.9	0.086	1.0		µg/L	1	8/6/2015 12:36 PM

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-233
Lab Order: N016514	Collection Date: 8/4/2015 9:10:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016514-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_150813D	QC Batch: R101697				PrepDate		Analyst: QBM
Chromium, Hexavalent	710	2.8	20		µg/L	2	8/13/2015

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_150806A	QC Batch: 51121				PrepDate	8/5/2015	Analyst: CEI
Chromium	670	0.43	5.0		µg/L	5	8/6/2015 02:01 PM

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



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID MB-51121	SampType: MBLK	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101607
Client ID: PBW	Batch ID: 51121	TestNo: EPA 200.8		Analysis Date: 8/6/2015	SeqNo: 2058599
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium	ND	1.0			
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Sample ID LCS-51121	SampType: LCS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101607
Client ID: LCSW	Batch ID: 51121	TestNo: EPA 200.8		Analysis Date: 8/6/2015	SeqNo: 2058600
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium	9.620	1.0	10.00	0	96.2 85 115
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Sample ID N016515-002E-MS	SampType: MS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101607
Client ID: ZZZZZ	Batch ID: 51121	TestNo: EPA 200.8		Analysis Date: 8/6/2015	SeqNo: 2058611
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium	11.281	1.0	10.00	0.9105	104 75 125
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Sample ID N016515-002E-MSD	SampType: MSD	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 8/5/2015	RunNo: 101607
Client ID: ZZZZZ	Batch ID: 51121	TestNo: EPA 200.8		Analysis Date: 8/6/2015	SeqNo: 2058612
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium	11.215	1.0	10.00	0.9105	103 75 125 11.28 0.584 20
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Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N016514-001CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101594						
Client ID: ZZZZZZ	Batch ID: R101594	TestNo: EPA 218.6	Analysis Date: 8/7/2015	SeqNo: 2059974							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.269	0.20	1.000	3.238	103	90	110				

Sample ID N016515-001BMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101594						
Client ID: ZZZZZZ	Batch ID: R101594	TestNo: EPA 218.6	Analysis Date: 8/7/2015	SeqNo: 2060655							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	774.570	10	250.0	534.5	96.0	90	110				

Sample ID N016515-002CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 101594						
Client ID: ZZZZZZ	Batch ID: R101594	TestNo: EPA 218.6	Analysis Date: 8/7/2015	SeqNo: 2060657							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.179	0.20	1.000	0.1430	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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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID LCS-R101697	SampType: LCS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101697						
Client ID: LCSW	Batch ID: R101697	TestNo: SM 3500-Cr B		Analysis Date: 8/13/2015	SeqNo: 2062235						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	96.761	10	100.0	0	96.8	85	115				

Sample ID MB-R101697	SampType: MBLK	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101697						
Client ID: PBW	Batch ID: R101697	TestNo: SM 3500-Cr B		Analysis Date: 8/13/2015	SeqNo: 2062236						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	10									

Sample ID N016514-002CDUP	SampType: DUP	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101697						
Client ID: ZZZZZ	Batch ID: R101697	TestNo: SM 3500-Cr B		Analysis Date: 8/13/2015	SeqNo: 2062238						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	707.224	20						707.5	0.0452	20	

Sample ID N016514-002CMS	SampType: MS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101697						
Client ID: ZZZZZ	Batch ID: R101697	TestNo: SM 3500-Cr B		Analysis Date: 8/13/2015	SeqNo: 2062239						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1196.018	20	500.0	707.5	97.7	85	115				

Sample ID N016514-002CMSD	SampType: MSD	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 101697						
Client ID: ZZZZZ	Batch ID: R101697	TestNo: SM 3500-Cr B		Analysis Date: 8/13/2015	SeqNo: 2062240						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1192.428	20	500.0	707.5	97.0	85	115	1196	0.301	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: 19-Aug-15

CLIENT: CH2M HILL

Client Sample ID: PE-01-233

Lab Order: N016514

Collection Date: 8/4/2015 9:05:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N016514-001

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_150806A	QC Batch: R101580				PrepDate	Analyst: LR	
Alkalinity, Bicarbonate (As CaCO3)	210	1.2	5.0		mg/L	1	8/6/2015 09:10 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	8/6/2015 09:10 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	8/6/2015 09:10 AM
Alkalinity, Total (As CaCO3)	210	1.2	5.0		mg/L	1	8/6/2015 09:10 AM

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL

Client Sample ID: TW-03D-233

Lab Order: N016514

Collection Date: 8/4/2015 9:10:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N016514-002

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_150806A	QC Batch: R101580				PrepDate	Analyst: LR	
Alkalinity, Bicarbonate (As CaCO3)	130	1.2	5.0		mg/L	1	8/6/2015 09:10 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	8/6/2015 09:10 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	8/6/2015 09:10 AM
Alkalinity, Total (As CaCO3)	130	1.2	5.0		mg/L	1	8/6/2015 09:10 AM

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



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID	LCS-R101580	SampType:	LCS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	101580			
Client ID:	LCSW	Batch ID:	R101580	TestNo:	SM 2320 B			Analysis Date:	8/6/2015	SeqNo:	2057695			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)		97.162		5.0	100.0	0		97.2	85	115				
Alkalinity, Total (As CaCO3)		99.345		5.0	100.0	0		99.3	85	115				

Sample ID	MB-R101580	SampType:	MBLK	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	101580			
Client ID:	PBW	Batch ID:	R101580	TestNo:	SM 2320 B			Analysis Date:	8/6/2015	SeqNo:	2057696			
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	N016514-001A DUP	SampType:	DUP	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	101580			
Client ID:	ZZZZZ	Batch ID:	R101580	TestNo:	SM 2320 B			Analysis Date:	8/6/2015	SeqNo:	2057698			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)		209.607		5.0							207.4	1.05	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)		209.607		5.0							207.4	1.05	30	

Sample ID	N016514-002AMS	SampType:	MS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	101580			
Client ID:	ZZZZZ	Batch ID:	R101580	TestNo:	SM 2320 B			Analysis Date:	8/6/2015	SeqNo:	2057700			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)		235.808		5.0	100.0	133.2		103	75	125				
Alkalinity, Total (As CaCO3)		235.808		5.0	100.0	133.2		103	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID N016514-002AMSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 101580						
Client ID: ZZZZZZ	Batch ID: R101580	TestNo: SM 2320 B		Analysis Date: 8/6/2015	SeqNo: 2057701						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	235.808	5.0	100.0	133.2	103	75	125	235.8	0	20	
Alkalinity, Total (As CaCO3)	235.808	5.0	100.0	133.2	103	75	125	235.8	0	20	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-233
Lab Order: N016514	Collection Date: 8/4/2015 9:05:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016514-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150811A	QC Batch: R101659				PrepDate		Analyst: QBM
Chloride	960	6.3	100		mg/L	200	8/11/2015 02:11 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150811A	QC Batch: R101659				PrepDate		Analyst: QBM
Sulfate	350	1.6	25		mg/L	50	8/11/2015 02:40 PM

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL
Lab Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N016514-002

Client Sample ID: TW-03D-233
Collection Date: 8/4/2015 9:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150811A	QC Batch: R101659				PrepDate		Analyst: QBM
Chloride	2200	16	250		mg/L	500	8/11/2015 02:25 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150811A	QC Batch: R101659				PrepDate		Analyst: QBM
Sulfate	470	3.3	50		mg/L	100	8/11/2015 02:55 PM

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



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	LCS-R101659_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101659			
Client ID:	LCSW	Batch ID:	R101659	TestNo:	EPA 300.0			Analysis Date:	8/11/2015	SeqNo:	2060901			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		2.458		0.50	2.500	0		98.3	90	110				

Sample ID	MB-R101659_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101659			
Client ID:	PBW	Batch ID:	R101659	TestNo:	EPA 300.0			Analysis Date:	8/11/2015	SeqNo:	2060902			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		ND		0.50										

Sample ID	N016522-015CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101659			
Client ID:	ZZZZZ	Batch ID:	R101659	TestNo:	EPA 300.0			Analysis Date:	8/11/2015	SeqNo:	2060913			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		112.260		10	50.00	65.06		94.4	80	120				

Sample ID	N016522-015CMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101659			
Client ID:	ZZZZZ	Batch ID:	R101659	TestNo:	EPA 300.0			Analysis Date:	8/11/2015	SeqNo:	2060914			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		110.460		10	50.00	65.06		90.8	80	120	112.3	1.62	20	

Sample ID	N016523-001CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101659			
Client ID:	ZZZZZ	Batch ID:	R101659	TestNo:	EPA 300.0			Analysis Date:	8/11/2015	SeqNo:	2060916			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		52.590		5.0							52.31	0.534	20	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	N016523-007CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:	RunNo:		
Client ID:	ZZZZZZ	Batch ID:	R101659	TestNo:	EPA 300.0			Analysis Date:	8/11/2015	SeqNo:	2060931
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val
Chloride		62.940		5.0	25.00	38.90		96.2	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 | |



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CLIENT: CH2M HILL
Work Order: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	LCS-R101659_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 101659
Client ID:	LCSW	Batch ID: R101659	TestNo: EPA 300.0	Analysis Date: 8/11/2015	SeqNo: 2060938	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sulfate	4.932	0.50	5.000	0	98.6	90 110

Sample ID	MB-R101659_SO4	SampType: MBLK	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 101659
Client ID:	PBW	Batch ID: R101659	TestNo: EPA 300.0	Analysis Date: 8/11/2015	SeqNo: 2060939	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sulfate	ND	0.50				

Sample ID	N016522-015CMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 101659
Client ID:	ZZZZZZ	Batch ID: R101659	TestNo: EPA 300.0	Analysis Date: 8/11/2015	SeqNo: 2060953	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sulfate	285.660	10	100.0	189.9	95.7	80 120

Sample ID	N016522-015CMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 101659
Client ID:	ZZZZZZ	Batch ID: R101659	TestNo: EPA 300.0	Analysis Date: 8/11/2015	SeqNo: 2060954	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sulfate	286.360	10	100.0	189.9	96.4	80 120 285.7 0.245 20

Sample ID	N016523-001CDUP	SampType: DUP	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 101659
Client ID:	ZZZZZZ	Batch ID: R101659	TestNo: EPA 300.0	Analysis Date: 8/11/2015	SeqNo: 2060956	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sulfate	49.870	5.0				51.27 2.77 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: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	N016523-007CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	101659		
Client ID:	ZZZZZZ	Batch ID:	R101659	TestNo:	EPA 300.0			Analysis Date:	8/11/2015	SeqNo:	2060963		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		128.790		5.0	50.00	79.55	98.5	80	120				

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 19-Aug-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-233
Lab Order: N016514	Collection Date: 8/4/2015 9:05:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016514-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150817D	QC Batch: R101745			PrepDate			Analyst: RB
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	8/17/2015

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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: 19-Aug-15

CLIENT: CH2M HILL **Client Sample ID:** TW-03D-233
Lab Order: N016514 **Collection Date:** 8/4/2015 9:10:00 AM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N016514-002

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: **WETCHEM_150817D** QC Batch: **R101745** PrepDate Analyst: **RB**
Nitrate/Nitrite as N 3.3 0.11 0.25 mg/L 5 8/17/2015

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
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: N016514
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R101745	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101745
Client ID: PBW	Batch ID: R101745	TestNo: SM4500-NO3		Analysis Date: 8/17/2015	SeqNo: 2064236
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-R101745	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101745
Client ID: LCSW	Batch ID: R101745	TestNo: SM4500-NO3		Analysis Date: 8/17/2015	SeqNo: 2064237
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.487 0.050 0.5000 0 97.3 85 115

Sample ID N016514-001DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101745
Client ID: ZZZZZ	Batch ID: R101745	TestNo: SM4500-NO3		Analysis Date: 8/17/2015	SeqNo: 2064239
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N ND 0.050 0 0 20

Sample ID N016514-001DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101745
Client ID: ZZZZZ	Batch ID: R101745	TestNo: SM4500-NO3		Analysis Date: 8/17/2015	SeqNo: 2064240
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.536 0.050 0.5000 0 107 75 125

Sample ID N016514-001DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 101745
Client ID: ZZZZZ	Batch ID: R101745	TestNo: SM4500-NO3		Analysis Date: 8/17/2015	SeqNo: 2064241
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.520 0.050 0.5000 0 104 75 125 0.5356 2.94 20

Qualifiers:

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



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Project Name PG&E Topock Location Topock Project Number 658274.01.IM.OP.00 Project Manager Scott O'Donnell Sample Manager Shawn Duffy Task Order Project IM3PLANT-EW-233 Turnaround Time 10 Days Shipping Date: COC Number: 233			Containers:		1 Liter Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	250 ml Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	Number of Containers	COMMENTS	
			Preservatives:		4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C Lab H2SO4	4°C			4°C
			Filtered:		NA	NA	NA	Lab	Lab	NA	NA	NA	NA			NA
			Holding Time:		7	7	7	180	180	1	28	1	7			
					ALKALINITY (SM2320B)	Anions (E300.0) Cl, SO4	CONDUCTIVITY (E120.1)	Diss Metals(E200.7) LabFill Ca, Mg, Na, Fe	Diss Metals(E200.8) Cr & Mn LabFill	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	SM3500-Cr6 LabFill	TDS (SM2540C)			
	DATE	TIME	Matrix													
PE-01-233	8-4-15	9:05	Water	X	X	X	X	X	X	X	X	X	X		NOIG514-01	
TW-03D-233	8-4-15	9:10	Water	X	X	X	X	X	X	X	X	X	X		-02	
TOTAL NUMBER OF CONTAINERS													8			

Approved by		Signatures	8-4-15 9:05	Date/Time	Method of Shipment: FedEx	Shipping Details
Sampled by			8-4-15 13:05		On Ice: Yes / no 3-1 st	
Relinquished by			8/4/15 1305		Airbill No: 1242	
Received by			8/4/15 1800		Lab Name: ASSET Laboratories	
Relinquished by					Lab Phone: (702) 307-2659	

ATTN:

Sample Custody and Glen Gesmundo

Special Instructions:

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: 8/4/2015 Workorder: N016514
 Rep sample Temp (Deg C): 3.1 IR Gun ID: 2
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments Samples were lab filtered and preserved.

Checklist Completed B JPG  08/05/15

Reviewed By:  08/13/15

WORKORDER: N016514

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	SM 3500-CR B, EPA 300.0
Ryan Balilu	EPA 218.6, SM4500-NO3F
Claire Ignacio	EPA 200.7, EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2320B



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September 15, 2015

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.: N016778

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 01, 2015 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,



Glen Gesmundo
QA Manager

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CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N016778

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.7_Dissolved:

Dilution was necessary on samples due to matrix.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium on QC samples N016778-002B-MS2 and N016778-002B-MSD2 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 (1.4 ug/L) and hexavalent chromium (0.43 ug/L) for sample N016778-001 (PE-01-234) 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 1.6 and 0.46 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (1.4 ug/L) and hexavalent chromium (0.43 ug/L) for sample N016778-001 (PE-01-234) are discrepant, Matrix Spike protocol was performed and the spike recovery is within criteria.



ASSET Laboratories

Date: 15-Sep-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N016778
Contract No: IM3PLANT-EW

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016778-001A	PE-01-234	Water	9/1/2015 12:35:00 PM	9/1/2015	9/15/2015
N016778-001B	PE-01-234	Water	9/1/2015 12:35:00 PM	9/1/2015	9/15/2015
N016778-001C	PE-01-234	Water	9/1/2015 12:35:00 PM	9/1/2015	9/15/2015
N016778-001D	PE-01-234	Water	9/1/2015 12:35:00 PM	9/1/2015	9/15/2015
N016778-002A	TW-03D-234	Water	9/1/2015 12:30:00 PM	9/1/2015	9/15/2015
N016778-002B	TW-03D-234	Water	9/1/2015 12:30:00 PM	9/1/2015	9/15/2015
N016778-002C	TW-03D-234	Water	9/1/2015 12:30:00 PM	9/1/2015	9/15/2015
N016778-002D	TW-03D-234	Water	9/1/2015 12:30:00 PM	9/1/2015	9/15/2015



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-234
Lab Order: N016778	Collection Date: 9/1/2015 12:35:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150902F	QC Batch: R102000			PrepDate			Analyst: LR
Specific Conductance	4100	0.10	0.10	umhos/cm	1		9/2/2015 11:15 AM

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-234
Lab Order: N016778	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150902F	QC Batch: R102000			PrepDate			Analyst: LR
Specific Conductance	7700	0.10	0.10	umhos/cm	1		9/2/2015 11:15 AM

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



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N016778-002ADUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 102000						
Client ID: ZZZZZZ	Batch ID: R102000	TestNo: EPA 120.1	Analysis Date: 9/2/2015	SeqNo: 2078060							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7720.000	0.10						7700	0.259	10	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-234
Lab Order: N016778	Collection Date: 9/1/2015 12:35:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_150902D	QC Batch: 51350			PrepDate	9/2/2015	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	2500	33	33	mg/L	1	9/2/2015 02:10 PM

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL **Client Sample ID:** TW-03D-234
Lab Order: N016778 **Collection Date:** 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N016778-002

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

TOTAL FILTERABLE RESIDUE

SM2540C

RunID: **WETCHEM_150902D** QC Batch: **51350** PrepDate: **9/2/2015** Analyst: **LR**
Total Dissolved Solids (Residue, Filterable) 4400 50 50 mg/L 1 9/2/2015 02:10 PM

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



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-51350	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 9/2/2015	RunNo: 101995						
Client ID: PBW	Batch ID: 51350	TestNo: SM2540C		Analysis Date: 9/2/2015	SeqNo: 2078009						
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-51350	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 9/2/2015	RunNo: 101995						
Client ID: LCSW	Batch ID: 51350	TestNo: SM2540C		Analysis Date: 9/2/2015	SeqNo: 2078010						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		990.000	10	1000	0	99.0	80	120			

Sample ID N016778-002A DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 9/2/2015	RunNo: 101995						
Client ID: ZZZZZ	Batch ID: 51350	TestNo: SM2540C		Analysis Date: 9/2/2015	SeqNo: 2078013						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4500.000	50					4390	2.47	5	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-234
Lab Order: N016778	Collection Date: 9/1/2015 12:35:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_150903C	QC Batch: 51352			PrepDate	9/2/2015	Analyst: CEI
Calcium	110000	150	2500	µg/L	5	9/3/2015 04:37 PM
Iron	ND	86	100	µg/L	5	9/3/2015 04:37 PM
Magnesium	23000	430	500	µg/L	5	9/3/2015 04:37 PM
Sodium	760000	290	12000	µg/L	25	9/3/2015 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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ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL
Lab Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N016778-002

Client Sample ID: TW-03D-234
Collection Date: 9/1/2015 12:30:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_150903C	QC Batch: 51352	PrepDate	9/2/2015	Analyst: CEI		
Calcium	200000	150	2500	µg/L	5	9/3/2015 04:42 PM
Iron	ND	86	100	µg/L	5	9/3/2015 04:42 PM
Magnesium	27000	430	500	µg/L	5	9/3/2015 04:42 PM
Sodium	1400000	1200	50000	µg/L	100	9/3/2015 08:13 AM

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



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPBB

Sample ID MB-51352	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102002
Client ID: PBW	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078098
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sodium	ND	500			

Sample ID LCS2-51352	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102002
Client ID: LCSW	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078099
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sodium	19885.875	500	20000	0	99.4 85 115

Sample ID N016778-002B-MS2	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102002
Client ID: ZZZZZZ	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078109
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sodium	1442665.831	50000	20000	1357000	427 75 125 S

Sample ID N016778-002B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102002
Client ID: ZZZZZZ	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078110
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sodium	1474778.206	50000	20000	1357000	588 75 125 1443000 2.20 20 S

Sample ID MB-51352	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102006
Client ID: PBW	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078686
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Calcium	ND	500			
Iron	ND	20			
Magnesium	ND	100			

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGPPB

Sample ID	LCS1-51352	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102006					
Client ID:	LCSW	Batch ID: 51352	TestNo: EPA 200.7	Analysis Date: 9/3/2015	SeqNo: 2078687						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9084.571	500	10000	0	90.8	85	115				
Iron	94.716	20	100.0	0	94.7	85	115				
Magnesium	9387.910	100	10000	0	93.9	85	115				

Sample ID	N016778-001B-MS1	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102006					
Client ID:	ZZZZZ	Batch ID: 51352	TestNo: EPA 200.7	Analysis Date: 9/3/2015	SeqNo: 2078694						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	116507.882	2500	10000	105500	110	75	125				
Iron	90.332	100	100.0	0	90.3	75	125				
Magnesium	32446.197	500	10000	22530	99.2	75	125				

Sample ID	N016778-001B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102006					
Client ID:	ZZZZZ	Batch ID: 51352	TestNo: EPA 200.7	Analysis Date: 9/3/2015	SeqNo: 2078697						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	116352.530	2500	10000	105500	109	75	125	116500	0.133	20	
Iron	89.799	100	100.0	0	89.8	75	125	90.33	0	20	
Magnesium	32400.423	500	10000	22530	98.7	75	125	32450	0.141	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: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-234
Lab Order: N016778	Collection Date: 9/1/2015 12:35:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: ICP7_150902B	QC Batch: 51346	PrepDate	9/2/2015	Analyst: CEI
Manganese	79 0.023 0.50	µg/L	1	9/2/2015 06:14 PM

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL **Client Sample ID:** TW-03D-234
Lab Order: N016778 **Collection Date:** 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N016778-002

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

DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: **ICP7_150902B** QC Batch: **51346** PrepDate: **9/2/2015** Analyst: **CEI**
Manganese 9.8 0.023 0.50 µg/L 1 9/2/2015 06:42 PM

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



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID MB-51346	SampType: MBLK	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: PBW	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078193
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	ND	0.50			

Sample ID LCS-51346	SampType: LCS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: LCSW	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078194
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	102.761	0.50	100.0	0	103 85 115

Sample ID N016778-001B-MS	SampType: MS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: ZZZZZ	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078198
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	175.859	0.50	100.0	79.21	96.6 75 125

Sample ID N016778-001B-MSD	SampType: MSD	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: ZZZZZ	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078199
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	176.291	0.50	100.0	79.21	97.1 75 125 175.9 0.246 20

Qualifiers:

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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-234
Lab Order: N016778	Collection Date: 9/1/2015 12:35:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150904A	QC Batch: R102019				PrepDate		Analyst: RB
Hexavalent Chromium	0.43	0.015	0.20		µg/L	1	9/4/2015 01:26 PM

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_150902B	QC Batch: 51346				PrepDate	9/2/2015	Analyst: CEI
Chromium	1.4	0.086	1.0		µg/L	1	9/2/2015 06:14 PM

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-234
Lab Order: N016778	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_150914C	QC Batch: R102129				PrepDate		Analyst: QBM
Chromium, Hexavalent	720	2.8	20		µg/L	2	9/14/2015

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_150902B	QC Batch: 51346				PrepDate	9/2/2015	Analyst: CEI
Chromium	720	0.43	5.0		µg/L	5	9/2/2015 07:24 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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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID MB-51346	SampType: MBLK	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: PBW	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078135
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	ND	1.0			

Sample ID LCS-51346	SampType: LCS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: LCSW	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078136
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	10.264	1.0	10.00	0	103 85 115

Sample ID N016778-001B-MS	SampType: MS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: ZZZZZ	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078140
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	11.041	1.0	10.00	1.370	96.7 75 125

Sample ID N016778-001B-MSD	SampType: MSD	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: ZZZZZ	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078141
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	11.093	1.0	10.00	1.370	97.2 75 125 11.04 0.468 20

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R102019	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102019						
Client ID: PBW	Batch ID: R102019	TestNo: EPA 218.6		Analysis Date: 9/4/2015	SeqNo: 2079898						
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-R102019	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102019						
Client ID: LCSW	Batch ID: R102019	TestNo: EPA 218.6		Analysis Date: 9/4/2015	SeqNo: 2079899						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.865 0.20 5.000 0 97.3 90 110

Sample ID N016781-001ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102019						
Client ID: ZZZZZ	Batch ID: R102019	TestNo: EPA 218.6		Analysis Date: 9/4/2015	SeqNo: 2079921						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 166.338 4.0 163.5 1.72 20

Sample ID N016781-001AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102019						
Client ID: ZZZZZ	Batch ID: R102019	TestNo: EPA 218.6		Analysis Date: 9/4/2015	SeqNo: 2079922						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 263.218 4.0 100.0 163.5 99.7 90 110

Sample ID N016781-001AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102019						
Client ID: ZZZZZ	Batch ID: R102019	TestNo: EPA 218.6		Analysis Date: 9/4/2015	SeqNo: 2079923						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 266.732 4.0 100.0 163.5 103 90 110 263.2 1.33 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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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N016778-001CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102019						
Client ID: ZZZZZZ	Batch ID: R102019	TestNo: EPA 218.6	Analysis Date: 9/4/2015	SeqNo: 2079926							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.458	0.20	1.000	0.4334	103	90	110				

Sample ID N016780-002CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102019						
Client ID: ZZZZZZ	Batch ID: R102019	TestNo: EPA 218.6	Analysis Date: 9/4/2015	SeqNo: 2079927							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.100	0.20	1.000	0.1121	98.8	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 | |



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID LCS-R102129	SampType: LCS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129						
Client ID: LCSW	Batch ID: R102129	TestNo: SM 3500-Cr B		Analysis Date: 9/14/2015	SeqNo: 2083890						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	95.085	10	100.0	0	95.1	85	115				

Sample ID MB-R102129	SampType: MBLK	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129						
Client ID: PBW	Batch ID: R102129	TestNo: SM 3500-Cr B		Analysis Date: 9/14/2015	SeqNo: 2083891						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	10									

Sample ID N016779-001DDUP	SampType: DUP	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129						
Client ID: ZZZZZ	Batch ID: R102129	TestNo: SM 3500-Cr B		Analysis Date: 9/14/2015	SeqNo: 2083893						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	335.372	10						334.9	0.147	20	

Sample ID N016778-002CMS	SampType: MS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129						
Client ID: ZZZZZ	Batch ID: R102129	TestNo: SM 3500-Cr B		Analysis Date: 9/14/2015	SeqNo: 2083895						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1191.248	20	500.0	723.3	93.6	85	115				

Sample ID N016778-002CMSD	SampType: MSD	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129						
Client ID: ZZZZZ	Batch ID: R102129	TestNo: SM 3500-Cr B		Analysis Date: 9/14/2015	SeqNo: 2083896						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1220.532	20	500.0	723.3	99.4	85	115	1191	2.43	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: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-234
Lab Order: N016778	Collection Date: 9/1/2015 12:35:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_150902G	QC Batch: R102001			PrepDate		Analyst: LR
Alkalinity, Bicarbonate (As CaCO3)	200	1.2	5.0	mg/L	1	9/2/2015 10:30 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	9/2/2015 10:30 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	9/2/2015 10:30 AM
Alkalinity, Total (As CaCO3)	200	1.2	5.0	mg/L	1	9/2/2015 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	



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-234
Lab Order: N016778	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_150902G	QC Batch: R102001			PrepDate		Analyst: LR
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0	mg/L	1	9/2/2015 10:30 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	9/2/2015 10:30 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	9/2/2015 10:30 AM
Alkalinity, Total (As CaCO3)	140	1.2	5.0	mg/L	1	9/2/2015 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	



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID LCS-R102001	SampType: LCS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: LCSW	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078064						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	98.913	5.0	100.0	0	98.9	85	115				
Alkalinity, Total (As CaCO3)	101.087	5.0	100.0	0	101	85	115				

Sample ID MB-R102001	SampType: MBLK	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: PBW	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078065						
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 N016778-001ADUP	SampType: DUP	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: ZZZZZ	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078067						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	203.261	5.0						202.2	0.536	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)	203.261	5.0						202.2	0.536	30	

Sample ID N016778-002AMS	SampType: MS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: ZZZZZ	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078069						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	232.609	5.0	100.0	135.9	96.7	75	125				
Alkalinity, Total (As CaCO3)	232.609	5.0	100.0	135.9	96.7	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID N016778-002AMSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: ZZZZZZ	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078070						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	234.783	5.0	100.0	135.9	98.9	75	125	232.6	0.930	20	
Alkalinity, Total (As CaCO3)	234.783	5.0	100.0	135.9	98.9	75	125	232.6	0.930	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: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-234
Lab Order: N016778	Collection Date: 9/1/2015 12:35:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150902A	QC Batch: R101980				PrepDate		Analyst: QBM
Chloride	970	6.3	100		mg/L	200	9/2/2015 01:25 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150902A	QC Batch: R101980				PrepDate		Analyst: QBM
Sulfate	370	1.6	25		mg/L	50	9/2/2015 03:25 PM

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-234
Lab Order: N016778	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150902A	QC Batch: R101980				PrepDate		Analyst: QBM
Chloride	2200	16	250		mg/L	500	9/2/2015 01:56 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150902A	QC Batch: R101980				PrepDate		Analyst: QBM
Sulfate	510	3.3	50		mg/L	100	9/2/2015 07:41 PM

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



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CLIENT: CH2M HILL
Work Order: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R101980_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	PBW	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077443			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		ND		0.50										
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Sample ID	LCS-R101980_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	LCSW	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077444			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		2.578		0.50	2.500	0		103	90	110				
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Sample ID	N016778-001ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	ZZZZZ	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077446			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		993.800		100						973.0		2.12	20	
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Sample ID	N016778-002AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	ZZZZZ	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077450			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		3404.000		250	1250	2175		98.3	80	120				
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Sample ID	N016778-002AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	ZZZZZ	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077451			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		3361.000		250	1250	2175		94.9	80	120	3404	1.27	20	
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Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL **Client Sample ID:** PE-01-234
Lab Order: N016778 **Collection Date:** 9/1/2015 12:35:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N016778-001

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: **WETCHEM_150911D** QC Batch: **R102103** PrepDate Analyst: **RB**
Nitrate/Nitrite as N ND 0.022 0.050 mg/L 1 9/11/2015

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
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: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-234
Lab Order: N016778	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016778-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150911D	QC Batch: R102103			PrepDate			Analyst: RB
Nitrate/Nitrite as N	3.5	0.11	0.25	mg/L	5		9/11/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: N016778
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R102103	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: PBW	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083106
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-R102103	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: LCSW	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083107
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.494	0.050	0.5000	0	98.8 85 115

Sample ID N016778-002DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: ZZZZZ	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083111
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	3.370	0.25			3.496 3.69 20

Sample ID N016778-002DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: ZZZZZ	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083112
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	6.344	0.25	2.500	3.496	114 75 125

Sample ID N016778-002DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: ZZZZZ	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083113
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	6.217	0.25	2.500	3.496	109 75 125 6.344 2.02 20

Qualifiers:

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



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Project Name PG&E Topock Location Topock Project Number 658274.01.IM.OP.00 Project Manager Scott O'Donnell Sample Manager Shawn Duffy Task Order Project IM3PLANT-EW-234 Turnaround Time 10 Days Shipping Date: COC Number: 234	Container:	1 Liter Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	250 ml Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	Number of Containers	COMMENTS	
	Preservatives:	4°C	4°C	4°C	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C			
	Filtered:	NA	NA	NA	Lab	Lab	NA	NA	NA	NA			
	Holding Time:	7	7	7	180	180	1	28	1	7			
		ALKALINITY (SM2320B)	Anions (E300.0) Cl, SO4	CONDUCTIVITY (E120.1)	Diss Metals(E200.7) LabFill: Ca, Mg, Na, Fe	Diss Metals(E200.8) Cr & Mn LabFill	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	SM3500-Cr6 LabFill	TDS (SM2540C)			
DATE	TIME	Matrix											
PE-01-234	9-1-15	1235	Water	X	X	X	X	X	X	X		N 016778-1	4
TW-03D-234	9-1-15	1230	Water	X	X	X	X	X	X	X		L -2	4
TOTAL NUMBER OF CONTAINERS											8		

Approved by Sampled by <i>Rob Phillips & Josh Rosenberg</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i>	Signatures Date/Time 9-1-15 1230 9-1-15 1300 9/1/15 1300 9/1/15 1300 9/1/15 1300	Shipping Details Method of Shipment: FedEx On Ice: <input checked="" type="checkbox"/> yes / no <i>[initials]</i> Airbill No: Lab Name: ASSET Laboratories Lab Phone: (702) 307-2659	ATTN: Sample Custody and Glen Gesmundo	Special Instructions: Report Copy to Shawn Duffy (530) 229-3303
--	--	---	---	--

ASSET Laboratories

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

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 9/1/2015 Workorder: N016778
 Rep sample Temp (Deg C): 2.1 IR Gun ID: 2
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments: Samples for dissolved metals are lab filtered and preserved

Checklist Completed By: MBC for YRJ 9/2/2015

Reviewed By:  09/08/15

List of Analysts

ASSET Laboratories Work Order: N016778

Item	Pages
Quennie Manimtim	EPA 300.0, SM 3500-CR B
Claire Ignacio	EPA 200.8,EPA 200.7
Ryan Balilu	EPA 218.6, SM 4500- NO3F
Lilia Ramit	EPA 120.1,SM 2540C,SM 2320B



September 15, 2015

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.: N016779

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 01, 2015 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,



Glen Gesmundo
QA Manager

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.



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N016779

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium on QC samples N016778-002B-MS2 and N016778-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 15-Sep-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N016779
Contract No: IM3PLANT-EW

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016779-001A	TW-02S-234	Water	9/1/2015 12:30:00 PM	9/1/2015	9/15/2015
N016779-001B	TW-02S-234	Water	9/1/2015 12:30:00 PM	9/1/2015	9/15/2015
N016779-001C	TW-02S-234	Water	9/1/2015 12:30:00 PM	9/1/2015	9/15/2015
N016779-001D	TW-02S-234	Water	9/1/2015 12:30:00 PM	9/1/2015	9/15/2015



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-02S-234
Lab Order: N016779	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016779-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150902F	QC Batch: R102000				PrepDate		Analyst: LR
Specific Conductance	2400	0.10	0.10		umhos/cm	1	9/2/2015 11:15 AM

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



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N016778-002ADUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 102000						
Client ID: ZZZZZZ	Batch ID: R102000	TestNo: EPA 120.1		Analysis Date: 9/2/2015	SeqNo: 2078060						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7720.000	0.10						7700	0.259	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: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-02S-234
Lab Order: N016779	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016779-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_150902D	QC Batch: 51350			PrepDate	9/2/2015	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	1400	17	17	mg/L	1	9/2/2015 02:10 PM

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



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-51350	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 9/2/2015	RunNo: 101995						
Client ID: PBW	Batch ID: 51350	TestNo: SM2540C		Analysis Date: 9/2/2015	SeqNo: 2078009						
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-51350	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 9/2/2015	RunNo: 101995						
Client ID: LCSW	Batch ID: 51350	TestNo: SM2540C		Analysis Date: 9/2/2015	SeqNo: 2078010						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		990.000	10	1000	0	99.0	80	120			

Sample ID N016778-002A DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 9/2/2015	RunNo: 101995						
Client ID: ZZZZZ	Batch ID: 51350	TestNo: SM2540C		Analysis Date: 9/2/2015	SeqNo: 2078013						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4500.000	50					4390	2.47	5	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL
Lab Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N016779-001

Client Sample ID: TW-02S-234
Collection Date: 9/1/2015 12:30:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_150903C	QC Batch: 51352	PrepDate	9/2/2015	Analyst: CEI		
Calcium	82000	31	500	µg/L	1	9/3/2015 04:51 PM
Iron	28	17	20	µg/L	1	9/3/2015 04:51 PM
Magnesium	20000	86	100	µg/L	1	9/3/2015 04:51 PM
Sodium	370000	290	12000	µg/L	25	9/3/2015 08:37 AM

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



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPBB

Sample ID MB-51352	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102002
Client ID: PBW	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078098
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sodium	ND	500			

Sample ID LCS2-51352	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102002
Client ID: LCSW	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078099
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sodium	19885.875	500	20000	0	99.4 85 115

Sample ID N016778-002B-MS2	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102002
Client ID: ZZZZZZ	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078109
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sodium	1442665.831	50000	20000	1357000	427 75 125 S

Sample ID N016778-002B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102002
Client ID: ZZZZZZ	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078110
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Sodium	1474778.206	50000	20000	1357000	588 75 125 1443000 2.20 20 S

Sample ID MB-51352	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102006
Client ID: PBW	Batch ID: 51352	TestNo: EPA 200.7		Analysis Date: 9/3/2015	SeqNo: 2078686
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Calcium	ND	500			
Iron	ND	20			
Magnesium	ND	100			

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGPPB

Sample ID	LCS1-51352	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102006					
Client ID:	LCSW	Batch ID: 51352	TestNo: EPA 200.7	Analysis Date: 9/3/2015	SeqNo: 2078687						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9084.571	500	10000	0	90.8	85	115				
Iron	94.716	20	100.0	0	94.7	85	115				
Magnesium	9387.910	100	10000	0	93.9	85	115				

Sample ID	N016778-001B-MS1	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102006					
Client ID:	ZZZZZ	Batch ID: 51352	TestNo: EPA 200.7	Analysis Date: 9/3/2015	SeqNo: 2078694						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	116507.882	2500	10000	105500	110	75	125				
Iron	90.332	100	100.0	0	90.3	75	125				
Magnesium	32446.197	500	10000	22530	99.2	75	125				

Sample ID	N016778-001B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102006					
Client ID:	ZZZZZ	Batch ID: 51352	TestNo: EPA 200.7	Analysis Date: 9/3/2015	SeqNo: 2078697						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	116352.530	2500	10000	105500	109	75	125	116500	0.133	20	
Iron	89.799	100	100.0	0	89.8	75	125	90.33	0	20	
Magnesium	32400.423	500	10000	22530	98.7	75	125	32450	0.141	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: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-02S-234
Lab Order: N016779	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016779-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: ICP7_150902B	QC Batch: 51346	PrepDate	9/2/2015	Analyst: CEI
Manganese	ND	0.023	0.50	µg/L
				1
				9/2/2015 06:48 PM

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



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID MB-51346	SampType: MBLK	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: PBW	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078193
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	ND	0.50			

Sample ID LCS-51346	SampType: LCS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: LCSW	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078194
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	102.761	0.50	100.0	0	103 85 115

Sample ID N016778-001B-MS	SampType: MS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: ZZZZZ	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078198
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	175.859	0.50	100.0	79.21	96.6 75 125

Sample ID N016778-001B-MSD	SampType: MSD	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: ZZZZZ	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078199
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Manganese	176.291	0.50	100.0	79.21	97.1 75 125 175.9 0.246 20

Qualifiers:

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



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ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-02S-234
Lab Order: N016779	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016779-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_150914C	QC Batch: R102129				PrepDate		Analyst: QBM
Chromium, Hexavalent	330	1.4	10		µg/L	1	9/14/2015

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_150902B	QC Batch: 51346				PrepDate	9/2/2015	Analyst: CEI
Chromium	330	0.43	5.0		µg/L	5	9/2/2015 07:28 PM

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



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID MB-51346	SampType: MBLK	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: PBW	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078135
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium	ND	1.0			
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Sample ID LCS-51346	SampType: LCS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: LCSW	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078136
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium	10.264	1.0	10.00	0	103 85 115
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Sample ID N016778-001B-MS	SampType: MS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: ZZZZZZ	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078140
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium	11.041	1.0	10.00	1.370	96.7 75 125
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Sample ID N016778-001B-MSD	SampType: MSD	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 9/2/2015	RunNo: 102003
Client ID: ZZZZZZ	Batch ID: 51346	TestNo: EPA 200.8		Analysis Date: 9/2/2015	SeqNo: 2078141
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium	11.093	1.0	10.00	1.370	97.2 75 125 11.04 0.468 20
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Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID	LCS-R102129	SampType: LCS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129
Client ID:	LCSW	Batch ID: R102129	TestNo: SM 3500-Cr B	Analysis Date: 9/14/2015	SeqNo: 2083890	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	95.085	10	100.0	0	95.1	85 115

Sample ID	MB-R102129	SampType: MBLK	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129
Client ID:	PBW	Batch ID: R102129	TestNo: SM 3500-Cr B	Analysis Date: 9/14/2015	SeqNo: 2083891	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	ND	10				

Sample ID	N016779-001DDUP	SampType: DUP	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129
Client ID:	ZZZZZ	Batch ID: R102129	TestNo: SM 3500-Cr B	Analysis Date: 9/14/2015	SeqNo: 2083893	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	335.372	10				334.9 0.147 20

Sample ID	N016778-002CMS	SampType: MS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129
Client ID:	ZZZZZ	Batch ID: R102129	TestNo: SM 3500-Cr B	Analysis Date: 9/14/2015	SeqNo: 2083895	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	1191.248	20	500.0	723.3	93.6	85 115

Sample ID	N016778-002CMSD	SampType: MSD	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 102129
Client ID:	ZZZZZ	Batch ID: R102129	TestNo: SM 3500-Cr B	Analysis Date: 9/14/2015	SeqNo: 2083896	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium, Hexavalent	1220.532	20	500.0	723.3	99.4	85 115 1191 2.43 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: 15-Sep-15

CLIENT: CH2M HILL

Client Sample ID: TW-02S-234

Lab Order: N016779

Collection Date: 9/1/2015 12:30:00 PM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N016779-001

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_150902G	QC Batch: R102001				PrepDate	Analyst: LR	
Alkalinity, Bicarbonate (As CaCO3)	84	1.2	5.0		mg/L	1	9/2/2015 10:30 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/2/2015 10:30 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/2/2015 10:30 AM
Alkalinity, Total (As CaCO3)	84	1.2	5.0		mg/L	1	9/2/2015 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		



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID LCS-R102001	SampType: LCS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: LCSW	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078064						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	98.913	5.0	100.0	0	98.9	85	115				
Alkalinity, Total (As CaCO3)	101.087	5.0	100.0	0	101	85	115				

Sample ID MB-R102001	SampType: MBLK	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: PBW	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078065						
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 N016778-001ADUP	SampType: DUP	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: ZZZZZ	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078067						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	203.261	5.0						202.2	0.536	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)	203.261	5.0						202.2	0.536	30	

Sample ID N016778-002AMS	SampType: MS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: ZZZZZ	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078069						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	232.609	5.0	100.0	135.9	96.7	75	125				
Alkalinity, Total (As CaCO3)	232.609	5.0	100.0	135.9	96.7	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID N016778-002AMSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 102001						
Client ID: ZZZZZZ	Batch ID: R102001	TestNo: SM 2320 B		Analysis Date: 9/2/2015	SeqNo: 2078070						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	234.783	5.0	100.0	135.9	98.9	75	125	232.6	0.930	20	
Alkalinity, Total (As CaCO3)	234.783	5.0	100.0	135.9	98.9	75	125	232.6	0.930	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 |
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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-02S-234
Lab Order: N016779	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016779-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150902A	QC Batch: R101980				PrepDate		Analyst: QBM
Chloride	560	6.3	100		mg/L	200	9/2/2015 04:59 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_150902A	QC Batch: R101980				PrepDate		Analyst: QBM
Sulfate	170	0.65	10		mg/L	20	9/2/2015 04:43 PM

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



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R101980_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	PBW	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077443			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		ND		0.50										
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Sample ID	LCS-R101980_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	LCSW	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077444			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		2.578		0.50	2.500	0		103	90	110				
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Sample ID	N016778-001ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	ZZZZZ	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077446			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		993.800		100						973.0		2.12	20	
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Sample ID	N016778-002AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	ZZZZZ	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077450			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		3404.000		250	1250	2175		98.3	80	120				
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Sample ID	N016778-002AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	101980			
Client ID:	ZZZZZ	Batch ID:	R101980	TestNo:	EPA 300.0			Analysis Date:	9/2/2015	SeqNo:	2077451			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		3361.000		250	1250	2175		94.9	80	120	3404	1.27	20	
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Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
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- E Value above quantitation range
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ANALYTICAL RESULTS

Print Date: 15-Sep-15

CLIENT: CH2M HILL	Client Sample ID: TW-02S-234
Lab Order: N016779	Collection Date: 9/1/2015 12:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N016779-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150911D	QC Batch: R102103			PrepDate			Analyst: RB
Nitrate/Nitrite as N	4.3	0.11	0.25	mg/L	5		9/11/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
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	DO Surrogate Diluted Out	



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CLIENT: CH2M HILL
Work Order: N016779
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R102103	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: PBW	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083106
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-R102103	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: LCSW	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083107
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.494	0.050	0.5000	0	98.8 85 115

Sample ID N016778-002DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: ZZZZZ	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083111
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	3.370	0.25			3.496 3.69 20

Sample ID N016778-002DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: ZZZZZ	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083112
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	6.344	0.25	2.500	3.496	114 75 125

Sample ID N016778-002DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102103
Client ID: ZZZZZ	Batch ID: R102103	TestNo: SM4500-NO3		Analysis Date: 9/11/2015	SeqNo: 2083113
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	6.217	0.25	2.500	3.496	109 75 125 6.344 2.02 20

Qualifiers:

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



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

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 9/1/2015 Workorder: N016779
 Rep sample Temp (Deg C): 2.1 IR Gun ID: 2
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed By: MBC for YRJ 9/2/2015

Reviewed By:  09/08/15

List of Analysts

ASSET Laboratories Work Order: N016779

Item	Pages
Quennie Manimtim	EPA 300.0, SM 3500-CR B
Claire Ignacio	EPA 200.8, EPA 200.7
Ryan Balilu	SM 4500- NO3F
Lilia Ramit	EPA 120.1,SM 2540C,SM 2320B



October 01, 2015

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.: N016933

RE: PG&E Topock, 658017.01.05.02

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 16, 2015 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,



Glen Gesmundo
QA Manager

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.



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.05.02
Lab Order: N016933

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

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

Analytical Comments for SM 4500-NO3F:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N016954-002E-MS and N016954-002E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6010B_Total:

Dissolved Iron was greater than Total Iron by 4ppb on sample N016933-008 (C-R27-D-205).

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron on QC samples N016933-001B-MSD and N016954-010B-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria for Iron ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



ASSET Laboratories

Date: 01-Oct-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.05.02
Lab Order: N016933
Contract No: 2015-RMP-205

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016933-001A	C-BNS-D-205	Water	9/16/2015 10:26:00 AM	9/16/2015	10/1/2015
N016933-001B	C-BNS-D-205	Water	9/16/2015 10:26:00 AM	9/16/2015	10/1/2015
N016933-001C	C-BNS-D-205	Water	9/16/2015 10:26:00 AM	9/16/2015	10/1/2015
N016933-001D	C-BNS-D-205	Water	9/16/2015 10:26:00 AM	9/16/2015	10/1/2015
N016933-001E	C-BNS-D-205	Water	9/16/2015 10:26:00 AM	9/16/2015	10/1/2015
N016933-002A	C-I-3-D-205	Water	9/16/2015 9:02:00 AM	9/16/2015	10/1/2015
N016933-002B	C-I-3-D-205	Water	9/16/2015 9:02:00 AM	9/16/2015	10/1/2015
N016933-002C	C-I-3-D-205	Water	9/16/2015 9:02:00 AM	9/16/2015	10/1/2015
N016933-002D	C-I-3-D-205	Water	9/16/2015 9:02:00 AM	9/16/2015	10/1/2015
N016933-002E	C-I-3-D-205	Water	9/16/2015 9:02:00 AM	9/16/2015	10/1/2015
N016933-003A	C-I-3-S-205	Water	9/16/2015 9:16:00 AM	9/16/2015	10/1/2015
N016933-003B	C-I-3-S-205	Water	9/16/2015 9:16:00 AM	9/16/2015	10/1/2015
N016933-003C	C-I-3-S-205	Water	9/16/2015 9:16:00 AM	9/16/2015	10/1/2015
N016933-003D	C-I-3-S-205	Water	9/16/2015 9:16:00 AM	9/16/2015	10/1/2015
N016933-003E	C-I-3-S-205	Water	9/16/2015 9:16:00 AM	9/16/2015	10/1/2015
N016933-004A	C-MW-80-205	Water	9/16/2015 9:24:00 AM	9/16/2015	10/1/2015
N016933-005A	C-MW-81-205	Water	9/16/2015 11:08:00 AM	9/16/2015	10/1/2015
N016933-006A	C-R22A-D-205	Water	9/16/2015 9:56:00 AM	9/16/2015	10/1/2015
N016933-006B	C-R22A-D-205	Water	9/16/2015 9:56:00 AM	9/16/2015	10/1/2015
N016933-006C	C-R22A-D-205	Water	9/16/2015 9:56:00 AM	9/16/2015	10/1/2015
N016933-006D	C-R22A-D-205	Water	9/16/2015 9:56:00 AM	9/16/2015	10/1/2015
N016933-006E	C-R22A-D-205	Water	9/16/2015 9:56:00 AM	9/16/2015	10/1/2015
N016933-007A	C-R22A-S-205	Water	9/16/2015 10:08:00 AM	9/16/2015	10/1/2015
N016933-007B	C-R22A-S-205	Water	9/16/2015 10:08:00 AM	9/16/2015	10/1/2015
N016933-007C	C-R22A-S-205	Water	9/16/2015 10:08:00 AM	9/16/2015	10/1/2015
N016933-007D	C-R22A-S-205	Water	9/16/2015 10:08:00 AM	9/16/2015	10/1/2015
N016933-007E	C-R22A-S-205	Water	9/16/2015 10:08:00 AM	9/16/2015	10/1/2015
N016933-008A	C-R27-D-205	Water	9/16/2015 10:44:00 AM	9/16/2015	10/1/2015
N016933-008B	C-R27-D-205	Water	9/16/2015 10:44:00 AM	9/16/2015	10/1/2015



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CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.05.02
Lab Order: N016933
Contract No: 2015-RMP-205

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016933-008C	C-R27-D-205	Water	9/16/2015 10:44:00 AM	9/16/2015	10/1/2015
N016933-008D	C-R27-D-205	Water	9/16/2015 10:44:00 AM	9/16/2015	10/1/2015
N016933-008E	C-R27-D-205	Water	9/16/2015 10:44:00 AM	9/16/2015	10/1/2015
N016933-009A	C-R27-S-205	Water	9/16/2015 10:58:00 AM	9/16/2015	10/1/2015
N016933-009B	C-R27-S-205	Water	9/16/2015 10:58:00 AM	9/16/2015	10/1/2015
N016933-009C	C-R27-S-205	Water	9/16/2015 10:58:00 AM	9/16/2015	10/1/2015
N016933-009D	C-R27-S-205	Water	9/16/2015 10:58:00 AM	9/16/2015	10/1/2015
N016933-009E	C-R27-S-205	Water	9/16/2015 10:58:00 AM	9/16/2015	10/1/2015
N016933-010A	C-TAZ-D-205	Water	9/16/2015 8:24:00 AM	9/16/2015	10/1/2015
N016933-010B	C-TAZ-D-205	Water	9/16/2015 8:24:00 AM	9/16/2015	10/1/2015
N016933-010C	C-TAZ-D-205	Water	9/16/2015 8:24:00 AM	9/16/2015	10/1/2015
N016933-010D	C-TAZ-D-205	Water	9/16/2015 8:24:00 AM	9/16/2015	10/1/2015
N016933-010E	C-TAZ-D-205	Water	9/16/2015 8:24:00 AM	9/16/2015	10/1/2015
N016933-011A	C-TAZ-S-205	Water	9/16/2015 8:40:00 AM	9/16/2015	10/1/2015
N016933-011B	C-TAZ-S-205	Water	9/16/2015 8:40:00 AM	9/16/2015	10/1/2015
N016933-011C	C-TAZ-S-205	Water	9/16/2015 8:40:00 AM	9/16/2015	10/1/2015
N016933-011D	C-TAZ-S-205	Water	9/16/2015 8:40:00 AM	9/16/2015	10/1/2015
N016933-011E	C-TAZ-S-205	Water	9/16/2015 8:40:00 AM	9/16/2015	10/1/2015
N016933-012A	R-19-205	Water	9/16/2015 11:26:00 AM	9/16/2015	10/1/2015
N016933-012B	R-19-205	Water	9/16/2015 11:26:00 AM	9/16/2015	10/1/2015
N016933-012C	R-19-205	Water	9/16/2015 11:26:00 AM	9/16/2015	10/1/2015
N016933-012D	R-19-205	Water	9/16/2015 11:26:00 AM	9/16/2015	10/1/2015
N016933-012E	R-19-205	Water	9/16/2015 11:26:00 AM	9/16/2015	10/1/2015
N016933-013A	R-28-205	Water	9/16/2015 11:14:00 AM	9/16/2015	10/1/2015
N016933-013B	R-28-205	Water	9/16/2015 11:14:00 AM	9/16/2015	10/1/2015
N016933-013C	R-28-205	Water	9/16/2015 11:14:00 AM	9/16/2015	10/1/2015
N016933-013D	R-28-205	Water	9/16/2015 11:14:00 AM	9/16/2015	10/1/2015
N016933-013E	R-28-205	Water	9/16/2015 11:14:00 AM	9/16/2015	10/1/2015
N016933-014A	R63-205	Water	9/16/2015 9:32:00 AM	9/16/2015	10/1/2015
N016933-014B	R63-205	Water	9/16/2015 9:32:00 AM	9/16/2015	10/1/2015



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CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.05.02
Lab Order: N016933
Contract No: 2015-RMP-205

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016933-014C	R63-205	Water	9/16/2015 9:32:00 AM	9/16/2015	10/1/2015
N016933-014D	R63-205	Water	9/16/2015 9:32:00 AM	9/16/2015	10/1/2015
N016933-014E	R63-205	Water	9/16/2015 9:32:00 AM	9/16/2015	10/1/2015
N016933-015A	RMP-AB1-205	Water	9/16/2015 12:00:00 PM	9/16/2015	10/1/2015



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-001

Client Sample ID: C-BNS-D-205
Collection Date: 9/16/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190				PrepDate		Analyst: LR
Specific Conductance	940	0.10	0.10		umhos/cm	1	9/17/2015 10:15 AM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-I-3-D-205
Lab Order: N016933	Collection Date: 9/16/2015 9:02:00 AM
Project: PG&E Topock, 658017.01.05.02	Matrix: WATER
Lab ID: N016933-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190			PrepDate			Analyst: LR
Specific Conductance	920	0.10	0.10	umhos/cm	1		9/17/2015 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: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-003

Client Sample ID: C-I-3-S-205
Collection Date: 9/16/2015 9:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190				PrepDate		Analyst: LR
Specific Conductance	940	0.10	0.10		umhos/cm	1	9/17/2015 10:15 AM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-006

Client Sample ID: C-R22A-D-205
Collection Date: 9/16/2015 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190				PrepDate		Analyst: LR
Specific Conductance	940	0.10	0.10		umhos/cm	1	9/17/2015 10:15 AM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-007

Client Sample ID: C-R22A-S-205
Collection Date: 9/16/2015 10:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190				PrepDate		Analyst: LR
Specific Conductance	940	0.10	0.10		umhos/cm	1	9/17/2015 10:15 AM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-R27-D-205
Lab Order: N016933	Collection Date: 9/16/2015 10:44:00 AM
Project: PG&E Topock, 658017.01.05.02	Matrix: WATER
Lab ID: N016933-008	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190	PrepDate	Analyst: LR
Specific Conductance	940	0.10	0.10
		umhos/cm	1
			9/17/2015 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: 01-Oct-15

CLIENT:	CH2M HILL	Client Sample ID:	C-R27-S-205
Lab Order:	N016933	Collection Date:	9/16/2015 10:58:00 AM
Project:	PG&E Topock, 658017.01.05.02	Matrix:	WATER
Lab ID:	N016933-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190			PrepDate			Analyst: LR
Specific Conductance	920	0.10	0.10	umhos/cm	1		9/17/2015 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: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-010

Client Sample ID: C-TAZ-D-205
Collection Date: 9/16/2015 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190				PrepDate		Analyst: LR
Specific Conductance	940	0.10	0.10		umhos/cm	1	9/17/2015 10:15 AM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-011

Client Sample ID: C-TAZ-S-205
Collection Date: 9/16/2015 8:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190				PrepDate		Analyst: LR
Specific Conductance	940	0.10	0.10		umhos/cm	1	9/17/2015 10:15 AM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-012

Client Sample ID: R-19-205
Collection Date: 9/16/2015 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190				PrepDate		Analyst: LR
Specific Conductance	940	0.10	0.10		umhos/cm	1	9/17/2015 10:15 AM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL	Client Sample ID: R-28-205
Lab Order: N016933	Collection Date: 9/16/2015 11:14:00 AM
Project: PG&E Topock, 658017.01.05.02	Matrix: WATER
Lab ID: N016933-013	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150917D	QC Batch: R102190			PrepDate		Analyst: LR
Specific Conductance	940	0.10	0.10	umhos/cm	1	9/17/2015 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: 01-Oct-15

CLIENT: CH2M HILL **Client Sample ID:** R63-205
Lab Order: N016933 **Collection Date:** 9/16/2015 9:32:00 AM
Project: PG&E Topock, 658017.01.05.02 **Matrix:** WATER
Lab ID: N016933-014

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

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: **WETCHEM_150917D** QC Batch: **R102190** PrepDate Analyst: **LR**
Specific Conductance 940 0.10 0.10 umhos/cm 1 9/17/2015 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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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N016933-001D DUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	102190
Client ID:	ZZZZZ	Batch ID:	R102190	TestNo:	EPA 120.1			Analysis Date:	9/17/2015	SeqNo:	2086077
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC	
Specific Conductance		935.000		0.10						937.0	0.214
											10

Sample ID	N016933-014D DUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	102190
Client ID:	ZZZZZ	Batch ID:	R102190	TestNo:	EPA 120.1			Analysis Date:	9/17/2015	SeqNo:	2086090
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC	
Specific Conductance		939.000		0.10						937.0	0.213
											10

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-001

Client Sample ID: C-BNS-D-205
Collection Date: 9/16/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.8	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-002

Client Sample ID: C-I-3-D-205
Collection Date: 9/16/2015 9:02:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.8	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-003

Client Sample ID: C-I-3-S-205
Collection Date: 9/16/2015 9:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-006

Client Sample ID: C-R22A-D-205
Collection Date: 9/16/2015 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-007

Client Sample ID: C-R22A-S-205
Collection Date: 9/16/2015 10:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-008

Client Sample ID: C-R27-D-205
Collection Date: 9/16/2015 10:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-009

Client Sample ID: C-R27-S-205
Collection Date: 9/16/2015 10:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-010

Client Sample ID: C-TAZ-D-205
Collection Date: 9/16/2015 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-011

Client Sample ID: C-TAZ-S-205
Collection Date: 9/16/2015 8:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-012

Client Sample ID: R-19-205
Collection Date: 9/16/2015 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-013

Client Sample ID: R-28-205
Collection Date: 9/16/2015 11:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.9	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-014

Client Sample ID: R63-205
Collection Date: 9/16/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150917C	QC Batch: R102188				PrepDate		Analyst: LR
pH	7.7	0.10	0.10	H	pH Units	1	9/17/2015 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/17/2015 01:45 PM

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID	N016933-012D DUP	SampType:	DUP	TestCode:	150.1_4500H	Units:	pH Units	Prep Date:		RunNo:	102188											
Client ID:	ZZZZZ	Batch ID:	R102188	TestNo:	SM4500-H+B			Analysis Date:	9/17/2015	SeqNo:	2085994											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
pH		7.950		0.10												7.920		0.378		10		H
Temp. at time of pH Analysis		20.600		0.10												20.80		0.966		10		H

Sample ID	N016940-001A DUP	SampType:	DUP	TestCode:	150.1_4500H	Units:	pH Units	Prep Date:		RunNo:	102188											
Client ID:	ZZZZZ	Batch ID:	R102188	TestNo:	SM4500-H+B			Analysis Date:	9/17/2015	SeqNo:	2085999											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
pH		7.240		0.10												7.260		0.276		10		H
Temp. at time of pH Analysis		21.900		0.10												21.80		0.458		10		H

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-001

Client Sample ID: C-BNS-D-205
Collection Date: 9/16/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-002

Client Sample ID: C-I-3-D-205
Collection Date: 9/16/2015 9:02:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-003

Client Sample ID: C-I-3-S-205
Collection Date: 9/16/2015 9:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-006

Client Sample ID: C-R22A-D-205
Collection Date: 9/16/2015 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-007

Client Sample ID: C-R22A-S-205
Collection Date: 9/16/2015 10:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-008

Client Sample ID: C-R27-D-205
Collection Date: 9/16/2015 10:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR	
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM	

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-009

Client Sample ID: C-R27-S-205
Collection Date: 9/16/2015 10:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-010

Client Sample ID: C-TAZ-D-205
Collection Date: 9/16/2015 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-011

Client Sample ID: C-TAZ-S-205
Collection Date: 9/16/2015 8:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502			PrepDate	9/21/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL	Client Sample ID: R-19-205
Lab Order: N016933	Collection Date: 9/16/2015 11:26:00 AM
Project: PG&E Topock, 658017.01.05.02	Matrix: WATER
Lab ID: N016933-012	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150921B	QC Batch: 51502	PrepDate: 9/21/2015	Analyst: LR			
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/21/2015 01:37 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-013

Client Sample ID: R-28-205
Collection Date: 9/16/2015 11:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922A	QC Batch: 51503			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-014

Client Sample ID: R63-205
Collection Date: 9/16/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922A	QC Batch: 51503			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo	Client ID	Batch ID	TestNo	Analysis Date	SeqNo	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
MB-51502	MBLK	160.2_2540D	mg/L	9/21/2015	102244	PBW	51502	SM2540D	9/21/2015	2089375	Suspended Solids (Residue, Non-Filter	ND	10										
LCS-51502	LCS	160.2_2540D	mg/L	9/21/2015	102244	LCSW	51502	SM2540D	9/21/2015	2089376	Suspended Solids (Residue, Non-Filter	930.000	10	1000	0	93.0	80	120					
N016933-001DDUP	DUP	160.2_2540D	mg/L	9/21/2015	102244	ZZZZZ	51502	SM2540D	9/21/2015	2089378	Suspended Solids (Residue, Non-Filter	ND	10						0	0		5	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: MB-51503	SampType: MBLK	TestCode: 160.2_2540D	Units: mg/L	Prep Date: 9/22/2015	RunNo: 102254						
Client ID: PBW	Batch ID: 51503	TestNo: SM2540D		Analysis Date: 9/22/2015	SeqNo: 2090034						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filter) ND 10

Sample ID: LCS-51503	SampType: LCS	TestCode: 160.2_2540D	Units: mg/L	Prep Date: 9/22/2015	RunNo: 102254						
Client ID: LCSW	Batch ID: 51503	TestNo: SM2540D		Analysis Date: 9/22/2015	SeqNo: 2090035						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filter) 1079.000 10 1000 0 108 80 120

Sample ID: N016933-013DDUP	SampType: DUP	TestCode: 160.2_2540D	Units: mg/L	Prep Date: 9/22/2015	RunNo: 102254						
Client ID: ZZZZZ	Batch ID: 51503	TestNo: SM2540D		Analysis Date: 9/22/2015	SeqNo: 2090037						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Suspended Solids (Residue, Non-Filter) ND 10 0 0 5

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-001

Client Sample ID: C-BNS-D-205
Collection Date: 9/16/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150917A	QC Batch: R102189				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/17/2015 04:01 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-002

Client Sample ID: C-I-3-D-205
Collection Date: 9/16/2015 9:02:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150917A	QC Batch: R102189				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/17/2015 04:20 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 01:41 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-003

Client Sample ID: C-I-3-S-205
Collection Date: 9/16/2015 9:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150917A	QC Batch: R102189				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/17/2015 04:39 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 01:46 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-004

Client Sample ID: C-MW-80-205
Collection Date: 9/16/2015 9:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150917A	QC Batch: R102189			PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20	µg/L	1	9/17/2015 04:58 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-005

Client Sample ID: C-MW-81-205
Collection Date: 9/16/2015 11:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150917A	QC Batch: R102189			PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20	µg/L	1	9/17/2015 05:17 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-006

Client Sample ID: C-R22A-D-205
Collection Date: 9/16/2015 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 10:58 AM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:03 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-007

Client Sample ID: C-R22A-S-205
Collection Date: 9/16/2015 10:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 11:19 AM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:08 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-008

Client Sample ID: C-R27-D-205
Collection Date: 9/16/2015 10:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 11:38 AM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:14 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-009

Client Sample ID: C-R27-S-205
Collection Date: 9/16/2015 10:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 11:57 AM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:19 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-010

Client Sample ID: C-TAZ-D-205
Collection Date: 9/16/2015 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 12:34 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:25 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-011

Client Sample ID: C-TAZ-S-205
Collection Date: 9/16/2015 8:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 12:53 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:31 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-012

Client Sample ID: R-19-205
Collection Date: 9/16/2015 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 01:12 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:36 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-013

Client Sample ID: R-28-205
Collection Date: 9/16/2015 11:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 01:31 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:47 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-014

Client Sample ID: R63-205
Collection Date: 9/16/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 01:50 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447				PrepDate	9/17/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/17/2015 02:53 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-015

Client Sample ID: RMP-AB1-205
Collection Date: 9/16/2015 12:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218			PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20	µg/L	1	9/18/2015 02:28 PM

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R102189	SampType: MBLK	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189
Client ID: PBW	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086024
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	0.018	0.20			

Sample ID LCS-R102189	SampType: LCS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189
Client ID: LCSW	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086025
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	4.867	0.20	5.000	0	97.3 90 110

Sample ID N016931-002ADUP	SampType: DUP	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189
Client ID: ZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086029
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	5.420	0.20			5.477 1.04 20

Sample ID N016931-002AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189
Client ID: ZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086030
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	10.276	0.20	5.000	5.477	96.0 90 110

Sample ID N016931-002AMSD	SampType: MSD	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189
Client ID: ZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086031
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	10.455	0.20	5.000	5.477	99.6 90 110 10.28 1.73 20

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016931-003AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086032						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.466	0.20	1.000	1.424	104	90	110				

Sample ID N016933-001AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086036						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.064	0.20	1.000	0.08420	97.9	90	110				

Sample ID N016933-002AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086038						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.061	0.20	1.000	0.06860	99.2	90	110				

Sample ID N016933-003AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086040						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.030	0.20	1.000	0.08670	94.3	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: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R102218	SampType: MBLK	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: PBW	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087874						
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-R102218	SampType: LCS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: LCSW	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087875						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.861 0.20 5.000 0 97.2 90 110

Sample ID N016933-006AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087877						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.096 0.20 1.000 0.08260 101 90 110

Sample ID N016933-007AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087879						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.053 0.20 1.000 0.07900 97.4 90 110

Sample ID N016933-008AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087881						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.073 0.20 1.000 0.07490 99.8 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 | |



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016933-009AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087883						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.076 0.20 1.000 0.07830 99.8 90 110

Sample ID N016933-010AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087887						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.086 0.20 1.000 0.07420 101 90 110

Sample ID N016933-011AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087889						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.081 0.20 1.000 0.07030 101 90 110

Sample ID N016933-012AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087891						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.088 0.20 1.000 0.08170 101 90 110

Sample ID N016933-013AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087893						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.071 0.20 1.000 0.09490 97.6 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: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016933-014AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087895						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.092	0.20	1.000	0.08330	101	90	110				

Sample ID N016933-015ADUP	SampType: DUP	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087899						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.146	0.20						0.1487	0	20	

Sample ID N016933-015AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087900						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.145	0.20	1.000	0.1487	99.7	90	110				

Sample ID N016933-015AMSD	SampType: MSD	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087901						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.152	0.20	1.000	0.1487	100	90	110	1.145	0.557	20	

Sample ID N016954-001AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087903						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.076	0.20	1.000	0	108	90	110				

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
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| DO Surrogate Diluted Out | Calculations are based on raw values | |



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Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016954-002AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087905						
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	0.07760	95.6	90	110
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Sample ID N016954-003AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087907						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.079	0.20	1.000	0.09590	98.3	90	110
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Sample ID N016954-006AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087911						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.042	0.20	1.000	0.07800	96.4	90	110
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Sample ID N016954-007AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087913						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.085	0.20	1.000	0.07690	101	90	110
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Sample ID N016954-008AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087915						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.069	0.20	1.000	0.07660	99.2	90	110
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Qualifiers:

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|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016954-009AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087917						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0.07150	97.0	90	110				

Sample ID N016954-010AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087919						
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	0.07910	98.7	90	110				

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R102189	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: PBW	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086053						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.018	0.20									
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Sample ID LCS-R102189	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: LCSW	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086054						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	4.867	0.20	5.000	0	97.3	90	110				
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Sample ID N016931-002ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086058						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	5.420	0.20						5.477	1.04	20	
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Sample ID N016931-002AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086059						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	10.276	0.20	5.000	5.477	96.0	90	110				
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Sample ID N016931-002AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZ	Batch ID: R102189	TestNo: EPA 218.6		Analysis Date: 9/17/2015	SeqNo: 2086060						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	10.455	0.20	5.000	5.477	99.6	90	110	10.28	1.73	20	
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Qualifiers:

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



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N016933-004AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZZ	Batch ID: R102189	TestNo: EPA 218.6	Analysis Date: 9/17/2015	SeqNo: 2086071							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.149	0.20	1.000	0.1355	101	90	110				

Sample ID N016933-005AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102189						
Client ID: ZZZZZZ	Batch ID: R102189	TestNo: EPA 218.6	Analysis Date: 9/17/2015	SeqNo: 2086073							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.145	0.20	1.000	0.1258	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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Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R102218	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: PBW	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087928						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	ND	0.20									
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Sample ID LCS-R102218	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: LCSW	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087929						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	4.861	0.20	5.000	0	97.2	90	110				
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Sample ID N016933-015ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087953						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.146	0.20						0.1487	0	20	
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Sample ID N016933-015AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087954						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.145	0.20	1.000	0.1487	99.7	90	110				
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Sample ID N016933-015AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087955						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.152	0.20	1.000	0.1487	100	90	110	1.145	0.557	20	
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Qualifiers:

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|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
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ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID MB-51447	SampType: MBLK	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: PBW	Batch ID: 51447	TestNo: EPA 6020 EPA 3010A		Analysis Date: 9/17/2015	SeqNo: 2085158						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID LCS-51447	SampType: LCS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: LCSW	Batch ID: 51447	TestNo: EPA 6020 EPA 3010A		Analysis Date: 9/17/2015	SeqNo: 2085159						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.877 1.0 10.00 0 98.8 85 115

Sample ID N016932-001B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZZ	Batch ID: 51447	TestNo: EPA 6020 EPA 3010A		Analysis Date: 9/17/2015	SeqNo: 2085163						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 11.231 1.0 10.00 1.489 97.4 75 125

Sample ID N016932-001B-MSD	SampType: MSD	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZZ	Batch ID: 51447	TestNo: EPA 6020 EPA 3010A		Analysis Date: 9/17/2015	SeqNo: 2085164						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 11.347 1.0 10.00 1.489 98.6 75 125 11.23 1.03 20

Sample ID N016933-012C-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZZ	Batch ID: 51447	TestNo: EPA 6020 EPA 3010A		Analysis Date: 9/17/2015	SeqNo: 2086554						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 10.109 1.0 10.00 0.1291 99.8 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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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-001

Client Sample ID: C-BNS-D-205
Collection Date: 9/16/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.38	0.022	0.050		mg/L	1	9/21/2015

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-002

Client Sample ID: C-I-3-D-205
Collection Date: 9/16/2015 9:02:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.38	0.022	0.050		mg/L	1	9/21/2015

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-003

Client Sample ID: C-I-3-S-205
Collection Date: 9/16/2015 9:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.35	0.022	0.050		mg/L	1	9/21/2015

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-006

Client Sample ID: C-R22A-D-205
Collection Date: 9/16/2015 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	9/21/2015

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-007

Client Sample ID: C-R22A-S-205
Collection Date: 9/16/2015 10:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245			PrepDate			Analyst: RB
Nitrate/Nitrite as N	0.35	0.022	0.050	mg/L	1		9/21/2015

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-R27-D-205
Lab Order: N016933	Collection Date: 9/16/2015 10:44:00 AM
Project: PG&E Topock, 658017.01.05.02	Matrix: WATER
Lab ID: N016933-008	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245			PrepDate			Analyst: RB
Nitrate/Nitrite as N	0.38	0.022	0.050	mg/L	1		9/21/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 01-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-R27-S-205
Lab Order: N016933	Collection Date: 9/16/2015 10:58:00 AM
Project: PG&E Topock, 658017.01.05.02	Matrix: WATER
Lab ID: N016933-009	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245			PrepDate			Analyst: RB
Nitrate/Nitrite as N	0.36	0.022	0.050	mg/L	1		9/21/2015

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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: 01-Oct-15

CLIENT: CH2M HILL **Client Sample ID:** C-TAZ-D-205
Lab Order: N016933 **Collection Date:** 9/16/2015 8:24:00 AM
Project: PG&E Topock, 658017.01.05.02 **Matrix:** WATER
Lab ID: N016933-010

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: **WETCHEM_150921C** QC Batch: **R102245** PrepDate Analyst: **RB**
Nitrate/Nitrite as N 0.36 0.022 0.050 mg/L 1 9/21/2015

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
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: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-011

Client Sample ID: C-TAZ-S-205
Collection Date: 9/16/2015 8:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.36	0.022	0.050		mg/L	1	9/21/2015

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-012

Client Sample ID: R-19-205
Collection Date: 9/16/2015 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.34	0.022	0.050		mg/L	1	9/21/2015

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-013

Client Sample ID: R-28-205
Collection Date: 9/16/2015 11:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150921C	QC Batch: R102245				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.34	0.022	0.050		mg/L	1	9/21/2015

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-014

Client Sample ID: R63-205
Collection Date: 9/16/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	3.3	0.11	0.25		mg/L	5	9/24/2015

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R102245	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102245
Client ID: PBW	Batch ID: R102245	TestNo: SM4500-NO3		Analysis Date: 9/21/2015	SeqNo: 2089391
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-R102245	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102245
Client ID: LCSW	Batch ID: R102245	TestNo: SM4500-NO3		Analysis Date: 9/21/2015	SeqNo: 2089392
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.3 85 115

Sample ID N016933-002EDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102245
Client ID: ZZZZZ	Batch ID: R102245	TestNo: SM4500-NO3		Analysis Date: 9/21/2015	SeqNo: 2089394
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.357	0.050			0.3753 4.91 20

Sample ID N016933-002EMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102245
Client ID: ZZZZZ	Batch ID: R102245	TestNo: SM4500-NO3		Analysis Date: 9/21/2015	SeqNo: 2089395
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.919	0.050	0.5000	0.3753	109 75 125

Sample ID N016933-002EMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102245
Client ID: ZZZZZ	Batch ID: R102245	TestNo: SM4500-NO3		Analysis Date: 9/21/2015	SeqNo: 2089397
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.901	0.050	0.5000	0.3753	105 75 125 0.9185 1.93 20

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-001

Client Sample ID: C-BNS-D-205
Collection Date: 9/16/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 10:28 AM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	70	17	20		ug/L	1	9/22/2015 12:44 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-002

Client Sample ID: C-I-3-D-205
Collection Date: 9/16/2015 9:02:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 10:50 AM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	70	17	20		ug/L	1	9/22/2015 01:31 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-003

Client Sample ID: C-I-3-S-205
Collection Date: 9/16/2015 9:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 10:55 AM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	40	17	20		ug/L	1	9/22/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-006

Client Sample ID: C-R22A-D-205
Collection Date: 9/16/2015 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 10:59 AM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	64	17	20		ug/L	1	9/22/2015 01:40 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-007

Client Sample ID: C-R22A-S-205
Collection Date: 9/16/2015 10:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 11:12 AM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	94	17	20		ug/L	1	9/22/2015 01:44 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-R27-D-205
Lab Order: N016933	Collection Date: 9/16/2015 10:44:00 AM
Project: PG&E Topock, 658017.01.05.02	Matrix: WATER
Lab ID: N016933-008	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015		Analyst: CEI
Iron	57	17	20		ug/L	1	9/22/2015 11:16 AM
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015		Analyst: CEI
Iron	53	17	20		ug/L	1	9/22/2015 01:48 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: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-009

Client Sample ID: C-R27-S-205
Collection Date: 9/16/2015 10:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015		Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 11:21 AM
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015		Analyst: CEI
Iron	56	17	20		ug/L	1	9/22/2015 01:53 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-010

Client Sample ID: C-TAZ-D-205
Collection Date: 9/16/2015 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015		Analyst: CEI
Iron	ND	17	20	ug/L	1		9/22/2015 11:25 AM
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015		Analyst: CEI
Iron	81	17	20	ug/L	1		9/22/2015 02:07 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-011

Client Sample ID: C-TAZ-S-205
Collection Date: 9/16/2015 8:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015		Analyst: CEI
Iron	ND	17	20	ug/L	1		9/22/2015 11:30 AM
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015		Analyst: CEI
Iron	54	17	20	ug/L	1		9/22/2015 02:11 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-012

Client Sample ID: R-19-205
Collection Date: 9/16/2015 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015	Analyst: CEI	
Iron	21	17	20	ug/L	1	9/22/2015 11:34 AM	
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015	Analyst: CEI	
Iron	52	17	20	ug/L	1	9/22/2015 02:16 PM	

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-013

Client Sample ID: R-28-205
Collection Date: 9/16/2015 11:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015		Analyst: CEI
Iron	ND	17	20	ug/L	1		9/22/2015 11:38 AM
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015		Analyst: CEI
Iron	45	17	20	ug/L	1		9/22/2015 02:20 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-014

Client Sample ID: R63-205
Collection Date: 9/16/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015		Analyst: CEI
Iron	ND	17	20	ug/L	1		9/22/2015 11:47 AM
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015		Analyst: CEI
Iron	130	17	20	ug/L	1		9/22/2015 02:24 PM

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPBB

Sample ID MB-51468	SampType: MBLK	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: PBW	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089459
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	ND	20			

Sample ID LCS-51468	SampType: LCS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: LCSW	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089460
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	113.573	20	100.0	0	114 85 115

Sample ID N016933-001C-MS	SampType: MS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: ZZZZZ	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089464
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	102.366	20	100.0	0	102 75 125

Sample ID N016933-001C-MSD	SampType: MSD	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: ZZZZZ	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089465
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	102.196	20	100.0	0	102 75 125 102.4 0.166 20

Sample ID N016933-013C-MS	SampType: MS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: ZZZZZ	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089478
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	119.869	20	100.0	0	120 75 125

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPB

Sample ID MB-51467	SampType: MBLK	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: PBW	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089568						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 20

Sample ID LCS-51467	SampType: LCS	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: LCSW	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089569						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 112.472 20 100.0 0 112 85 115

Sample ID N016933-001B-MS	SampType: MS	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: ZZZZZ	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089578						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 183.599 20 100.0 70.50 113 75 125

Sample ID N016933-001B-MSD	SampType: MSD	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: ZZZZZ	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089579						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 140.035 20 100.0 70.50 69.5 75 125 183.6 26.9 20 SR

Sample ID N016954-010B-MS	SampType: MS	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: ZZZZZ	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089603						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 194.392 20 100.0 24.31 170 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: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-001

Client Sample ID: C-BNS-D-205
Collection Date: 9/16/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.7	0.016	0.10			1	9/17/2015 01:35 PM
Barium	130	0.072	1.0			1	9/17/2015 01:35 PM
Manganese	ND	0.023	0.50			1	9/17/2015 01:35 PM
Molybdenum	4.3	0.029	0.50			1	9/17/2015 01:35 PM
Selenium	1.5	0.070	0.50			1	9/17/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-002

Client Sample ID: C-I-3-D-205
Collection Date: 9/16/2015 9:02:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.4	0.016	0.10		µg/L	1	9/17/2015 01:41 PM
Barium	120	0.072	1.0		µg/L	1	9/17/2015 01:41 PM
Manganese	ND	0.023	0.50		µg/L	1	9/17/2015 01:41 PM
Molybdenum	4.0	0.029	0.50		µg/L	1	9/17/2015 01:41 PM
Selenium	1.6	0.070	0.50		µg/L	1	9/17/2015 01:41 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-003

Client Sample ID: C-I-3-S-205
Collection Date: 9/16/2015 9:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.4	0.016	0.10		µg/L	1	9/17/2015 01:46 PM
Barium	120	0.072	1.0		µg/L	1	9/17/2015 01:46 PM
Manganese	ND	0.023	0.50		µg/L	1	9/17/2015 01:46 PM
Molybdenum	4.4	0.029	0.50		µg/L	1	9/17/2015 01:46 PM
Selenium	1.7	0.070	0.50		µg/L	1	9/18/2015 06:08 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-006

Client Sample ID: C-R22A-D-205
Collection Date: 9/16/2015 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.6	0.016	0.10		µg/L	1	9/17/2015 02:03 PM
Barium	120	0.072	1.0		µg/L	1	9/17/2015 02:03 PM
Manganese	ND	0.023	0.50		µg/L	1	9/17/2015 02:03 PM
Molybdenum	4.2	0.029	0.50		µg/L	1	9/17/2015 02:03 PM
Selenium	1.6	0.070	0.50		µg/L	1	9/17/2015 02:03 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-007

Client Sample ID: C-R22A-S-205
Collection Date: 9/16/2015 10:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.5	0.016	0.10		µg/L	1	9/17/2015 02:08 PM
Barium	120	0.072	1.0		µg/L	1	9/17/2015 02:08 PM
Manganese	0.64	0.023	0.50		µg/L	1	9/17/2015 02:08 PM
Molybdenum	4.2	0.029	0.50		µg/L	1	9/17/2015 02:08 PM
Selenium	1.6	0.070	0.50		µg/L	1	9/17/2015 02:08 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-008

Client Sample ID: C-R27-D-205
Collection Date: 9/16/2015 10:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.5	0.016	0.10		µg/L	1	9/17/2015 02:14 PM
Barium	120	0.072	1.0		µg/L	1	9/17/2015 02:14 PM
Manganese	ND	0.023	0.50		µg/L	1	9/17/2015 02:14 PM
Molybdenum	4.2	0.029	0.50		µg/L	1	9/17/2015 02:14 PM
Selenium	1.5	0.070	0.50		µg/L	1	9/17/2015 02:14 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-009

Client Sample ID: C-R27-S-205
Collection Date: 9/16/2015 10:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.5	0.016	0.10		µg/L	1	9/17/2015 02:19 PM
Barium	120	0.072	1.0		µg/L	1	9/17/2015 02:19 PM
Manganese	ND	0.023	0.50		µg/L	1	9/17/2015 02:19 PM
Molybdenum	4.2	0.029	0.50		µg/L	1	9/17/2015 02:19 PM
Selenium	1.6	0.070	0.50		µg/L	1	9/17/2015 02:19 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-010

Client Sample ID: C-TAZ-D-205
Collection Date: 9/16/2015 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.5	0.016	0.10		µg/L	1	9/17/2015 02:25 PM
Barium	120	0.072	1.0		µg/L	1	9/17/2015 02:25 PM
Manganese	ND	0.023	0.50		µg/L	1	9/17/2015 02:25 PM
Molybdenum	4.2	0.029	0.50		µg/L	1	9/17/2015 02:25 PM
Selenium	1.5	0.070	0.50		µg/L	1	9/17/2015 02:25 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-011

Client Sample ID: C-TAZ-S-205
Collection Date: 9/16/2015 8:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.7	0.016	0.10		µg/L	1	9/17/2015 02:31 PM
Barium	130	0.072	1.0		µg/L	1	9/17/2015 02:31 PM
Manganese	ND	0.023	0.50		µg/L	1	9/17/2015 02:31 PM
Molybdenum	4.4	0.029	0.50		µg/L	1	9/17/2015 02:31 PM
Selenium	1.7	0.070	0.50		µg/L	1	9/17/2015 02:31 PM

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-012

Client Sample ID: R-19-205
Collection Date: 9/16/2015 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.5	0.016	0.10	µg/L	1	9/17/2015 02:36 PM	
Barium	130	0.36	5.0	µg/L	5	9/17/2015 03:33 PM	
Manganese	1.4	0.023	0.50	µg/L	1	9/17/2015 02:36 PM	
Molybdenum	4.1	0.029	0.50	µg/L	1	9/17/2015 02:36 PM	
Selenium	1.4	0.070	0.50	µg/L	1	9/17/2015 02:36 PM	

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-013

Client Sample ID: R-28-205
Collection Date: 9/16/2015 11:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150917A	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51447			PrepDate	9/17/2015		
Arsenic	2.5	0.016	0.10	µg/L	1	9/17/2015 02:47 PM	
Barium	120	0.072	1.0	µg/L	1	9/17/2015 02:47 PM	
Manganese	1.3	0.023	0.50	µg/L	1	9/17/2015 02:47 PM	
Molybdenum	4.2	0.029	0.50	µg/L	1	9/17/2015 02:47 PM	
Selenium	1.6	0.070	0.50	µg/L	1	9/17/2015 02:47 PM	

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



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ANALYTICAL RESULTS

Print Date: 01-Oct-15

CLIENT: CH2M HILL
Lab Order: N016933
Project: PG&E Topock, 658017.01.05.02
Lab ID: N016933-014

Client Sample ID: R63-205
Collection Date: 9/16/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150917A	QC Batch: 51447			PrepDate	9/17/2015	Analyst: CEI
Arsenic	2.3	0.016	0.10	µg/L	1	9/17/2015 02:53 PM
Barium	120	0.072	1.0	µg/L	1	9/17/2015 02:53 PM
Manganese	7.1	0.023	0.50	µg/L	1	9/17/2015 02:53 PM
Molybdenum	3.9	0.029	0.50	µg/L	1	9/17/2015 02:53 PM
Selenium	1.4	0.070	0.50	µg/L	1	9/17/2015 02:53 PM

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID MB-51447	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: PBW	Batch ID: 51447	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/17/2015	SeqNo: 2086575						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.163	0.50									
Selenium	ND	0.50									

Sample ID LCS-51447	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: LCSW	Batch ID: 51447	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/17/2015	SeqNo: 2086576						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.209	0.10	10.00	0	102	85	115				
Barium	105.466	1.0	100.0	0	105	85	115				
Manganese	100.140	0.50	100.0	0	100	85	115				
Molybdenum	10.216	0.50	10.00	0	102	85	115				
Selenium	9.986	0.50	10.00	0	99.9	85	115				

Sample ID N016932-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZ	Batch ID: 51447	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/17/2015	SeqNo: 2086580						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.449	0.10	10.00	1.022	104	75	125				
Manganese	97.123	0.50	100.0	0	97.1	75	125				
Molybdenum	13.323	0.50	10.00	2.424	109	75	125				
Selenium	10.263	0.50	10.00	0.3803	98.8	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID N016932-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZZ	Batch ID: 51447	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/17/2015	SeqNo: 2086581						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.525	0.10	10.00	1.022	105	75	125	11.45	0.663	20	
Manganese	97.327	0.50	100.0	0	97.3	75	125	97.12	0.210	20	
Molybdenum	13.568	0.50	10.00	2.424	111	75	125	13.32	1.82	20	
Selenium	10.720	0.50	10.00	0.3803	103	75	125	10.26	4.35	20	

Sample ID N016933-012C-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZZ	Batch ID: 51447	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/17/2015	SeqNo: 2086594						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.805	0.10	10.00	2.502	103	75	125				
Manganese	100.390	0.50	100.0	1.413	99.0	75	125				
Molybdenum	13.925	0.50	10.00	4.067	98.6	75	125				
Selenium	11.154	0.50	10.00	1.406	97.5	75	125				

Sample ID N016932-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZZ	Batch ID: 51447	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/17/2015	SeqNo: 2086601						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	304.772	5.0	100.0	199.1	106	75	125				

Sample ID N016932-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZZ	Batch ID: 51447	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/17/2015	SeqNo: 2086602						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	304.292	5.0	100.0	199.1	105	75	125	304.8	0.158	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: N016933
Project: PG&E Topock, 658017.01.05.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N016933-012C-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/17/2015	RunNo: 102168						
Client ID: ZZZZZZ	Batch ID: 51447	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/17/2015	SeqNo: 2086604						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	235.719	5.0	100.0	133.5	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 | |

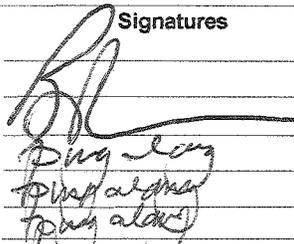


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 P: 702.307.2659 F: 702.307.2691

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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Task Order Project 2015-RMP-205 Turnaround Time 10 Days Shipping Date: 9/16/2015 COC Number: 3				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	Number of Containers	COMMENTS
DATE	TIME	Matrix	Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
Holding Time:				Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA		
658017.01.05.02 Project Number 2015-RMP-205, 658-111				Holding Time:	28	28	180	180	180	7	7	7	28		
				Matrix	Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (6020A) Field Filtered Chromium	Metals (SW6010B/SW6020A/ds) Field Filtered As,Mn,Fe,Se,Mo,Ba	Specific Conductance (E120.1)	PH (SM4500HB)	TSS (SM2540)	Nitrate/Nitrite (SM4500NO3) Nitrate		
C-BNS-D-205	9/16/2015	10:26	Water	X		X	X	X	X	X	X	X	NO16933-1	9	
C-I-3-D-205	9/16/2015	9:02	Water	X		X	X	X	X	X	X	X	NO16933-2	9	
C-I-3-S-205	9/16/2015	9:16	Water	X		X	X	X	X	X	X	X	-3	9	
C-MW-80-205	9/16/2015	9:24	Water		X								-4	1	
C-MW-81-205	9/16/2015	11:08	Water		X								-5	1	
C-R22A-D-205	9/16/2015	9:56	Water	X		X	X	X	X	X	X	X	-6	9	
C-R22A-S-205	9/16/2015	10:08	Water	X		X	X	X	X	X	X	X	-7	9	
C-R27-D-205	9/16/2015	10:44	Water	X		X	X	X	X	X	X	X	-8	9	
C-R27-S-205	9/16/2015	10:58	Water	X		X	X	X	X	X	X	X	-9	9	
C-TAZ-D-205	9/16/2015	8:24	Water	X		X	X	X	X	X	X	X	-10	9	
C-TAZ-S-205	9/16/2015	8:40	Water	X		X	X	X	X	X	X	X	-11	9	
R-19-205	9/16/2015	11:26	Water	X		X	X	X	X	X	X	X	-12	9	
R-28-205	9/16/2015	11:14	Water	X		X	X	X	X	X	X	X	-13	9	

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures  Date/Time 9-16-15 1410 9/16/15 1410 9/16/15 1640 9/16/15 1640	Shipping Details Method of Shipment: courier On Ice: yes / no 2. 2. 2-5°C, 3. 1°C Airbill No: Lab Name: Asset Laboratories Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: Sept 15-16, 2015 Where provided with multiple Cr6 and CrT bottles, please analyze one bottle, and hold the other bottles. Report Copy to Shawn Duffy (530) 229-3303
---	--	--	--	---

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Task Order Project 2015-RMP-205 Turnaround Time 10 Days Shipping Date: 9/16/2015 COC Number: 3				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	Number of Containers	COMMENTS
DATE	TIME	Matrix	Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH-2, 4°C			
			Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA			
			Holding Time:	28	28	180	180	180	7	7	7	28			
				Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (6020A) Field Filtered Chromium	Metals (SW6010B/SW6020A/dia) Field Filtered As,Mn,Fe,Se,Mo,Ba	Specific Conductance (E120.1)	PH (SM4500HB)	TSS (SM2540)	Nitrate/Nitrite (SM4500NO3) Nitrate			
R63-205	9/16/2015	9:32	Water	X		X	X	X	X	X	X	X	9		
RMP-AB1-205	9/16/2015	12:00	Water		X								1		
TOTAL NUMBER OF CONTAINERS													111		

Approved by	Signatures	Date/Time	Shipping Details	ATTN:	Special Instructions:
Sampled by		9-16-15	Method of Shipment: courier	Sample Custody	Sept 15-16, 2015
Relinquished by		1410	On Ice: <input checked="" type="radio"/> yes / no 3-10 1P42	and	Where provided with multiple Cr6 and CrT bottles, please analyze one bottle, and hold the other bottles.
Received by		9/16/15 1410	Airbill No:	Marlon	Report Copy to
Relinquished by		9/16/15 1600	Lab Name: Asset Laboratories		Shawn Duffy
Received by		9/16/15 1600	Lab Phone: (702) 307-2659		(530) 229-3303

ASSET Laboratories

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

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 9/16/2015 Workorder: N016933
 Rep sample Temp (Deg C): 2.7, 2.5, 3.1 IR Gun ID: 2
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input checked="" type="checkbox"/>
Yes <input type="checkbox"/> | No <input type="checkbox"/>
No <input type="checkbox"/> | NA <input type="checkbox"/>
NA <input checked="" type="checkbox"/> |

Comments: Samples for pH are past holding time upon receipt.

Checklist Completed By: MBC For: *RLM 09-18-15*

Reviewed By:  09/21/15

WORKORDER: N016933

ANALYST LIST

NAME	TEST METHOD
Claire Ignacio	EPA 6020, EPA 6010
Ryan Balilu	EPA 218.6, SM4500-NO3F
Lilia Ramit	EPA 120.1, SM4500-H+B, SM2540D



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“Serving Clients with Passion and Professionalism”

October 05, 2015

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.: N016954

RE: PG&E Topock, 658017.01.06.02

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 17, 2015 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,



Glen Gesmundo
QA Manager

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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.02
Lab Order: N016954

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

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

Analytical Comments for SM 4500-NO3F:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N016954-002E-MSD and N016954-002E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron on QC samples N016933-001B-MSD and N016954-010B-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Matrix Spike (MS) and Matrix Spike Duplicate (MSD) is outside criteria for Iron ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



ASSET Laboratories

Date: 05-Oct-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.02
Lab Order: N016954
Contract No: 2015-RMP-205

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016954-001A	C-CON-D-205	Water	9/17/2015 8:58:00 AM	9/17/2015	10/5/2015
N016954-001B	C-CON-D-205	Water	9/17/2015 8:58:00 AM	9/17/2015	10/5/2015
N016954-001C	C-CON-D-205	Water	9/17/2015 8:58:00 AM	9/17/2015	10/5/2015
N016954-001D	C-CON-D-205	Water	9/17/2015 8:58:00 AM	9/17/2015	10/5/2015
N016954-001E	C-CON-D-205	Water	9/17/2015 8:58:00 AM	9/17/2015	10/5/2015
N016954-002A	C-CON-S-205	Water	9/17/2015 9:12:00 AM	9/17/2015	10/5/2015
N016954-002B	C-CON-S-205	Water	9/17/2015 9:12:00 AM	9/17/2015	10/5/2015
N016954-002C	C-CON-S-205	Water	9/17/2015 9:12:00 AM	9/17/2015	10/5/2015
N016954-002D	C-CON-S-205	Water	9/17/2015 9:12:00 AM	9/17/2015	10/5/2015
N016954-002E	C-CON-S-205	Water	9/17/2015 9:12:00 AM	9/17/2015	10/5/2015
N016954-003A	C-MAR-S-205	Water	9/17/2015 8:10:00 AM	9/17/2015	10/5/2015
N016954-003B	C-MAR-S-205	Water	9/17/2015 8:10:00 AM	9/17/2015	10/5/2015
N016954-003C	C-MAR-S-205	Water	9/17/2015 8:10:00 AM	9/17/2015	10/5/2015
N016954-003D	C-MAR-S-205	Water	9/17/2015 8:10:00 AM	9/17/2015	10/5/2015
N016954-003E	C-MAR-S-205	Water	9/17/2015 8:10:00 AM	9/17/2015	10/5/2015
N016954-004A	C-MW-82-205	Water	9/17/2015 8:04:00 AM	9/17/2015	10/5/2015
N016954-005A	C-MW-83-205	Water	9/17/2015 8:40:00 AM	9/17/2015	10/5/2015
N016954-006A	C-NR1-D-205	Water	9/17/2015 9:32:00 AM	9/17/2015	10/5/2015
N016954-006B	C-NR1-D-205	Water	9/17/2015 9:32:00 AM	9/17/2015	10/5/2015
N016954-006C	C-NR1-D-205	Water	9/17/2015 9:32:00 AM	9/17/2015	10/5/2015
N016954-006D	C-NR1-D-205	Water	9/17/2015 9:32:00 AM	9/17/2015	10/5/2015
N016954-006E	C-NR1-D-205	Water	9/17/2015 9:32:00 AM	9/17/2015	10/5/2015
N016954-007A	C-NR1-S-205	Water	9/17/2015 9:46:00 AM	9/17/2015	10/5/2015
N016954-007B	C-NR1-S-205	Water	9/17/2015 9:46:00 AM	9/17/2015	10/5/2015
N016954-007C	C-NR1-S-205	Water	9/17/2015 9:46:00 AM	9/17/2015	10/5/2015
N016954-007D	C-NR1-S-205	Water	9/17/2015 9:46:00 AM	9/17/2015	10/5/2015
N016954-007E	C-NR1-S-205	Water	9/17/2015 9:46:00 AM	9/17/2015	10/5/2015
N016954-008A	C-NR3-D-205	Water	9/17/2015 10:14:00 AM	9/17/2015	10/5/2015
N016954-008B	C-NR3-D-205	Water	9/17/2015 10:14:00 AM	9/17/2015	10/5/2015



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CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.02
Lab Order: N016954
Contract No: 2015-RMP-205

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N016954-008C	C-NR3-D-205	Water	9/17/2015 10:14:00 AM	9/17/2015	10/5/2015
N016954-008D	C-NR3-D-205	Water	9/17/2015 10:14:00 AM	9/17/2015	10/5/2015
N016954-008E	C-NR3-D-205	Water	9/17/2015 10:14:00 AM	9/17/2015	10/5/2015
N016954-009A	C-NR3-S-205	Water	9/17/2015 10:26:00 AM	9/17/2015	10/5/2015
N016954-009B	C-NR3-S-205	Water	9/17/2015 10:26:00 AM	9/17/2015	10/5/2015
N016954-009C	C-NR3-S-205	Water	9/17/2015 10:26:00 AM	9/17/2015	10/5/2015
N016954-009D	C-NR3-S-205	Water	9/17/2015 10:26:00 AM	9/17/2015	10/5/2015
N016954-009E	C-NR3-S-205	Water	9/17/2015 10:26:00 AM	9/17/2015	10/5/2015
N016954-010A	C-NR4-D-205	Water	9/17/2015 11:42:00 AM	9/17/2015	10/5/2015
N016954-010B	C-NR4-D-205	Water	9/17/2015 11:42:00 AM	9/17/2015	10/5/2015
N016954-010C	C-NR4-D-205	Water	9/17/2015 11:42:00 AM	9/17/2015	10/5/2015
N016954-010D	C-NR4-D-205	Water	9/17/2015 11:42:00 AM	9/17/2015	10/5/2015
N016954-010E	C-NR4-D-205	Water	9/17/2015 11:42:00 AM	9/17/2015	10/5/2015
N016954-011A	C-NR4-S-205	Water	9/17/2015 12:06:00 PM	9/17/2015	10/5/2015
N016954-011B	C-NR4-S-205	Water	9/17/2015 12:06:00 PM	9/17/2015	10/5/2015
N016954-011C	C-NR4-S-205	Water	9/17/2015 12:06:00 PM	9/17/2015	10/5/2015
N016954-011D	C-NR4-S-205	Water	9/17/2015 12:06:00 PM	9/17/2015	10/5/2015
N016954-011E	C-NR4-S-205	Water	9/17/2015 12:06:00 PM	9/17/2015	10/5/2015
N016954-012A	RMP-AB2-205	Water	9/17/2015 12:25:00 PM	9/17/2015	10/5/2015
N016954-013A	RRB-205	Water	9/17/2015 8:38:00 AM	9/17/2015	10/5/2015
N016954-013B	RRB-205	Water	9/17/2015 8:38:00 AM	9/17/2015	10/5/2015
N016954-013C	RRB-205	Water	9/17/2015 8:38:00 AM	9/17/2015	10/5/2015
N016954-013D	RRB-205	Water	9/17/2015 8:38:00 AM	9/17/2015	10/5/2015
N016954-013E	RRB-205	Water	9/17/2015 8:38:00 AM	9/17/2015	10/5/2015
N016954-014A	SW1-205	Water	9/17/2015 7:14:00 AM	9/17/2015	10/5/2015
N016954-014B	SW1-205	Water	9/17/2015 7:14:00 AM	9/17/2015	10/5/2015
N016954-014C	SW1-205	Water	9/17/2015 7:14:00 AM	9/17/2015	10/5/2015
N016954-015A	SW2-205	Water	9/17/2015 7:28:00 AM	9/17/2015	10/5/2015
N016954-015B	SW2-205	Water	9/17/2015 7:28:00 AM	9/17/2015	10/5/2015
N016954-015C	SW2-205	Water	9/17/2015 7:28:00 AM	9/17/2015	10/5/2015



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-CON-D-205
Lab Order: N016954	Collection Date: 9/17/2015 8:58:00 AM
Project: PG&E Topock, 658017.01.06.02	Matrix: WATER
Lab ID: N016954-001	

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

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224			PrepDate			Analyst: RB
Specific Conductance	940	0.10	0.10	umhos/cm	1		9/18/2015 01:35 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: 05-Oct-15

CLIENT: CH2M HILL **Client Sample ID:** C-CON-S-205
Lab Order: N016954 **Collection Date:** 9/17/2015 9:12:00 AM
Project: PG&E Topock, 658017.01.06.02 **Matrix:** WATER
Lab ID: N016954-002

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

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: **WETCHEM_150918C** QC Batch: **R102224** PrepDate Analyst: **RB**
Specific Conductance 930 0.10 0.10 umhos/cm 1 9/18/2015 01:35 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: 05-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-MAR-S-205
Lab Order: N016954	Collection Date: 9/17/2015 8:10:00 AM
Project: PG&E Topock, 658017.01.06.02	Matrix: WATER
Lab ID: N016954-003	

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

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224			PrepDate			Analyst: RB
Specific Conductance	930	0.10	0.10	umhos/cm	1		9/18/2015 01:35 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: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-006

Client Sample ID: C-NR1-D-205
Collection Date: 9/17/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224				PrepDate		Analyst: RB
Specific Conductance	930	0.10	0.10		umhos/cm	1	9/18/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-007

Client Sample ID: C-NR1-S-205
Collection Date: 9/17/2015 9:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224				PrepDate		Analyst: RB
Specific Conductance	930	0.10	0.10		umhos/cm	1	9/18/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-008

Client Sample ID: C-NR3-D-205
Collection Date: 9/17/2015 10:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224				PrepDate		Analyst: RB
Specific Conductance	930	0.10	0.10		umhos/cm	1	9/18/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-NR3-S-205
Lab Order: N016954	Collection Date: 9/17/2015 10:26:00 AM
Project: PG&E Topock, 658017.01.06.02	Matrix: WATER
Lab ID: N016954-009	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224			PrepDate		Analyst: RB
Specific Conductance	940	0.10	0.10	umhos/cm	1	9/18/2015 01:35 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: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-010

Client Sample ID: C-NR4-D-205
Collection Date: 9/17/2015 11:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224				PrepDate		Analyst: RB
Specific Conductance	930	0.10	0.10		umhos/cm	1	9/18/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-011

Client Sample ID: C-NR4-S-205
Collection Date: 9/17/2015 12:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224				PrepDate		Analyst: RB
Specific Conductance	930	0.10	0.10		umhos/cm	1	9/18/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL	Client Sample ID: RRB-205
Lab Order: N016954	Collection Date: 9/17/2015 8:38:00 AM
Project: PG&E Topock, 658017.01.06.02	Matrix: WATER
Lab ID: N016954-013	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224			PrepDate		Analyst: RB
Specific Conductance	940	0.10	0.10	umhos/cm	1	9/18/2015 01:35 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: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-014

Client Sample ID: SW1-205
Collection Date: 9/17/2015 7:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224				PrepDate		Analyst: RB
Specific Conductance	940	0.10	0.10		umhos/cm	1	9/18/2015 01:35 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL	Client Sample ID: SW2-205
Lab Order: N016954	Collection Date: 9/17/2015 7:28:00 AM
Project: PG&E Topock, 658017.01.06.02	Matrix: WATER
Lab ID: N016954-015	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_150918C	QC Batch: R102224			PrepDate			Analyst: RB
Specific Conductance	950	0.10	0.10	umhos/cm	1		9/18/2015 01:35 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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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N016954-001DDUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 102224						
Client ID: ZZZZZ	Batch ID: R102224	TestNo: EPA 120.1		Analysis Date: 9/18/2015	SeqNo: 2088103						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	935.000	0.10						937.0	0.214	10	

Sample ID N016954-015CDUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 102224						
Client ID: ZZZZZ	Batch ID: R102224	TestNo: EPA 120.1		Analysis Date: 9/18/2015	SeqNo: 2088115						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	948.000	0.10						950.0	0.211	10	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-001

Client Sample ID: C-CON-D-205
Collection Date: 9/17/2015 8:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.8	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-002

Client Sample ID: C-CON-S-205
Collection Date: 9/17/2015 9:12:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.9	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-003

Client Sample ID: C-MAR-S-205
Collection Date: 9/17/2015 8:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.9	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-006

Client Sample ID: C-NR1-D-205
Collection Date: 9/17/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.9	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-007

Client Sample ID: C-NR1-S-205
Collection Date: 9/17/2015 9:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.9	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-008

Client Sample ID: C-NR3-D-205
Collection Date: 9/17/2015 10:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.9	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-009

Client Sample ID: C-NR3-S-205
Collection Date: 9/17/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.9	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-010

Client Sample ID: C-NR4-D-205
Collection Date: 9/17/2015 11:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.9	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-011

Client Sample ID: C-NR4-S-205
Collection Date: 9/17/2015 12:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.9	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-013

Client Sample ID: RRB-205
Collection Date: 9/17/2015 8:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.8	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-014

Client Sample ID: SW1-205
Collection Date: 9/17/2015 7:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.7	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-015

Client Sample ID: SW2-205
Collection Date: 9/17/2015 7:28:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PH

SM4500-H+B

RunID: WETCHEM_150918B	QC Batch: R102219				PrepDate		Analyst: RB
pH	7.8	0.10	0.10	H	pH Units	1	9/18/2015 11:20 AM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	9/18/2015 11:20 AM

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID N016951-001ADUP	SampType: DUP	TestCode: 150.1_4500H	Units: pH Units	Prep Date:	RunNo: 102219						
Client ID: ZZZZZ	Batch ID: R102219	TestNo: SM4500-H+B	Analysis Date: 9/18/2015	SeqNo: 2087978							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.030	0.10						6.010	0.332	10	H
Temp. at time of pH Analysis	22.700	0.10						22.70	0	10	H

Sample ID N016954-015CDUP	SampType: DUP	TestCode: 150.1_4500H	Units: pH Units	Prep Date:	RunNo: 102219						
Client ID: ZZZZZ	Batch ID: R102219	TestNo: SM4500-H+B	Analysis Date: 9/18/2015	SeqNo: 2087995							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.780	0.10						7.790	0.128	10	H
Temp. at time of pH Analysis	22.600	0.10						22.60	0	10	H

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-001

Client Sample ID: C-CON-D-205
Collection Date: 9/17/2015 8:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-002

Client Sample ID: C-CON-S-205
Collection Date: 9/17/2015 9:12:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-003

Client Sample ID: C-MAR-S-205
Collection Date: 9/17/2015 8:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-006

Client Sample ID: C-NR1-D-205
Collection Date: 9/17/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-007

Client Sample ID: C-NR1-S-205
Collection Date: 9/17/2015 9:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-008

Client Sample ID: C-NR3-D-205
Collection Date: 9/17/2015 10:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR	
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM	

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-009

Client Sample ID: C-NR3-S-205
Collection Date: 9/17/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-010

Client Sample ID: C-NR4-D-205
Collection Date: 9/17/2015 11:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-011

Client Sample ID: C-NR4-S-205
Collection Date: 9/17/2015 12:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-013

Client Sample ID: RRB-205
Collection Date: 9/17/2015 8:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_150922B	QC Batch: 51504			PrepDate	9/22/2015	Analyst: LR
Suspended Solids (Residue, Non-Filterable)	ND	10	10	mg/L	1	9/22/2015 12:19 PM

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

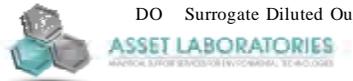
Sample ID MB-51504	SampType: MBLK	TestCode: 160.2_2540D	Units: mg/L	Prep Date: 9/22/2015	RunNo: 102255						
Client ID: PBW	Batch ID: 51504	TestNo: SM2540D		Analysis Date: 9/22/2015	SeqNo: 2090039						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID LCS-51504	SampType: LCS	TestCode: 160.2_2540D	Units: mg/L	Prep Date: 9/22/2015	RunNo: 102255						
Client ID: LCSW	Batch ID: 51504	TestNo: SM2540D		Analysis Date: 9/22/2015	SeqNo: 2090040						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	1106.000	10	1000	0	111	80	120				

Sample ID N016954-001D-DUP	SampType: DUP	TestCode: 160.2_2540D	Units: mg/L	Prep Date: 9/22/2015	RunNo: 102255						
Client ID: ZZZZZ	Batch ID: 51504	TestNo: SM2540D		Analysis Date: 9/22/2015	SeqNo: 2090042						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-001

Client Sample ID: C-CON-D-205
Collection Date: 9/17/2015 8:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 03:12 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 06:27 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-002

Client Sample ID: C-CON-S-205
Collection Date: 9/17/2015 9:12:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 03:32 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 07:16 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-003

Client Sample ID: C-MAR-S-205
Collection Date: 9/17/2015 8:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 03:51 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 07:21 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-004

Client Sample ID: C-MW-82-205
Collection Date: 9/17/2015 8:04:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150921A	QC Batch: R102303	PrepDate	Analyst: RB
Hexavalent Chromium	ND 0.015 0.20	µg/L	1 9/21/2015 01:18 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-005

Client Sample ID: C-MW-83-205
Collection Date: 9/17/2015 8:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150921A	QC Batch: R102303			PrepDate			Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/21/2015 01:37 PM

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

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-006

Client Sample ID: C-NR1-D-205
Collection Date: 9/17/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 04:29 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 07:27 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-007

Client Sample ID: C-NR1-S-205
Collection Date: 9/17/2015 9:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 04:48 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 07:32 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-008

Client Sample ID: C-NR3-D-205
Collection Date: 9/17/2015 10:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 05:07 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 07:38 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-009

Client Sample ID: C-NR3-S-205
Collection Date: 9/17/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 05:26 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 07:43 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-010

Client Sample ID: C-NR4-D-205
Collection Date: 9/17/2015 11:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150918A	QC Batch: R102218				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/18/2015 05:45 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 07:49 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-011

Client Sample ID: C-NR4-S-205
Collection Date: 9/17/2015 12:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150921A	QC Batch: R102303				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/21/2015 11:42 AM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 07:54 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL **Client Sample ID:** RMP-AB2-205
Lab Order: N016954 **Collection Date:** 9/17/2015 12:25:00 PM
Project: PG&E Topock, 658017.01.06.02 **Matrix:** WATER
Lab ID: N016954-012

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

HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: **IC7_150921A** QC Batch: **R102303** PrepDate Analyst: **RB**
Hexavalent Chromium 0.23 0.015 0.20 µg/L 1 9/21/2015 01:56 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-013

Client Sample ID: RRB-205
Collection Date: 9/17/2015 8:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150921A	QC Batch: R102303				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/21/2015 12:02 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151001A	QC Batch: 52571				PrepDate	10/1/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	10/1/2015 11:23 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-014

Client Sample ID: SW1-205
Collection Date: 9/17/2015 7:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150921A	QC Batch: R102303				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/21/2015 12:21 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 06:54 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-015

Client Sample ID: SW2-205
Collection Date: 9/17/2015 7:28:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_150921A	QC Batch: R102303				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	9/21/2015 12:40 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469				PrepDate	9/18/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	9/18/2015 08:05 PM

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R102218	SampType: MBLK	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218
Client ID: PBW	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087874
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-R102218	SampType: LCS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218
Client ID: LCSW	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087875
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	4.861	0.20	5.000	0	97.2 90 110

Sample ID N016933-006AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087877
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	1.096	0.20	1.000	0.08260	101 90 110

Sample ID N016933-007AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087879
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	1.053	0.20	1.000	0.07900	97.4 90 110

Sample ID N016933-008AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087881
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	1.073	0.20	1.000	0.07490	99.8 90 110

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016933-009AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087883						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.076	0.20	1.000	0.07830	99.8	90	110
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Sample ID N016933-010AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087887						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.086	0.20	1.000	0.07420	101	90	110
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Sample ID N016933-011AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087889						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.081	0.20	1.000	0.07030	101	90	110
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Sample ID N016933-012AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087891						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.088	0.20	1.000	0.08170	101	90	110
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Sample ID N016933-013AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087893						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.071	0.20	1.000	0.09490	97.6	90	110
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Qualifiers:

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



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Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016954-002AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087905						
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	0.07760	95.6	90	110
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Sample ID N016954-003AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087907						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.079	0.20	1.000	0.09590	98.3	90	110
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Sample ID N016954-006AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087911						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.042	0.20	1.000	0.07800	96.4	90	110
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Sample ID N016954-007AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087913						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.085	0.20	1.000	0.07690	101	90	110
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Sample ID N016954-008AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087915						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.069	0.20	1.000	0.07660	99.2	90	110
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Qualifiers:

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



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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016954-009AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6	Analysis Date: 9/18/2015	SeqNo: 2087917							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0.07150	97.0	90	110				

Sample ID N016954-010AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZZ	Batch ID: R102218	TestNo: EPA 218.6	Analysis Date: 9/18/2015	SeqNo: 2087919							
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	0.07910	98.7	90	110				

Qualifiers:

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|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R102303	SampType: MBLK	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: PBW	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091346						
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-R102303	SampType: LCS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: LCSW	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091347						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.782 0.20 5.000 0 95.6 90 110

Sample ID N016954-011AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091349						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.086 0.20 1.000 0.09420 99.2 90 110

Sample ID N016954-013AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091351						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.073 0.20 1.000 0.09330 98.0 90 110

Sample ID N016954-014AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091353						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.054 0.20 1.000 0.08560 96.8 90 110

Qualifiers:

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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N016954-015AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091355						
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	0.07810	96.7	90	110				

Sample ID N016954-012ADUP	SampType: DUP	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091363						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.216	0.20						0.2254	4.17	20	

Sample ID N016954-012AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091364						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.180	0.20	1.000	0.2254	95.5	90	110				

Sample ID N016954-012AMSD	SampType: MSD	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6		Analysis Date: 9/21/2015	SeqNo: 2091365						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.223	0.20	1.000	0.2254	99.7	90	110	1.180	3.55	20	

Qualifiers:

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|---|--|--|
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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R102218	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: PBW	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087928						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	ND	0.20									
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Sample ID LCS-R102218	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: LCSW	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087929						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	4.861	0.20	5.000	0	97.2	90	110				
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Sample ID N016933-015ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087953						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.146	0.20						0.1487	0	20	
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Sample ID N016933-015AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087954						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.145	0.20	1.000	0.1487	99.7	90	110				
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Sample ID N016933-015AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102218						
Client ID: ZZZZZ	Batch ID: R102218	TestNo: EPA 218.6		Analysis Date: 9/18/2015	SeqNo: 2087955						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.152	0.20	1.000	0.1487	100	90	110	1.145	0.557	20	
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Qualifiers:

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|---|--|--|
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ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N016954-012AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6	Analysis Date: 9/21/2015	SeqNo: 2091392							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.180	0.20	1.000	0.2254	95.5	90	110				

Sample ID N016954-012AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 102303						
Client ID: ZZZZZ	Batch ID: R102303	TestNo: EPA 218.6	Analysis Date: 9/21/2015	SeqNo: 2091393							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.223	0.20	1.000	0.2254	99.7	90	110	1.180	3.55	20	

Qualifiers:

- | | | |
|---|--|--|
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ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID MB-51469	SampType: MBLK	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: PBW	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088353						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID LCS-51469	SampType: LCS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: LCSW	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088354						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 10.737 1.0 10.00 0 107 85 115

Sample ID N016954-001C-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: ZZZZZZ	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088358						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 10.487 1.0 10.00 0.1207 104 75 125

Sample ID N016954-001C-MSD	SampType: MSD	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: ZZZZZZ	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088359						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 10.446 1.0 10.00 0.1207 103 75 125 10.49 0.389 20

Sample ID N016954-014B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: ZZZZZZ	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088361						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 10.360 1.0 10.00 0.1567 102 75 125

Qualifiers:

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|---|--|--|
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ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID MB-52571	SampType: MBLK	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: PBW	Batch ID: 52571	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2095947						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID LCS-52571	SampType: LCS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: LCSW	Batch ID: 52571	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2095948						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.873 1.0 10.00 0 98.7 85 115

Sample ID N016954-013C-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: ZZZZZ	Batch ID: 52571	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2095952						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 10.759 1.0 10.00 0.2580 105 75 125

Sample ID N016954-013C-MSD	SampType: MSD	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: ZZZZZ	Batch ID: 52571	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2095953						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 10.739 1.0 10.00 0.2580 105 75 125 10.76 0.179 20

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-001

Client Sample ID: C-CON-D-205
Collection Date: 9/17/2015 8:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307			PrepDate			Analyst: RB
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	9/24/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-002

Client Sample ID: C-CON-S-205
Collection Date: 9/17/2015 9:12:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.38	0.022	0.050		mg/L	1	9/24/2015

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-003

Client Sample ID: C-MAR-S-205
Collection Date: 9/17/2015 8:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.36	0.022	0.050		mg/L	1	9/24/2015

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-006

Client Sample ID: C-NR1-D-205
Collection Date: 9/17/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.36	0.022	0.050		mg/L	1	9/24/2015

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-007

Client Sample ID: C-NR1-S-205
Collection Date: 9/17/2015 9:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.37	0.022	0.050		mg/L	1	9/24/2015

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-008

Client Sample ID: C-NR3-D-205
Collection Date: 9/17/2015 10:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.37	0.022	0.050		mg/L	1	9/24/2015

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-009

Client Sample ID: C-NR3-S-205
Collection Date: 9/17/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.38	0.022	0.050		mg/L	1	9/24/2015

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL **Client Sample ID:** C-NR4-D-205
Lab Order: N016954 **Collection Date:** 9/17/2015 11:42:00 AM
Project: PG&E Topock, 658017.01.06.02 **Matrix:** WATER
Lab ID: N016954-010

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: **WETCHEM_150924H** QC Batch: **R102307** PrepDate Analyst: **RB**
Nitrate/Nitrite as N 0.37 0.022 0.050 mg/L 1 9/24/2015

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
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: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-011

Client Sample ID: C-NR4-S-205
Collection Date: 9/17/2015 12:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.37	0.022	0.050		mg/L	1	9/24/2015

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-013

Client Sample ID: RRB-205
Collection Date: 9/17/2015 8:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_150924H	QC Batch: R102307				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.32	0.022	0.050		mg/L	1	9/24/2015

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-102307	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102307
Client ID: PBW	Batch ID: R102307	TestNo: SM4500-NO3		Analysis Date: 9/24/2015	SeqNo: 2091514
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-R102307	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102307
Client ID: LCSW	Batch ID: R102307	TestNo: SM4500-NO3		Analysis Date: 9/24/2015	SeqNo: 2091515
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.510	0.050	0.5000	0	102 85 115

Sample ID N016954-002EDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102307
Client ID: ZZZZZ	Batch ID: R102307	TestNo: SM4500-NO3		Analysis Date: 9/24/2015	SeqNo: 2091517
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.386	0.050			0.3782 2.07 20

Sample ID N016954-002EMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102307
Client ID: ZZZZZ	Batch ID: R102307	TestNo: SM4500-NO3		Analysis Date: 9/24/2015	SeqNo: 2091518
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	1.018	0.050	0.5000	0.3782	128 75 125 S

Sample ID N016954-002EMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 102307
Client ID: ZZZZZ	Batch ID: R102307	TestNo: SM4500-NO3		Analysis Date: 9/24/2015	SeqNo: 2091519
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	1.008	0.050	0.5000	0.3782	126 75 125 1.018 0.968 20 S

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-001

Client Sample ID: C-CON-D-205
Collection Date: 9/17/2015 8:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 11:51 AM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	37	17	20		ug/L	1	9/22/2015 02:29 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-002

Client Sample ID: C-CON-S-205
Collection Date: 9/17/2015 9:12:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 12:04 PM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	46	17	20		ug/L	1	9/22/2015 02:33 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-003

Client Sample ID: C-MAR-S-205
Collection Date: 9/17/2015 8:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	56	17	20		ug/L	1	9/22/2015 12:09 PM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	200	17	20		ug/L	1	9/22/2015 02:37 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-006

Client Sample ID: C-NR1-D-205
Collection Date: 9/17/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 12:13 PM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	51	17	20		ug/L	1	9/22/2015 02:42 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-007

Client Sample ID: C-NR1-S-205
Collection Date: 9/17/2015 9:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 12:17 PM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	51	17	20		ug/L	1	9/22/2015 02:46 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-NR3-D-205
Lab Order: N016954	Collection Date: 9/17/2015 10:14:00 AM
Project: PG&E Topock, 658017.01.06.02	Matrix: WATER
Lab ID: N016954-008	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015		Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 12:22 PM
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015		Analyst: CEI
Iron	39	17	20		ug/L	1	9/22/2015 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: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-009

Client Sample ID: C-NR3-S-205
Collection Date: 9/17/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51468			PrepDate	9/18/2015		Analyst: CEI
Iron	ND	17	20	ug/L	1		9/22/2015 12:26 PM
TOTAL METALS BY ICP							
	EPA 3010A			EPA 6010B			
RunID: ICP2_150922A	QC Batch: 51467			PrepDate	9/18/2015		Analyst: CEI
Iron	69	17	20	ug/L	1		9/22/2015 03:05 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-010

Client Sample ID: C-NR4-D-205
Collection Date: 9/17/2015 11:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51468				PrepDate	9/18/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	9/22/2015 12:31 PM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_150922A	QC Batch: 51467				PrepDate	9/18/2015	Analyst: CEI
Iron	24	17	20		ug/L	1	9/22/2015 03:09 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-011

Client Sample ID: C-NR4-S-205
Collection Date: 9/17/2015 12:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_151001C	QC Batch: 52561				PrepDate	9/30/2015	Analyst: CEI
Iron	ND	17	20		ug/L	1	10/1/2015 07:47 AM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_151001C	QC Batch: 52562				PrepDate	9/30/2015	Analyst: CEI
Iron	32	17	20		ug/L	1	10/1/2015 08:33 AM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-013

Client Sample ID: RRB-205
Collection Date: 9/17/2015 8:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_151001C	QC Batch: 52561				PrepDate	9/30/2015	Analyst: CEI
Iron	31	17	20		ug/L	1	10/1/2015 08:10 AM

TOTAL METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_151001C	QC Batch: 52562				PrepDate	9/30/2015	Analyst: CEI
Iron	110	17	20		ug/L	1	10/1/2015 08:56 AM

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPB

Sample ID MB-51468	SampType: MBLK	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: PBW	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089459
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	ND	20			

Sample ID LCS-51468	SampType: LCS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: LCSW	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089460
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	113.573	20	100.0	0	114 85 115

Sample ID N016933-001C-MS	SampType: MS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: ZZZZZ	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089464
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	102.366	20	100.0	0	102 75 125

Sample ID N016933-001C-MSD	SampType: MSD	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: ZZZZZ	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089465
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	102.196	20	100.0	0	102 75 125 102.4 0.166 20

Sample ID N016933-013C-MS	SampType: MS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248
Client ID: ZZZZZ	Batch ID: 51468	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089478
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	119.869	20	100.0	0	120 75 125

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGPPB

Sample ID MB-52561	SampType: MBLK	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/30/2015	RunNo: 103380						
Client ID: PBW	Batch ID: 52561	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2095996						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 20

Sample ID LCS-52561	SampType: LCS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/30/2015	RunNo: 103380						
Client ID: LCSW	Batch ID: 52561	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2095997						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 106.450 20 100.0 0 106 85 115

Sample ID N016954-011C-MS	SampType: MS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/30/2015	RunNo: 103380						
Client ID: ZZZZZ	Batch ID: 52561	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2096001						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 87.015 20 100.0 0 87.0 75 125

Sample ID N016954-011C-MSD	SampType: MSD	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 9/30/2015	RunNo: 103380						
Client ID: ZZZZZ	Batch ID: 52561	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2096002						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 91.975 20 100.0 0 92.0 75 125 87.02 5.54 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: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPB

Sample ID MB-51467	SampType: MBLK	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: PBW	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089568						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 20

Sample ID LCS-51467	SampType: LCS	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: LCSW	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089569						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 112.472 20 100.0 0 112 85 115

Sample ID N016933-001B-MS	SampType: MS	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: ZZZZZ	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089578						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 183.599 20 100.0 70.50 113 75 125

Sample ID N016933-001B-MSD	SampType: MSD	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: ZZZZZ	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089579						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 140.035 20 100.0 70.50 69.5 75 125 183.6 26.9 20 SR

Sample ID N016954-010B-MS	SampType: MS	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/18/2015	RunNo: 102248						
Client ID: ZZZZZ	Batch ID: 51467	TestNo: EPA 6010B EPA 3010A		Analysis Date: 9/22/2015	SeqNo: 2089603						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 194.392 20 100.0 24.31 170 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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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPB

Sample ID MB-52562	SampType: MBLK	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/30/2015	RunNo: 103380						
Client ID: PBW	Batch ID: 52562	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2096032						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 20

Sample ID LCS-52562	SampType: LCS	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/30/2015	RunNo: 103380						
Client ID: LCSW	Batch ID: 52562	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2096033						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 98.312 20 100.0 0 98.3 85 115

Sample ID N016954-011B-MS	SampType: MS	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/30/2015	RunNo: 103380						
Client ID: ZZZZZ	Batch ID: 52562	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2096039						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 114.414 20 100.0 32.36 82.1 75 125

Sample ID N016954-011B-MSD	SampType: MSD	TestCode: 6010_WPGE	Units: ug/L	Prep Date: 9/30/2015	RunNo: 103380						
Client ID: ZZZZZ	Batch ID: 52562	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/1/2015	SeqNo: 2096040						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 113.615 20 100.0 32.36 81.3 75 125 114.4 0.701 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: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-001

Client Sample ID: C-CON-D-205
Collection Date: 9/17/2015 8:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150918B	EPA 3010A			EPA 6020			
	QC Batch: 51469			PrepDate	9/18/2015	Analyst: CEI	
Arsenic	2.6	0.016	0.10		µg/L	1	9/18/2015 06:27 PM
Barium	140	0.36	5.0		µg/L	5	9/18/2015 06:32 PM
Manganese	ND	0.023	0.50		µg/L	1	9/18/2015 06:27 PM
Molybdenum	4.9	0.029	0.50		µg/L	1	9/18/2015 06:27 PM
Selenium	1.5	0.070	0.50		µg/L	1	9/18/2015 06:27 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-002

Client Sample ID: C-CON-S-205
Collection Date: 9/17/2015 9:12:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150918B	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51469			PrepDate	9/18/2015		
Arsenic	2.6	0.016	0.10		µg/L	1	9/18/2015 07:16 PM
Barium	130	0.072	1.0		µg/L	1	9/18/2015 07:16 PM
Manganese	ND	0.023	0.50		µg/L	1	9/18/2015 07:16 PM
Molybdenum	5.0	0.029	0.50		µg/L	1	9/18/2015 07:16 PM
Selenium	1.6	0.070	0.50		µg/L	1	9/18/2015 07:16 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-003

Client Sample ID: C-MAR-S-205
Collection Date: 9/17/2015 8:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_150918B	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 51469			PrepDate	9/18/2015		
Arsenic	2.6	0.016	0.10		µg/L	1	9/18/2015 07:21 PM
Barium	130	0.072	1.0		µg/L	1	9/18/2015 07:21 PM
Manganese	7.6	0.023	0.50		µg/L	1	9/18/2015 07:21 PM
Molybdenum	4.8	0.029	0.50		µg/L	1	9/18/2015 07:21 PM
Selenium	1.7	0.070	0.50		µg/L	1	9/18/2015 07:21 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-006

Client Sample ID: C-NR1-D-205
Collection Date: 9/17/2015 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469			PrepDate	9/18/2015	Analyst: CEI
Arsenic	2.5	0.016	0.10		µg/L	1 9/18/2015 07:27 PM
Barium	120	0.072	1.0		µg/L	1 9/18/2015 07:27 PM
Manganese	ND	0.023	0.50		µg/L	1 9/18/2015 07:27 PM
Molybdenum	4.6	0.029	0.50		µg/L	1 9/18/2015 07:27 PM
Selenium	1.5	0.070	0.50		µg/L	1 9/18/2015 07:27 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-007

Client Sample ID: C-NR1-S-205
Collection Date: 9/17/2015 9:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469			PrepDate	9/18/2015	Analyst: CEI
Arsenic	2.5	0.016	0.10	µg/L	1	9/18/2015 07:32 PM
Barium	120	0.072	1.0	µg/L	1	9/18/2015 07:32 PM
Manganese	ND	0.023	0.50	µg/L	1	9/18/2015 07:32 PM
Molybdenum	4.5	0.029	0.50	µg/L	1	9/18/2015 07:32 PM
Selenium	1.5	0.070	0.50	µg/L	1	9/18/2015 07:32 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-008

Client Sample ID: C-NR3-D-205
Collection Date: 9/17/2015 10:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469			PrepDate	9/18/2015	Analyst: CEI
Arsenic	2.4	0.016	0.10	µg/L	1	9/18/2015 07:38 PM
Barium	120	0.072	1.0	µg/L	1	9/18/2015 07:38 PM
Manganese	ND	0.023	0.50	µg/L	1	9/18/2015 07:38 PM
Molybdenum	4.5	0.029	0.50	µg/L	1	9/18/2015 07:38 PM
Selenium	1.3	0.070	0.50	µg/L	1	9/18/2015 07:38 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-009

Client Sample ID: C-NR3-S-205
Collection Date: 9/17/2015 10:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469			PrepDate	9/18/2015	Analyst: CEI
Arsenic	2.5	0.016	0.10	µg/L	1	9/18/2015 07:43 PM
Barium	120	0.072	1.0	µg/L	1	9/18/2015 07:43 PM
Manganese	ND	0.023	0.50	µg/L	1	9/18/2015 07:43 PM
Molybdenum	4.6	0.029	0.50	µg/L	1	9/18/2015 07:43 PM
Selenium	1.4	0.070	0.50	µg/L	1	9/18/2015 07:43 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL	Client Sample ID: C-NR4-D-205
Lab Order: N016954	Collection Date: 9/17/2015 11:42:00 AM
Project: PG&E Topock, 658017.01.06.02	Matrix: WATER
Lab ID: N016954-010	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_150918B	QC Batch: 51469			PrepDate	9/18/2015		Analyst: CEI
Arsenic	2.6	0.016	0.10		µg/L	1	9/18/2015 07:49 PM
Barium	130	0.072	1.0		µg/L	1	9/18/2015 07:49 PM
Manganese	ND	0.023	0.50		µg/L	1	9/18/2015 07:49 PM
Molybdenum	4.8	0.029	0.50		µg/L	1	9/18/2015 07:49 PM
Selenium	1.7	0.070	0.50		µg/L	1	9/18/2015 07:49 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: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-011

Client Sample ID: C-NR4-S-205
Collection Date: 9/17/2015 12:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_150918B	QC Batch: 51469			PrepDate	9/18/2015	Analyst: CEI
Arsenic	2.6	0.016	0.10	µg/L	1	9/18/2015 07:54 PM
Barium	130	0.072	1.0	µg/L	1	9/18/2015 07:54 PM
Manganese	ND	0.023	0.50	µg/L	1	9/18/2015 07:54 PM
Molybdenum	4.9	0.029	0.50	µg/L	1	9/18/2015 07:54 PM
Selenium	1.6	0.070	0.50	µg/L	1	9/18/2015 07:54 PM

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



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ANALYTICAL RESULTS

Print Date: 05-Oct-15

CLIENT: CH2M HILL
Lab Order: N016954
Project: PG&E Topock, 658017.01.06.02
Lab ID: N016954-013

Client Sample ID: RRB-205
Collection Date: 9/17/2015 8:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_151001A	EPA 3010A			EPA 6020		
	QC Batch: 52571			PrepDate	10/1/2015	Analyst: CEI
Arsenic	2.4	0.016	0.10	µg/L	1	10/1/2015 11:23 AM
Barium	120	0.36	5.0	µg/L	5	10/1/2015 11:29 AM
Manganese	8.4	0.023	0.50	µg/L	1	10/1/2015 11:23 AM
Molybdenum	5.0	0.029	0.50	µg/L	1	10/1/2015 11:23 AM
Selenium	1.5	0.070	0.50	µg/L	1	10/1/2015 11:23 AM

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID MB-51469	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: PBW	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088276						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.030	0.50									
Selenium	ND	0.50									

Sample ID LCS-51469	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: LCSW	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088277						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.182	0.10	10.00	0	112	85	115				
Barium	114.758	1.0	100.0	0	115	85	115				
Manganese	108.267	0.50	100.0	0	108	85	115				
Molybdenum	11.280	0.50	10.00	0	113	85	115				
Selenium	10.796	0.50	10.00	0	108	85	115				

Sample ID N016954-001C-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: ZZZZZ	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088281						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.496	0.10	10.00	2.613	109	75	125				
Manganese	103.544	0.50	100.0	0	104	75	125				
Molybdenum	16.467	0.50	10.00	4.880	116	75	125				
Selenium	12.115	0.50	10.00	1.458	107	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID N016954-001C-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: ZZZZZZ	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088282						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.389	0.10	10.00	2.613	108	75	125	13.50	0.794	20	
Manganese	103.199	0.50	100.0	0	103	75	125	103.5	0.334	20	
Molybdenum	16.405	0.50	10.00	4.880	115	75	125	16.47	0.382	20	
Selenium	12.180	0.50	10.00	1.458	107	75	125	12.11	0.537	20	

Sample ID N016954-014B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: ZZZZZZ	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088284						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.967	0.10	10.00	2.595	104	75	125				
Manganese	109.485	0.50	100.0	7.501	102	75	125				
Molybdenum	16.312	0.50	10.00	5.209	111	75	125				
Selenium	12.076	0.50	10.00	1.625	105	75	125				

Sample ID N016954-001C-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: ZZZZZZ	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088301						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	251.848	5.0	100.0	135.2	117	75	125				

Sample ID N016954-001C-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 9/18/2015	RunNo: 102226						
Client ID: ZZZZZZ	Batch ID: 51469	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/18/2015	SeqNo: 2088302						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	252.169	5.0	100.0	135.2	117	75	125	251.8	0.128	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: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID MB-52571	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: PBW	Batch ID: 52571	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/1/2015	SeqNo: 2095917						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	0.024	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID LCS-52571	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: LCSW	Batch ID: 52571	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/1/2015	SeqNo: 2095918						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	9.823	0.10	10.00	0	98.2	85	115				
Barium	96.292	1.0	100.0	0	96.3	85	115				
Manganese	99.656	0.50	100.0	0	99.7	85	115				
Molybdenum	9.824	0.50	10.00	0	98.2	85	115				
Selenium	10.221	0.50	10.00	0	102	85	115				

Sample ID N016954-013C-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: ZZZZZ	Batch ID: 52571	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/1/2015	SeqNo: 2095922						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	13.058	0.10	10.00	2.411	106	75	125				
Manganese	112.266	0.50	100.0	8.385	104	75	125				
Molybdenum	16.632	0.50	10.00	4.969	117	75	125				
Selenium	11.963	0.50	10.00	1.472	105	75	125				

Sample ID N016954-013C-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: ZZZZZ	Batch ID: 52571	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/1/2015	SeqNo: 2095923						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N016954
Project: PG&E Topock, 658017.01.06.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID N016954-013C-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: ZZZZZZ	Batch ID: 52571	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/1/2015	SeqNo: 2095923						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.191	0.10	10.00	2.411	108	75	125	13.06	1.02	20	
Manganese	112.621	0.50	100.0	8.385	104	75	125	112.3	0.316	20	
Molybdenum	16.709	0.50	10.00	4.969	117	75	125	16.63	0.458	20	
Selenium	11.760	0.50	10.00	1.472	103	75	125	11.96	1.71	20	

Sample ID N016954-013C-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: ZZZZZZ	Batch ID: 52571	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/1/2015	SeqNo: 2095926						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	241.484	5.0	100.0	123.4	118	75	125				

Sample ID N016954-013C-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/1/2015	RunNo: 103376						
Client ID: ZZZZZZ	Batch ID: 52571	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/1/2015	SeqNo: 2095929						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	241.271	5.0	100.0	123.4	118	75	125	241.5	0.0882	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 | |

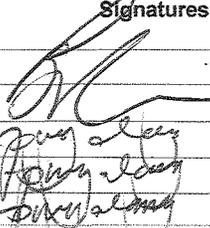
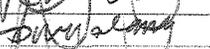


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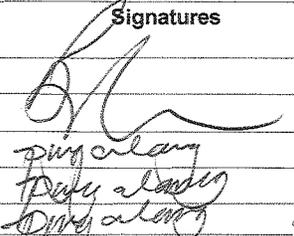
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				3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	Number of Containers	COMMENTS
Project Name PG&E Topock				(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C		
Location Topock				Field	NA	NA	Field	Field	NA	NA	NA	NA		
Project Manager Jay Piper				28	28	180	180	180	7	7	7	28		
Sample Manager Shawn Duffy				Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (6020A) Field Filtered Chromium	Metals (SW6010B/SW6020A)dis) Field Filtered As,Mn,Fe,Sa,Mo,Ba	Specific Conductance (E120.1)	PH (SM4500HB)	TSS (SM2540)	Nitrate/Nitrite (SM4500NO3) Nitrate		
DATE	TIME	Matrix												
C-CON-D-205	9/17/2015	8:58	Water	X		X	X	X	X	X	X	X	9	NO16954 -1
C-CON-S-205	9/17/2015	9:12	Water	X		X	X	X	X	X	X	X	9	-2
C-MAR-S-205	9/17/2015	8:10	Water	X		X	X	X	X	X	X	X	9	-3
C-MW-82-205	9/17/2015	8:04	Water		X								1	-4
C-MW-83-205	9/17/2015	8:40	Water		X								1	-5
C-NR1-D-205	9/17/2015	9:32	Water	X		X	X	X	X	X	X	X	9	-6
C-NR1-S-205	9/17/2015	9:46	Water	X		X	X	X	X	X	X	X	9	-7
C-NR3-D-205	9/17/2015	10:14	Water	X		X	X	X	X	X	X	X	9	-8
C-NR3-S-205	9/17/2015	10:26	Water	X		X	X	X	X	X	X	X	9	-9
C-NR4-D-205	9/17/2015	11:42	Water	X		X	X	X	X	X	X	X	9	-10
C-NR4-S-205	9/17/2015	12:06	Water	X		X	X	X	X	X	X	X	9	-11
RMP-AB2-205	9/17/2015	12:25	Water		X								1	-12
RRB-205	9/17/2015	8:38	Water	X		X	X	X	X	X	X	X	9	-13

Approved by  Sampled by  Relinquished by  Received by 	Date/Time 9-17-15 1600 9/17/15 1600 9/17/15 9/17/15 1800	Shipping Details Method of Shipment: FedEx On Ice: (yes) 1 no 2-2 2.5 3.1 1P#2 Airbill No: Lab Name: Asset Laboratories Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: Sept 15-16, 2015 Where provided with multiple Cr6 and CrT bottles, please analyze one bottle, and hold the other bottles. Report Copy to Shawn Duffy (530) 229-3303
---	--	---	---	--

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number WW-PGE-2623-655 Task Order Project 2015-RMP-205 Turnaround Time 10 Days Shipping Date: 9/8/2015 COC Number: RMP-205				Containers: 3X250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28	250 Poly (NH4)2S O4/NH4O H, 4°C NA 28	500 ml Poly HNO3, 4°C NA 180	3x500 ml Poly HNO3, 4°C Field 180	3x500 ml Poly HNO3, 4°C Field 180	1 Liter Poly 4°C NA 7	1 Liter Poly 4°C NA 7	1 Liter Poly 4°C NA 7	125 ml Poly H2SO4, pH<2, 4°C NA 28	Nitrate/Nitrite (SM4500NO3) Nitrate TSS (SM2540) PH (SM4500HB) Specific Conductance (E120.1)	Cr6 (E218.6 - rver) Field Filtered Field QC Cr6 (E218.6-rver) Metals (6010B) Total Fe Metals (6020A) Field Filtered Chromium Metals (SM6010B/SM6020Ads) Field Filtered As,Mn,Fe,Se,Mo,Ba	Number of Containers COMMENTS
DATE	TIME	Matrix													
SW1-205	9/17/2015	7:14	Water	X			X	X							
SW2-205	9/17/2015	7:28	Water	X			X	X							
TOTAL NUMBER OF CONTAINERS												107			

NO16954-14
I-15

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures 	Date/Time 9-17-15 1600 9/17/15 1650 9/17/15 1807 9/17/15	Shipping Details Method of Shipment: FedEx On Ice: yes / no 3-100 Airbill No: 1672 Lab Name: Asset Laboratories Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: Sept 15-16, 2015 Where provided with multiple Cr6 and CrT bottles, please analyze one bottle, and hold the other bottles. Report Copy to Shawn Duffy (530) 229-3303
---	---	---	--	--	--

ASSET Laboratories

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

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 9/17/2015 Workorder: N016954
 Rep sample Temp (Deg C): 2.2, 2.5, 3.1 IR Gun ID: 2
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input checked="" type="checkbox"/>
Yes <input type="checkbox"/> | No <input type="checkbox"/>
No <input checked="" type="checkbox"/> | NA <input type="checkbox"/>
NA <input type="checkbox"/> |

Comments: Sample past HT for pH upon receipt.

Checklist Completed By: MBC *MBC* 9/18/2015

Reviewed By: *gog* 09/29/15

WORK ORDER: N016954

ANALYST LIST

NAME	TEST METHOD
Claire Ignacio	EPA 6010B, EPA 6020
Ryan Balilu	EPA 218.6, EPA 120.1, SM 4500-H+B, SM 4500-NO3F
Lilia Ramit	SM 2540D



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October 21, 2015

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.: N017129

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 06, 2015 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,



Glen Gesmundo
QA Manager

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CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N017129

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium on QC samples N017129-002B-MS2 and N017129-002B-MSD2 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:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium on QC samples N017129-002B-MS2 and N017129-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 21-Oct-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N017129
Contract No: IM3PLANT-EW

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N017129-001A	PE-01-235	Water	10/6/2015 2:30:00 PM	10/6/2015	10/21/2015
N017129-001B	PE-01-235	Water	10/6/2015 2:30:00 PM	10/6/2015	10/21/2015
N017129-001C	PE-01-235	Water	10/6/2015 2:30:00 PM	10/6/2015	10/21/2015
N017129-001D	PE-01-235	Water	10/6/2015 2:30:00 PM	10/6/2015	10/21/2015
N017129-002A	TW-03D-235	Water	10/6/2015 2:30:00 PM	10/6/2015	10/21/2015
N017129-002B	TW-03D-235	Water	10/6/2015 2:30:00 PM	10/6/2015	10/21/2015
N017129-002C	TW-03D-235	Water	10/6/2015 2:30:00 PM	10/6/2015	10/21/2015
N017129-002D	TW-03D-235	Water	10/6/2015 2:30:00 PM	10/6/2015	10/21/2015



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_151007D	QC Batch: R103456			PrepDate			Analyst: LR
Specific Conductance	4200	0.10	0.10	umhos/cm	1		10/7/2015 11:25 AM

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_151007D	QC Batch: R103456			PrepDate			Analyst: LR
Specific Conductance	7700	0.10	0.10	umhos/cm	1		10/7/2015 11:25 AM

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



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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N017130-003ADUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 103456						
Client ID: ZZZZZ	Batch ID: R103456	TestNo: EPA 120.1	Analysis Date: 10/7/2015	SeqNo: 2100605							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18920.000	0.10						18960	0.211	10	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_151007G	QC Batch: 52633			PrepDate	10/7/2015	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	2500	33	33	mg/L	1	10/7/2015 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: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_151007G	QC Batch: 52633			PrepDate	10/7/2015		Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4600	50	50	mg/L	1		10/7/2015 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: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-52633	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 10/7/2015	RunNo: 103459						
Client ID: PBW	Batch ID: 52633	TestNo: SM2540C		Analysis Date: 10/7/2015	SeqNo: 2100666						
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-52633	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 10/7/2015	RunNo: 103459						
Client ID: LCSW	Batch ID: 52633	TestNo: SM2540C		Analysis Date: 10/7/2015	SeqNo: 2100667						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		986.000	10	1000	0	98.6	80	120			

Sample ID N017130-003A-DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 10/7/2015	RunNo: 103459						
Client ID: ZZZZZ	Batch ID: 52633	TestNo: SM2540C		Analysis Date: 10/7/2015	SeqNo: 2100674						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		11560.000	100					12100	4.56	5	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL
Lab Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N017129-001

Client Sample ID: PE-01-235
Collection Date: 10/6/2015 2:30:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_151008A	QC Batch: 52623			PrepDate	10/7/2015	Analyst: CEI
Calcium	100000	31	500	µg/L	1	10/8/2015 11:35 AM
Iron	ND	17	20	µg/L	1	10/8/2015 11:35 AM
Magnesium	22000	86	100	µg/L	1	10/8/2015 11:35 AM
Sodium	710000	290	12000	µg/L	25	10/9/2015 08:54 AM

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 200.7

RunID: ICP2_151008A	QC Batch: 52623	PrepDate: 10/7/2015	Analyst: CEI			
Calcium	190000	31	500	µg/L	1	10/8/2015 12:00 PM
Iron	ND	17	20	µg/L	1	10/8/2015 12:00 PM
Magnesium	27000	86	100	µg/L	1	10/8/2015 12:00 PM
Sodium	1300000	1200	50000	µg/L	100	10/9/2015 08:58 AM

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



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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPBB

Sample ID MB-52623	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103478						
Client ID: PBW	Batch ID: 52623	TestNo: EPA 200.7		Analysis Date: 10/8/2015	SeqNo: 2102097						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID LCS1-52623	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103478						
Client ID: LCSW	Batch ID: 52623	TestNo: EPA 200.7		Analysis Date: 10/8/2015	SeqNo: 2102098						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	8843.897	500	10000	0	88.4	85	115				
Iron	89.016	20	100.0	0	89.0	85	115				
Magnesium	9598.621	100	10000	0	96.0	85	115				

Sample ID N017129-001B-MS1	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103478						
Client ID: ZZZZZZ	Batch ID: 52623	TestNo: EPA 200.7		Analysis Date: 10/8/2015	SeqNo: 2102102						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	108617.250	500	10000	99850	87.7	75	125				
Iron	91.540	20	100.0	0	91.5	75	125				
Magnesium	31893.935	100	10000	21970	99.3	75	125				

Sample ID N017129-001B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103478						
Client ID: ZZZZZZ	Batch ID: 52623	TestNo: EPA 200.7		Analysis Date: 10/8/2015	SeqNo: 2102103						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	110340.708	500	10000	99850	105	75	125	108600	1.57	20	
Iron	87.885	20	100.0	0	87.9	75	125	91.54	4.07	20	
Magnesium	32856.821	100	10000	21970	109	75	125	31890	2.97	20	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPBB

Sample ID MB-52623	SampType: MBLK	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103507						
Client ID: PBW	Batch ID: 52623	TestNo: EPA 200.7		Analysis Date: 10/9/2015	SeqNo: 2103496						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium ND 500

Sample ID LCS2-52623	SampType: LCS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103507						
Client ID: LCSW	Batch ID: 52623	TestNo: EPA 200.7		Analysis Date: 10/9/2015	SeqNo: 2103497						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium 19485.235 500 20000 0 97.4 85 115

Sample ID N017129-002B-MS2	SampType: MS	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103507						
Client ID: ZZZZZZ	Batch ID: 52623	TestNo: EPA 200.7		Analysis Date: 10/9/2015	SeqNo: 2103504						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium 1257719.388 50000 20000 1331000 -365 75 125 S

Sample ID N017129-002B-MSD	SampType: MSD	TestCode: 200.7_WDPG	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103507						
Client ID: ZZZZZZ	Batch ID: 52623	TestNo: EPA 200.7		Analysis Date: 10/9/2015	SeqNo: 2103505						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sodium 1156371.484 50000 20000 1331000 -872 75 125 1258000 8.40 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: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: ICP7_151008A	QC Batch: 52629	PrepDate: 10/7/2015	Analyst: CEI
Manganese	76 0.023 0.50	µg/L	1 10/8/2015 12:58 PM

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL **Client Sample ID:** TW-03D-235
Lab Order: N017129 **Collection Date:** 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00 **Matrix:** WATER
Lab ID: N017129-002

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

DISSOLVED METALS BY ICPMS

EPA 200.8

RunID: **ICP7_151008A** QC Batch: **52629** PrepDate: **10/7/2015** Analyst: **CEI**
Manganese 11 0.023 0.50 µg/L 1 10/8/2015 01:04 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID MB-52629	SampType: MBLK	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103482
Client ID: PBW	Batch ID: 52629	TestNo: EPA 200.8		Analysis Date: 10/8/2015	SeqNo: 2101941
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Manganese ND 0.50

Sample ID LCS-52629	SampType: LCS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103482
Client ID: LCSW	Batch ID: 52629	TestNo: EPA 200.8		Analysis Date: 10/8/2015	SeqNo: 2101942
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Manganese 96.615 0.50 100.0 0 96.6 85 115

Sample ID N017129-002B-MS	SampType: MS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103482
Client ID: ZZZZZ	Batch ID: 52629	TestNo: EPA 200.8		Analysis Date: 10/8/2015	SeqNo: 2101947
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Manganese 101.085 0.50 100.0 11.06 90.0 75 125

Sample ID N017129-002B-MSD	SampType: MSD	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103482
Client ID: ZZZZZ	Batch ID: 52629	TestNo: EPA 200.8		Analysis Date: 10/8/2015	SeqNo: 2101948
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Manganese 100.099 0.50 100.0 11.06 89.0 75 125 101.1 0.980 20

Qualifiers:

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

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151008A	QC Batch: R103490				PrepDate		Analyst: RB
Hexavalent Chromium	3.2	0.015	0.20		µg/L	1	10/8/2015 01:00 PM

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_151008A	QC Batch: 52629				PrepDate	10/7/2015	Analyst: CEI
Chromium	2.7	0.086	1.0		µg/L	1	10/8/2015 12:58 PM

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_151020F	QC Batch: R103684				PrepDate		Analyst: QBM
Chromium, Hexavalent	700	2.8	20		µg/L	2	10/20/2015

DISSOLVED METALS BY ICP-MS

EPA 200.8

RunID: ICP7_151008A	QC Batch: 52629				PrepDate	10/7/2015	Analyst: CEI
Chromium	680	0.43	5.0		µg/L	5	10/8/2015 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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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID MB-52629	SampType: MBLK	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103482
Client ID: PBW	Batch ID: 52629	TestNo: EPA 200.8		Analysis Date: 10/8/2015	SeqNo: 2102120
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	ND	1.0			

Sample ID LCS-52629	SampType: LCS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103482
Client ID: LCSW	Batch ID: 52629	TestNo: EPA 200.8		Analysis Date: 10/8/2015	SeqNo: 2102121
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	9.478	1.0	10.00	0	94.8 85 115

Sample ID N017129-002B-MS	SampType: MS	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103482
Client ID: ZZZZZ	Batch ID: 52629	TestNo: EPA 200.8		Analysis Date: 10/8/2015	SeqNo: 2102132
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	685.313	5.0	10.00	681.7	35.9 75 125 S

Sample ID N017129-002B-MSD	SampType: MSD	TestCode: 200.8DIS_Cr	Units: µg/L	Prep Date: 10/7/2015	RunNo: 103482
Client ID: ZZZZZ	Batch ID: 52629	TestNo: EPA 200.8		Analysis Date: 10/8/2015	SeqNo: 2102133
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	673.263	5.0	10.00	681.7	-84.6 75 125 591.0 13.0 20 S

Qualifiers:

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- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R103490	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 103490						
Client ID: PBW	Batch ID: R103490	TestNo: EPA 218.6		Analysis Date: 10/8/2015	SeqNo: 2102926						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	ND	0.20									
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Sample ID LCS-R103490	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 103490						
Client ID: LCSW	Batch ID: R103490	TestNo: EPA 218.6		Analysis Date: 10/8/2015	SeqNo: 2102927						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	5.066	0.20	5.000	0	101	90	110				
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Sample ID N017151-001ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 103490						
Client ID: ZZZZZZ	Batch ID: R103490	TestNo: EPA 218.6		Analysis Date: 10/8/2015	SeqNo: 2102929						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.128	0.20						1.122	0.515	20	
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Sample ID N017151-001AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 103490						
Client ID: ZZZZZZ	Batch ID: R103490	TestNo: EPA 218.6		Analysis Date: 10/8/2015	SeqNo: 2102930						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	2.169	0.20	1.000	1.122	105	90	110				
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Sample ID N017151-001AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 103490						
Client ID: ZZZZZZ	Batch ID: R103490	TestNo: EPA 218.6		Analysis Date: 10/8/2015	SeqNo: 2102931						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	2.159	0.20	1.000	1.122	104	90	110	2.169	0.458	20	
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Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis 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: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID LCS-R103684	SampType: LCS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: LCSW	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111270						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	95.760	10	100.0	0	95.8	85	115				

Sample ID MB-R103684	SampType: MBLK	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: PBW	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111271						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	10									

Sample ID N017129-002DDUP	SampType: DUP	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111276						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	701.862	20						698.5	0.473	20	

Sample ID N017129-002DMS	SampType: MS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111277						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1201.454	20	500.0	698.5	101	85	115				

Sample ID N017129-002DMSD	SampType: MSD	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111278						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1193.094	20	500.0	698.5	98.9	85	115	1201	0.698	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: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_151007A	QC Batch: R103451			PrepDate		Analyst: LR
Alkalinity, Bicarbonate (As CaCO3)	220	1.2	5.0	mg/L	1	10/7/2015 09:15 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	10/7/2015 09:15 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	10/7/2015 09:15 AM
Alkalinity, Total (As CaCO3)	220	1.2	5.0	mg/L	1	10/7/2015 09:15 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: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_151007A	QC Batch: R103451			PrepDate		Analyst: LR
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0	mg/L	1	10/7/2015 09:15 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	10/7/2015 09:15 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	10/7/2015 09:15 AM
Alkalinity, Total (As CaCO3)	140	1.2	5.0	mg/L	1	10/7/2015 09:15 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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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID	LCS-R103451	SampType:	LCS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	103451
Client ID:	LCSW	Batch ID:	R103451	TestNo:	SM 2320 B			Analysis Date:	10/7/2015	SeqNo:	2100606
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	100.649	5.0	100.0	0	101	85	115				
Alkalinity, Total (As CaCO3)	100.649	5.0	100.0	0	101	85	115				

Sample ID	MB-R103451	SampType:	MBLK	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	103451
Client ID:	PBW	Batch ID:	R103451	TestNo:	SM 2320 B			Analysis Date:	10/7/2015	SeqNo:	2100607
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	N017129-001ADUP	SampType:	DUP	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	103451
Client ID:	ZZZZZ	Batch ID:	R103451	TestNo:	SM 2320 B			Analysis Date:	10/7/2015	SeqNo:	2100609
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	216.450	5.0						218.6	0.995	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)	216.450	5.0						218.6	0.995	30	

Sample ID	N017129-002AMS	SampType:	MS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	103451
Client ID:	ZZZZZ	Batch ID:	R103451	TestNo:	SM 2320 B			Analysis Date:	10/7/2015	SeqNo:	2100611
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	235.931	5.0	100.0	136.4	99.6	75	125				
Alkalinity, Total (As CaCO3)	235.931	5.0	100.0	136.4	99.6	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID N017129-002AMSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 103451						
Client ID: ZZZZZZ	Batch ID: R103451	TestNo: SM 2320 B		Analysis Date: 10/7/2015	SeqNo: 2100612						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	235.931	5.0	100.0	136.4	99.6	75	125	235.9	0	20	
Alkalinity, Total (As CaCO3)	235.931	5.0	100.0	136.4	99.6	75	125	235.9	0	20	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_151007A	QC Batch: R103466				PrepDate		Analyst: QBM
Chloride	1100	6.3	100		mg/L	200	10/7/2015 01:51 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_151007A	QC Batch: R103466				PrepDate		Analyst: QBM
Sulfate	380	1.6	25		mg/L	50	10/7/2015 01:20 PM

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_151007A	QC Batch: R103466				PrepDate		Analyst: QBM
Chloride	2200	16	250		mg/L	500	10/7/2015 03:09 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_151007A	QC Batch: R103466				PrepDate		Analyst: QBM
Sulfate	520	3.3	50		mg/L	100	10/7/2015 02:22 PM

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



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CLIENT: CH2M HILL
Work Order: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R103466_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103466			
Client ID:	PBW	Batch ID:	R103466	TestNo:	EPA 300.0			Analysis Date:	10/7/2015	SeqNo:	2101252			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		ND		0.50										
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Sample ID	LCS-R103466_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103466			
Client ID:	LCSW	Batch ID:	R103466	TestNo:	EPA 300.0			Analysis Date:	10/7/2015	SeqNo:	2101253			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		2.565		0.50	2.500	0		103	90	110				
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Sample ID	N017129-001ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103466			
Client ID:	ZZZZZ	Batch ID:	R103466	TestNo:	EPA 300.0			Analysis Date:	10/7/2015	SeqNo:	2101257			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		1048.800		100						1092		4.07	20	
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Sample ID	N017129-002AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103466			
Client ID:	ZZZZZ	Batch ID:	R103466	TestNo:	EPA 300.0			Analysis Date:	10/7/2015	SeqNo:	2101259			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		3663.000		250	1250	2236		114	80	120				
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Sample ID	N017129-002AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103466			
Client ID:	ZZZZZ	Batch ID:	R103466	TestNo:	EPA 300.0			Analysis Date:	10/7/2015	SeqNo:	2101260			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride		3592.000		250	1250	2236		108	80	120	3663	1.96	20	
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Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: PE-01-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151013D	QC Batch: R103580	PrepDate	Analyst: RB
Nitrate/Nitrite as N	ND	0.022 0.050	mg/L 1 10/13/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 21-Oct-15

CLIENT: CH2M HILL	Client Sample ID: TW-03D-235
Lab Order: N017129	Collection Date: 10/6/2015 2:30:00 PM
Project: PG&E Topock, 658274.01.IM.OP.00	Matrix: WATER
Lab ID: N017129-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151013D	QC Batch: R103580			PrepDate			Analyst: RB
Nitrate/Nitrite as N	3.3	0.11	0.25	mg/L	5		10/13/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: N017129
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R103580	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103580
Client ID: PBW	Batch ID: R103580	TestNo: SM4500-NO3		Analysis Date: 10/13/2015	SeqNo: 2107033
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-R103580	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103580
Client ID: LCSW	Batch ID: R103580	TestNo: SM4500-NO3		Analysis Date: 10/13/2015	SeqNo: 2107034
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.483	0.050	0.5000	0	96.6 85 115

Sample ID N017129-002CDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103580
Client ID: ZZZZZ	Batch ID: R103580	TestNo: SM4500-NO3		Analysis Date: 10/13/2015	SeqNo: 2107036
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	3.536	0.25			3.331 5.96 20

Sample ID N017129-002CMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103580
Client ID: ZZZZZ	Batch ID: R103580	TestNo: SM4500-NO3		Analysis Date: 10/13/2015	SeqNo: 2107037
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	6.235	0.25	2.500	3.331	116 75 125

Sample ID N017129-002CMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103580
Client ID: ZZZZZ	Batch ID: R103580	TestNo: SM4500-NO3		Analysis Date: 10/13/2015	SeqNo: 2107038
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	6.334	0.25	2.500	3.331	120 75 125 6.235 1.58 20

Qualifiers:

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

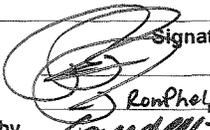


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Project Name PG&E Topock	Container:	1 Liter Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	250 ml Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	Number of Containers	COMMENTS
		4°C	4°C	4°C	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C		
Location Topock	Preservatives:											
Project Number 658274.01.IM.OP.00	Filtered:	NA	NA	NA	Lab	Lab	NA	NA	NA	NA		
Project Manager Scott O'Donnell	Holding Time:	7	7	7	180	180	1	28	1	7		
Sample Manager Shawn Duffy												
Task Order												
Project IM3PLANT-EW-235												
Turnaround Time 10 Days												
Shipping Date:												
COC Number: 235												
	DATE	TIME	Matrix									
PE-01-235	10-6-15	1430	Water	X	X	X	X	X	X	X	4	NO17129-1
TW-03D-235	10-6-15	1430	Water	X	X	X	X	X	X	X	4	* -2
TOTAL NUMBER OF CONTAINERS											8	

Approved by  Signatures Sampled by <u>Ron Phelps, Josh Rosenberg</u> Date/Time <u>10-6-15 1500</u> Relinquished by <u>Shawn Duffy</u> Date/Time <u>10-6-15 1700</u> Received by <u>Shawn Duffy</u> Date/Time <u>10/6/15 @ 1700</u> Relinquished by <u>Shawn Duffy</u> Date/Time <u>10/6/15 @ 1700</u> Received by <u>Shawn Duffy</u> Date/Time <u>10/6/15 @ 1700</u>	Shipping Details Method of Shipment: FedEx On Ice: <input checked="" type="checkbox"/> yes / no <u>1.1°C, 1.8°C</u> Airbill No: Lab Name: ASSET Laboratories <u>11471</u> Lab Phone: (702) 307-2659	ATTN: Sample Custody and Glen Gesmundo	Special Instructions: 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: 10/6/2015 Workorder: N017129
 Rep sample Temp (Deg C): 1.1, 1.8 IR Gun ID: 1
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input checked="" type="checkbox"/>
Yes <input type="checkbox"/> | No <input type="checkbox"/>
No <input checked="" type="checkbox"/> | NA <input type="checkbox"/>
NA <input type="checkbox"/> |

Comments Lab filtered and preserved

Checklist Completed B for MBC PA 10/7/2015

Reviewed By: gog 10/09/15

WORK ORDER: N017129

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	EPA 300, SM 3500-Cr B
Claire Ignacio	EPA 200.7, EPA 200.8
Ryan Balilu	EPA 218.6, SM 4500-NO3F
Lilia Ramit	EPA 120.1, SM 2540C, SM 2320B



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October 23, 2015

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.: N017153

RE: PG&E Topock, 658017.01.06.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 07, 2015 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,



Glen Gesmundo
QA Manager

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CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017153

CASE NARRATIVE**SAMPLE RECEIVING/GENERAL COMMENTS**

All sample containers were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N017153-008 (MW-60BR-245-206) and N017153-010 (MW-72BR-200-206) due to matrix interference. Samples were analyzed at lower dilution however retention time criteria was not met indicating possible matrix interference. Samples were reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Because the results for total dissolved chromium (1.4 ug/L) and hexavalent chromium (0 ug/L) for sample N017153-008 (MW-60BR-245-206) are discrepant, sample re-analysis and Matrix Spike protocol were performed and the spike recovery is within criteria.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Molybdenum on QC sample N017153-010B-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (1.4 ug/L) and hexavalent chromium (0 ug/L) for sample N017153-008 (MW-60BR-245-206) 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 1.6 and 0.17 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (44000 ug/L) and hexavalent chromium (32000 ug/L) for sample N017153-012 (MW-121-206) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved



CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017153

CASE NARRATIVE

chromium. The results from the redigested samples were 42000 and 32000 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Analytical Comments for SM 3500-Cr B:

Because the results for total dissolved chromium (44000 ug/L) and hexavalent chromium (32000 ug/L) for sample N017153-012 (MW-121-206) are discrepant, sample re-analysis was performed yielding almost the same result as the initial run.



ASSET Laboratories

Date: 23-Oct-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017153
Contract No: 2015-GMP-206-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N017153-001A	MW-38S-206	Water	9/28/2015 8:50:00 AM	10/7/2015	10/23/2015
N017153-001B	MW-38S-206	Water	9/28/2015 8:50:00 AM	10/7/2015	10/23/2015
N017153-001C	MW-38S-206	Water	9/28/2015 8:50:00 AM	10/7/2015	10/23/2015
N017153-002A	MW-38S-206SMT	Water	9/28/2015 8:32:00 AM	10/7/2015	10/23/2015
N017153-002B	MW-38S-206SMT	Water	9/28/2015 8:32:00 AM	10/7/2015	10/23/2015
N017153-002C	MW-38S-206SMT	Water	9/28/2015 8:32:00 AM	10/7/2015	10/23/2015
N017153-003A	MW-63-065-206	Water	9/28/2015 10:40:00 AM	10/7/2015	10/23/2015
N017153-003B	MW-63-065-206	Water	9/28/2015 10:40:00 AM	10/7/2015	10/23/2015
N017153-003C	MW-63-065-206	Water	9/28/2015 10:40:00 AM	10/7/2015	10/23/2015
N017153-004A	MW-200-206	Water	9/29/2015 7:00:00 AM	10/7/2015	10/23/2015
N017153-005A	MW-201-206	Water	9/29/2015 6:58:00 AM	10/7/2015	10/23/2015
N017153-006A	MW-202-206	Water	9/29/2015 2:00:00 PM	10/7/2015	10/23/2015
N017153-007A	MW-203-206	Water	9/29/2015 2:05:00 PM	10/7/2015	10/23/2015
N017153-008A	MW-60BR-245-206	Water	9/29/2015 12:10:00 PM	10/7/2015	10/23/2015
N017153-008B	MW-60BR-245-206	Water	9/29/2015 12:10:00 PM	10/7/2015	10/23/2015
N017153-008C	MW-60BR-245-206	Water	9/29/2015 12:10:00 PM	10/7/2015	10/23/2015
N017153-009A	MW-72-080-206	Water	9/29/2015 12:52:00 PM	10/7/2015	10/23/2015
N017153-009B	MW-72-080-206	Water	9/29/2015 12:52:00 PM	10/7/2015	10/23/2015
N017153-009C	MW-72-080-206	Water	9/29/2015 12:52:00 PM	10/7/2015	10/23/2015
N017153-010A	MW-72BR-200-206	Water	9/29/2015 10:52:00 AM	10/7/2015	10/23/2015
N017153-010B	MW-72BR-200-206	Water	9/29/2015 10:52:00 AM	10/7/2015	10/23/2015
N017153-010C	MW-72BR-200-206	Water	9/29/2015 10:52:00 AM	10/7/2015	10/23/2015
N017153-011A	MW-73-080-206	Water	9/29/2015 7:50:00 AM	10/7/2015	10/23/2015
N017153-011B	MW-73-080-206	Water	9/29/2015 7:50:00 AM	10/7/2015	10/23/2015
N017153-011C	MW-73-080-206	Water	9/29/2015 7:50:00 AM	10/7/2015	10/23/2015
N017153-012A	MW-121-206	Water	9/30/2015 7:00:00 AM	10/7/2015	10/23/2015
N017153-012B	MW-121-206	Water	9/30/2015 7:00:00 AM	10/7/2015	10/23/2015
N017153-012C	MW-121-206	Water	9/30/2015 7:00:00 AM	10/7/2015	10/23/2015
N017153-013A	MW-58BR-206	Water	9/30/2015 12:55:00 PM	10/7/2015	10/23/2015



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CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017153
Contract No: 2015-GMP-206-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N017153-013B	MW-58BR-206	Water	9/30/2015 12:55:00 PM	10/7/2015	10/23/2015
N017153-013C	MW-58BR-206	Water	9/30/2015 12:55:00 PM	10/7/2015	10/23/2015



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-001

Client Sample ID: MW-38S-206
Collection Date: 9/28/2015 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	10/13/2015 10:42 AM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	10/20/2015 09:31 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-002

Client Sample ID: MW-38S-206SMT
Collection Date: 9/28/2015 8:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	10/13/2015 11:03 AM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	10/20/2015 10:32 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-003

Client Sample ID: MW-63-065-206
Collection Date: 9/28/2015 10:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611				PrepDate		Analyst: RB
Hexavalent Chromium	1.3	0.015	0.20		µg/L	1	10/13/2015 05:17 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	1.2	0.086	1.0		µg/L	1	10/20/2015 10:46 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-200-206
Lab Order: N017153	Collection Date: 9/29/2015 7:00:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-004	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611	PrepDate	Analyst: RB
Hexavalent Chromium	ND 0.015 0.20	µg/L	1 10/13/2015 11:43 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-201-206
Lab Order: N017153	Collection Date: 9/29/2015 6:58:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-005	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611	PrepDate	Analyst: RB
Hexavalent Chromium	ND	0.015 0.20	µg/L 1 10/13/2015 12:23 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-202-206
Lab Order: N017153	Collection Date: 9/29/2015 2:00:00 PM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-006	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611	PrepDate	Analyst: RB
Hexavalent Chromium	ND 0.015 0.20	µg/L	1 10/13/2015 12:49 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-203-206
Lab Order: N017153	Collection Date: 9/29/2015 2:05:00 PM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-007	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611	PrepDate	Analyst: RB
Hexavalent Chromium	ND	0.015 0.20	µg/L 1 10/13/2015 01:10 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-008

Client Sample ID: MW-60BR-245-206
Collection Date: 9/29/2015 12:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.075	1.0		µg/L	5	10/13/2015 03:55 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	1.4	0.086	1.0		µg/L	1	10/20/2015 10:49 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-72-080-206
Lab Order: N017153	Collection Date: 9/29/2015 12:52:00 PM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-009	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
				EPA 218.6			
RunID: IC6_151013A	QC Batch: R103611		PrepDate		Analyst: RB		
Hexavalent Chromium	130	0.15	2.0		µg/L	10	10/13/2015 01:50 PM
DISSOLVED METALS BY ICP-MS							
EPA 3010A				EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711		PrepDate		10/14/2015	Analyst: CEI	
Chromium	120	0.43	5.0		µg/L	5	10/20/2015 11:00 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-72BR-200-206
Lab Order: N017153	Collection Date: 9/29/2015 10:52:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-010	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611				PrepDate		Analyst: RB
Hexavalent Chromium	4.2	0.15	2.0		µg/L	10	10/13/2015 04:57 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	4.1	0.086	1.0		µg/L	1	10/20/2015 11:05 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: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-011

Client Sample ID: MW-73-080-206
Collection Date: 9/29/2015 7:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611				PrepDate		Analyst: RB
Hexavalent Chromium	51	0.075	1.0		µg/L	5	10/13/2015 03:16 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	45	0.086	1.0		µg/L	1	10/20/2015 11:16 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-121-206
Lab Order: N017153	Collection Date: 9/30/2015 7:00:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-012	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_151020F	QC Batch: R103684				PrepDate		Analyst: QBM
Chromium, Hexavalent	32000	69	500		µg/L	50	10/20/2015

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	44000	86	1000		µg/L	1000	10/20/2015 11:40 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-58BR-206
Lab Order: N017153	Collection Date: 9/30/2015 12:55:00 PM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-013	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC6_151013A	QC Batch: R103611				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.015	0.20		µg/L	1	10/13/2015 03:36 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	10/20/2015 11:44 PM

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



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CLIENT: CH2M HILL
Work Order: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R103611	SampType: MBLK	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611
Client ID: PBW	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108718
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-R103611	SampType: LCS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611
Client ID: LCSW	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108719
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	4.988	0.20	5.000	0	99.8 90 110

Sample ID N017153-001A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611
Client ID: ZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108721
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	0.06150	98.5 90 110

Sample ID N017153-002A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611
Client ID: ZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108723
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	1.110	0.20	1.000	0.07510	104 90 110

Sample ID N017153-004A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611
Client ID: ZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108725
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	1.117	0.20	1.000	0.09430	102 90 110

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N017153-005A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108729						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.098	0.20	1.000	0.09240	101	90	110				

Sample ID N017153-006A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108731						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.038	0.20	1.000	0.04370	99.4	90	110				

Sample ID N017153-007A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108733						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.080	0.20	1.000	0.03760	104	90	110				

Sample ID N017153-009A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108735						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	177.153	2.0	50.00	130.1	94.1	90	110				

Sample ID N017153-011ADUP	SampType: DUP	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108739						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	50.569	1.0						50.85	0.551	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: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N017153-013A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108741						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.043	0.20	1.000	0.03420	101	90	110				

Sample ID N017153-008A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108743						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.741	1.0	5.000	0	94.8	90	110				

Sample ID N017153-011A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108746						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	75.504	1.0	25.00	50.85	98.6	90	110				

Sample ID N017153-011A-MSD	SampType: MSD	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108747						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	75.266	1.0	25.00	50.85	97.7	90	110	75.50	0.316	20	

Sample ID N017153-010A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108749						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	53.983	2.0	50.00	4.231	99.5	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: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N017153-003A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103611						
Client ID: ZZZZZZ	Batch ID: R103611	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108751						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	6.556	0.20	5.000	1.288	105	90	110				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID LCS-R103684	SampType: LCS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: LCSW	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111270						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	95.760	10	100.0	0	95.8	85	115				

Sample ID MB-R103684	SampType: MBLK	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: PBW	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111271						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	10									

Sample ID N017129-002DDUP	SampType: DUP	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111276						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	701.862	20						698.5	0.473	20	

Sample ID N017129-002DMS	SampType: MS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111277						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1201.454	20	500.0	698.5	101	85	115				

Sample ID N017129-002DMSD	SampType: MSD	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111278						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1193.094	20	500.0	698.5	98.9	85	115	1201	0.698	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: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID MB-52711	SampType: MBLK	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: PBW	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111309						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID LCS-52711	SampType: LCS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: LCSW	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111310						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.896 1.0 10.00 0 99.0 85 115

Sample ID N017153-001B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111314						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.438 1.0 10.00 0 94.4 75 125

Sample ID N017153-001B-MSD	SampType: MSD	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111315						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.366 1.0 10.00 0 93.7 75 125 9.438 0.766 20

Sample ID N017153-010B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111329						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 12.609 1.0 10.00 4.080 85.3 75 125

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-38S-206
Lab Order: N017153	Collection Date: 9/28/2015 8:50:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694			PrepDate			Analyst: RB
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	10/19/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-002

Client Sample ID: MW-38S-206SMT
Collection Date: 9/28/2015 8:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	10/19/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-003

Client Sample ID: MW-63-065-206
Collection Date: 9/28/2015 10:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	1.1	0.022	0.050		mg/L	1	10/19/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-008

Client Sample ID: MW-60BR-245-206
Collection Date: 9/29/2015 12:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.14	0.022	0.050		mg/L	1	10/19/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-009

Client Sample ID: MW-72-080-206
Collection Date: 9/29/2015 12:52:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	1.1	0.022	0.050		mg/L	1	10/19/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-010

Client Sample ID: MW-72BR-200-206
Collection Date: 9/29/2015 10:52:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.12	0.022	0.050		mg/L	1	10/19/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-011

Client Sample ID: MW-73-080-206
Collection Date: 9/29/2015 7:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	4.0	0.11	0.25		mg/L	5	10/19/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-012

Client Sample ID: MW-121-206
Collection Date: 9/30/2015 7:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	30	0.44	1.0		mg/L	20	10/19/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-013

Client Sample ID: MW-58BR-206
Collection Date: 9/30/2015 12:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.096	0.022	0.050		mg/L	1	10/19/2015

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



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CLIENT: CH2M HILL
Work Order: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R103694	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: PBW	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111569
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-R103694	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: LCSW	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111570
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.492	0.050	0.5000	0	98.3 85 115

Sample ID N017153-002CDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: ZZZZZ	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111572
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	ND	0.050			0 0 20

Sample ID N017153-002CMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: ZZZZZ	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111573
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.544	0.050	0.5000	0	109 75 125

Sample ID N017153-002CMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: ZZZZZ	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111574
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.555	0.050	0.5000	0	111 75 125 0 0 20

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-38S-206
Lab Order: N017153	Collection Date: 9/28/2015 8:50:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI	
Arsenic	14	0.016	0.10		µg/L	1	10/20/2015 09:31 PM
Manganese	250	0.11	2.5		µg/L	5	10/20/2015 09:36 PM
Molybdenum	37	0.029	0.50		µg/L	1	10/20/2015 09:31 PM
Selenium	ND	0.070	0.50		µg/L	1	10/20/2015 09:31 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: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-002

Client Sample ID: MW-38S-206SMT
Collection Date: 9/28/2015 8:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_151020B	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 52711			PrepDate	10/14/2015		
Arsenic	14	0.016	0.10		µg/L	1	10/20/2015 10:32 PM
Manganese	240	0.11	2.5		µg/L	5	10/20/2015 10:37 PM
Molybdenum	37	0.029	0.50		µg/L	1	10/20/2015 10:32 PM
Selenium	ND	0.070	0.50		µg/L	1	10/20/2015 10:32 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-003

Client Sample ID: MW-63-065-206
Collection Date: 9/28/2015 10:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI
Arsenic	1.3	0.016	0.10	µg/L	1	10/20/2015 10:46 PM
Manganese	3.3	0.023	0.50	µg/L	1	10/20/2015 10:46 PM
Molybdenum	16	0.029	0.50	µg/L	1	10/20/2015 10:46 PM
Selenium	0.96	0.070	0.50	µg/L	1	10/20/2015 10:46 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-60BR-245-206
Lab Order: N017153	Collection Date: 9/29/2015 12:10:00 PM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-008	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015		Analyst: CEI
Arsenic	5.9	0.016	0.10		µg/L	1	10/20/2015 10:49 PM
Manganese	28	0.023	0.50		µg/L	1	10/20/2015 10:49 PM
Molybdenum	63	0.029	0.50		µg/L	1	10/20/2015 10:49 PM
Selenium	1.4	0.070	0.50		µg/L	1	10/20/2015 10:49 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-72-080-206
Lab Order: N017153	Collection Date: 9/29/2015 12:52:00 PM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-009	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015		Analyst: CEI
Arsenic	12	0.016	0.10		µg/L	1	10/20/2015 10:54 PM
Manganese	24	0.023	0.50		µg/L	1	10/20/2015 10:54 PM
Molybdenum	73	0.029	0.50		µg/L	1	10/20/2015 10:54 PM
Selenium	1.3	0.070	0.50		µg/L	1	10/21/2015 11:34 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-72BR-200-206
Lab Order: N017153	Collection Date: 9/29/2015 10:52:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-010	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI	
Arsenic	16	0.016	0.10		µg/L	1	10/20/2015 11:05 PM
Manganese	9.7	0.023	0.50		µg/L	1	10/20/2015 11:05 PM
Molybdenum	79	0.029	0.50		µg/L	1	10/20/2015 11:05 PM
Selenium	ND	0.070	0.50		µg/L	1	10/20/2015 11:05 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: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017153
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017153-011

Client Sample ID: MW-73-080-206
Collection Date: 9/29/2015 7:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI
Arsenic	1.3	0.016	0.10	µg/L	1	10/20/2015 11:16 PM
Manganese	16	0.023	0.50	µg/L	1	10/20/2015 11:16 PM
Molybdenum	22	0.029	0.50	µg/L	1	10/20/2015 11:16 PM
Selenium	4.1	0.070	0.50	µg/L	1	10/20/2015 11:16 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-121-206
Lab Order: N017153	Collection Date: 9/30/2015 7:00:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-012	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015		Analyst: CEI
Arsenic	2.4	0.016	0.10		µg/L	1	10/20/2015 11:33 PM
Manganese	ND	0.023	0.50		µg/L	1	10/20/2015 11:33 PM
Molybdenum	43	0.029	0.50		µg/L	1	10/20/2015 11:33 PM
Selenium	18	0.070	0.50		µg/L	1	10/20/2015 11:33 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-58BR-206
Lab Order: N017153	Collection Date: 9/30/2015 12:55:00 PM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017153-013	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI	
Arsenic	2.9	0.016	0.10		µg/L	1	10/20/2015 11:44 PM
Manganese	490	0.11	2.5		µg/L	5	10/20/2015 11:51 PM
Molybdenum	22	0.029	0.50		µg/L	1	10/20/2015 11:44 PM
Selenium	0.58	0.070	0.50		µg/L	1	10/20/2015 11:44 PM

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



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3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID MB-52711	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: PBW	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111412						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.031	0.50									
Selenium	ND	0.50									

Sample ID LCS-52711	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: LCSW	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111413						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	10.282	0.10	10.00	0	103	85	115				
Manganese	100.510	0.50	100.0	0	101	85	115				
Molybdenum	10.433	0.50	10.00	0	104	85	115				
Selenium	9.603	0.50	10.00	0	96.0	85	115				

Sample ID N017153-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111417						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	23.653	0.10	10.00	13.90	97.5	75	125				
Molybdenum	46.912	0.50	10.00	36.59	103	75	125				
Selenium	9.315	0.50	10.00	0	93.2	75	125				

Sample ID N017153-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111418						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	23.707	0.10	10.00	13.90	98.0	75	125	23.65	0.228	20	
Molybdenum	47.584	0.50	10.00	36.59	110	75	125	46.91	1.42	20	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017153
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID N017153-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111418						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.507	0.50	10.00	0	95.1	75	125	9.315	2.04	20	

Sample ID N017153-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111421						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	363.082	2.5	100.0	246.7	116	75	125				

Sample ID N017153-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111424						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	369.050	2.5	100.0	246.7	122	75	125	363.1	1.63	20	

Sample ID N017153-010B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111432						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.105	0.10	10.00	15.71	83.9	75	125				
Manganese	99.108	0.50	100.0	9.712	89.4	75	125				
Molybdenum	83.856	0.50	10.00	78.80	50.6	75	125				S
Selenium	9.550	0.50	10.00	0.4175	91.3	75	125				

Qualifiers:

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

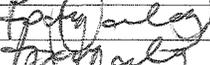


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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 658017.01.06.01 Task Order Project 2015-GMP-206-Q3 Turnaround Time 10 Days Shipping Date: 9/22/2015 COC Number: GMP-206	Containers:	250 ml Poly	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	Number of Containers	COMMENTS
	Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3 4°C	HNO3 4°C	HNO3 4°C	HNO3 4°C		4°C	4°C	4°C		
	Filtered:	Field	Field	Field	Field	Field	Field	NA	NA	NA	NA		
	Holding Time:	28	28	180	180	180	180	7	7	7	28		
		Cr6 (E218.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6010BF7) Field Filtered Ca, Mg, Na, Fe, B	Metals (6020A) Field Filtered As, Mn	Metals (6020A) Field Filtered Chromium	Metals (6020A) Field Filtered Mo, Se	Anions (E300.0) Bromide, Chloride, Sulfate	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3) Nitrate		
DATE	TIME	Matrix											
MW-38S-206	9/28/2015	8:50	Water	X		X	X	X			X	NO17153-1	3
MW-38S-206SMT	9/28/2015	8:32	Water	X		X	X	X			X	-2	3
MW-63-065-206	9/28/2015	10:40	Water	X		X	X	X			X	-3	3
MW-200-206	9/29/2015	7:00	Water	X								-4	1
MW-201-206	9/29/2015	6:58	Water	X								-5	1
MW-202-206	9/29/2015	14:00	Water	X								-6	1
MW-203-206	9/29/2015	14:05	Water	X								-7	1
MW-60BR-245-206	9/29/2015	12:10	Water	X		X	X	X			X	-8	3
MW-72-080-206	9/29/2015	12:52	Water	X		X	X	X			X	-9	3
MW-72BR-200-206	9/29/2015	10:52	Water	X		X	X	X			X	-10	3
MW-73-080-206	9/29/2015	7:50	Water	X		X	X	X			X	-11	3
MW-121-206	9/30/2015	7:00	Water		X	X	X	X			X	-12	3
MW-58BR-206	9/30/2015	12:55	Water	X		X	X	X			X	-13	3

Signatures Approved by:  Sampled by:  Relinquished by:  Received by:  Relinquished by:  Received by:	Date/Time 10-7-15 1415 10/7/15 1415 10/7/15 1415 10/7/15 1415	Shipping Details Method of Shipment: FedEx On Ice: <input checked="" type="checkbox"/> yes / no 2-9°C / 3-1°C Airbill No: Lab Name: Asset Laboratories IR#1 Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: Sept 28 - Oct 8, 2015 Where provided with multiple Cr6 and CrT bottles, please analyze one bottle, and hold the other bottles. Report Copy to Shawn Duffy (530) 229-3303
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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: 10/7/2015 Workorder: N017153
 Rep sample Temp (Deg C): 2.9, 3.1 IR Gun ID: 1
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments

Checklist Completed B for MBC PA 10/8/2015

Reviewed By:

rog 10/12/15

WORKORDER: N017153

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	SM 3500-CR B
Claire Ignacio	EPA 6020
Ryan Balilu	EPA 218.6, SM4500-NO3F



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“Serving Clients with Passion and Professionalism”

October 23, 2015

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.: N017156

RE: PG&E Topock, 658017.01.06.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 07, 2015 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,



Glen Gesmundo
QA Manager

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.



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017156

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N017156-006 (MW-64BR-206) and N017156-013 (MW-46-175-206) due to matrix interference. Samples were analyzed at lower dilution however retention time criteria was not met indicating possible matrix interference. Samples were reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Because the results for total dissolved chromium (2.6 ug/L) and hexavalent chromium (0 ug/L) for sample N017156-005 (MW-62-110-206) are discrepant, sample re-analysis and Matrix Spike protocol were performed and the spike recovery is within criteria.

Because the results for total dissolved chromium (1.5 ug/L) and hexavalent chromium (0 ug/L) for sample N017156-006 (MW-64BR-206) are discrepant, sample re-analysis and Matrix Spike protocol were performed and the spike recovery is within criteria.

Analytical Comments for EPA 300.0:

Dilution was necessary for Bromide due to precipitation of samples N017156-014, N017156-015 and N017156-016 upon the addition of eluent.

Matrix Spike (MS) is outside recovery criteria for Bromide on QC sample N017156-014CMS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6010B_Dissolved:



CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017156

CASE NARRATIVE

Matrix Spike Duplicate (MSD) is outside recovery criteria for Calcium and Iron on QC sample N017156-014B-MSD1 possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria for Iron ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum on QC samples N017156-009B-MS, N017156-009B-MSD and N017153-010B-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (44000 ug/L) and hexavalent chromium (32000 ug/L) for sample N017156-003 (MW-68-180-206) 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 42000 and 42000 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (2.6 ug/L) and hexavalent chromium (0 ug/L) for sample N017156-005 (MW-62-110-206) 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 2.3 and 1.2 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (1.5 ug/L) and hexavalent chromium (0 ug/L) for sample N017156-006 (MW-64BR-206) 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 1.8 and 0.17 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Analytical Comments for SM 3500-Cr B:

Because the results for total dissolved chromium (44000 ug/L) and hexavalent chromium (32000 ug/L) for sample N017156-003 (MW-68-180-206) are discrepant, sample re-analysis was performed yielding almost the same result as the initial run.



ASSET Laboratories

Date: 23-Oct-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017156
Contract No: 2015-GMP-206-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N017156-001A	MW-65-160-206	Water	9/30/2015 10:22:00 AM	10/7/2015	10/23/2015
N017156-001B	MW-65-160-206	Water	9/30/2015 10:22:00 AM	10/7/2015	10/23/2015
N017156-001C	MW-65-160-206	Water	9/30/2015 10:22:00 AM	10/7/2015	10/23/2015
N017156-002A	MW-65-225-206	Water	9/30/2015 11:03:00 AM	10/7/2015	10/23/2015
N017156-002B	MW-65-225-206	Water	9/30/2015 11:03:00 AM	10/7/2015	10/23/2015
N017156-002C	MW-65-225-206	Water	9/30/2015 11:03:00 AM	10/7/2015	10/23/2015
N017156-003A	MW-68-180-206	Water	9/30/2015 8:57:00 AM	10/7/2015	10/23/2015
N017156-003B	MW-68-180-206	Water	9/30/2015 8:57:00 AM	10/7/2015	10/23/2015
N017156-003C	MW-68-180-206	Water	9/30/2015 8:57:00 AM	10/7/2015	10/23/2015
N017156-004A	MW-204-206	Water	10/1/2015 5:10:00 AM	10/7/2015	10/23/2015
N017156-005A	MW-62-110-206	Water	10/1/2015 1:00:00 PM	10/7/2015	10/23/2015
N017156-005B	MW-62-110-206	Water	10/1/2015 1:00:00 PM	10/7/2015	10/23/2015
N017156-005C	MW-62-110-206	Water	10/1/2015 1:00:00 PM	10/7/2015	10/23/2015
N017156-006A	MW-64BR-206	Water	10/1/2015 10:51:00 AM	10/7/2015	10/23/2015
N017156-006B	MW-64BR-206	Water	10/1/2015 10:51:00 AM	10/7/2015	10/23/2015
N017156-006C	MW-64BR-206	Water	10/1/2015 10:51:00 AM	10/7/2015	10/23/2015
N017156-007A	MW-69-195-206	Water	10/1/2015 12:28:00 PM	10/7/2015	10/23/2015
N017156-007B	MW-69-195-206	Water	10/1/2015 12:28:00 PM	10/7/2015	10/23/2015
N017156-007C	MW-69-195-206	Water	10/1/2015 12:28:00 PM	10/7/2015	10/23/2015
N017156-008A	MW-205-206	Water	10/2/2015 10:45:00 AM	10/7/2015	10/23/2015
N017156-009A	MW-120-206	Water	10/6/2015 7:00:00 AM	10/7/2015	10/23/2015
N017156-009B	MW-120-206	Water	10/6/2015 7:00:00 AM	10/7/2015	10/23/2015
N017156-009C	MW-120-206	Water	10/6/2015 7:00:00 AM	10/7/2015	10/23/2015
N017156-010A	MW-206-206	Water	10/6/2015 12:06:00 PM	10/7/2015	10/23/2015
N017156-011A	MW-34-100-206	Water	10/6/2015 8:34:00 AM	10/7/2015	10/23/2015
N017156-011B	MW-34-100-206	Water	10/6/2015 8:34:00 AM	10/7/2015	10/23/2015
N017156-011C	MW-34-100-206	Water	10/6/2015 8:34:00 AM	10/7/2015	10/23/2015
N017156-012A	MW-44-115-206	Water	10/6/2015 9:22:00 AM	10/7/2015	10/23/2015
N017156-012B	MW-44-115-206	Water	10/6/2015 9:22:00 AM	10/7/2015	10/23/2015



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CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017156
Contract No: 2015-GMP-206-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N017156-012C	MW-44-115-206	Water	10/6/2015 9:22:00 AM	10/7/2015	10/23/2015
N017156-013A	MW-46-175-206	Water	10/6/2015 11:26:00 AM	10/7/2015	10/23/2015
N017156-013B	MW-46-175-206	Water	10/6/2015 11:26:00 AM	10/7/2015	10/23/2015
N017156-013C	MW-46-175-206	Water	10/6/2015 11:26:00 AM	10/7/2015	10/23/2015
N017156-014A	MW-09-206	Water	10/7/2015 8:44:00 AM	10/7/2015	10/23/2015
N017156-014B	MW-09-206	Water	10/7/2015 8:44:00 AM	10/7/2015	10/23/2015
N017156-014C	MW-09-206	Water	10/7/2015 8:44:00 AM	10/7/2015	10/23/2015
N017156-014D	MW-09-206	Water	10/7/2015 8:44:00 AM	10/7/2015	10/23/2015
N017156-015A	MW-10-206	Water	10/7/2015 9:24:00 AM	10/7/2015	10/23/2015
N017156-015B	MW-10-206	Water	10/7/2015 9:24:00 AM	10/7/2015	10/23/2015
N017156-015C	MW-10-206	Water	10/7/2015 9:24:00 AM	10/7/2015	10/23/2015
N017156-015D	MW-10-206	Water	10/7/2015 9:24:00 AM	10/7/2015	10/23/2015
N017156-016A	MW-11-206	Water	10/7/2015 10:04:00 AM	10/7/2015	10/23/2015
N017156-016B	MW-11-206	Water	10/7/2015 10:04:00 AM	10/7/2015	10/23/2015
N017156-016C	MW-11-206	Water	10/7/2015 10:04:00 AM	10/7/2015	10/23/2015
N017156-016D	MW-11-206	Water	10/7/2015 10:04:00 AM	10/7/2015	10/23/2015
N017156-017A	MW-207-206	Water	10/7/2015 12:00:00 PM	10/7/2015	10/23/2015
N017156-018A	MW-62-065-206	Water	10/7/2015 11:34:00 AM	10/7/2015	10/23/2015
N017156-018B	MW-62-065-206	Water	10/7/2015 11:34:00 AM	10/7/2015	10/23/2015
N017156-018C	MW-62-065-206	Water	10/7/2015 11:34:00 AM	10/7/2015	10/23/2015



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-09-206
Lab Order: N017156	Collection Date: 10/7/2015 8:44:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-014	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_151008D	QC Batch: 52647			PrepDate	10/8/2015		Analyst: LR
Total Dissolved Solids (Residue, Filterable)	1700	20	20	mg/L	1		10/8/2015 01:47 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-10-206
Lab Order: N017156	Collection Date: 10/7/2015 9:24:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-015	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_151008D	QC Batch: 52647			PrepDate	10/8/2015		Analyst: LR
Total Dissolved Solids (Residue, Filterable)	1500	20	20	mg/L	1		10/8/2015 01:47 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-11-206
Lab Order: N017156	Collection Date: 10/7/2015 10:04:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-016	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_151008D	QC Batch: 52647			PrepDate	10/8/2015		Analyst: LR
Total Dissolved Solids (Residue, Filterable)	1400	17	17	mg/L	1		10/8/2015 01:47 PM

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-52647	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 10/8/2015	RunNo: 103475						
Client ID: PBW	Batch ID: 52647	TestNo: SM2540C		Analysis Date: 10/8/2015	SeqNo: 2101486						
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-52647	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 10/8/2015	RunNo: 103475						
Client ID: LCSW	Batch ID: 52647	TestNo: SM2540C		Analysis Date: 10/8/2015	SeqNo: 2101487						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		950.000	10	1000	0	95.0	80	120			

Sample ID N017152-001E-DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 10/8/2015	RunNo: 103475						
Client ID: ZZZZZ	Batch ID: 52647	TestNo: SM2540C		Analysis Date: 10/8/2015	SeqNo: 2101490						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		1525.000	17					1528	0.218	5	

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-65-160-206
Lab Order: N017156	Collection Date: 9/30/2015 10:22:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
				EPA 218.6			
RunID: IC7_151013A	QC Batch: R103610			PrepDate	Analyst: RB		
Hexavalent Chromium	140	0.30	4.0		µg/L	20	10/13/2015 10:38 AM
DISSOLVED METALS BY ICP-MS							
				EPA 6020			
EPA 3010A							
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI	
Chromium	150	0.086	1.0		µg/L	1	10/20/2015 11:56 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-65-225-206
Lab Order: N017156	Collection Date: 9/30/2015 11:03:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_151020F	QC Batch: R103684				PrepDate		Analyst: QBM
Chromium, Hexavalent	180	1.4	10		µg/L	1	10/20/2015

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	210	0.43	5.0		µg/L	5	10/21/2015 12:07 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-003

Client Sample ID: MW-68-180-206
Collection Date: 9/30/2015 8:57:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_151020F	QC Batch: R103684				PrepDate		Analyst: QBM
Chromium, Hexavalent	32000	69	500		µg/L	50	10/20/2015

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	44000	86	1000		µg/L	1000	10/21/2015 12:18 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-204-206
Lab Order: N017156	Collection Date: 10/1/2015 5:10:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-004	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610	PrepDate	Analyst: RB
Hexavalent Chromium	ND 0.015 0.20	µg/L	1 10/13/2015 10:59 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-005

Client Sample ID: MW-62-110-206
Collection Date: 10/1/2015 1:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_151020F	QC Batch: R103684				PrepDate		Analyst: QBM
Chromium, Hexavalent	ND	1.4	10		µg/L	1	10/20/2015

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	2.6	0.086	1.0		µg/L	1	10/21/2015 12:38 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-006

Client Sample ID: MW-64BR-206
Collection Date: 10/1/2015 10:51:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610				PrepDate		Analyst: RB
Hexavalent Chromium	ND	0.075	1.0		µg/L	5	10/13/2015 05:15 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	1.5	0.086	1.0		µg/L	1	10/21/2015 12:52 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-007

Client Sample ID: MW-69-195-206
Collection Date: 10/1/2015 12:28:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM

SM 3500-CR B

RunID: WETCHEM_151020F	QC Batch: R103684				PrepDate		Analyst: QBM
Chromium, Hexavalent	890	2.8	20		µg/L	2	10/20/2015

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	940	0.86	10		µg/L	10	10/21/2015 01:03 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-205-206
Lab Order: N017156	Collection Date: 10/2/2015 10:45:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-008	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610	PrepDate	Analyst: RB
Hexavalent Chromium	ND 0.015 0.20	µg/L	1 10/13/2015 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	



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-009

Client Sample ID: MW-120-206
Collection Date: 10/6/2015 7:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610				PrepDate		Analyst: RB
Hexavalent Chromium	27	0.075	1.0		µg/L	5	10/13/2015 12:25 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52645				PrepDate	10/14/2015	Analyst: CEI
Chromium	26	0.086	1.0		µg/L	1	10/21/2015 02:41 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-206-206
Lab Order: N017156	Collection Date: 10/6/2015 12:06:00 PM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-010	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610	PrepDate	Analyst: RB
Hexavalent Chromium	ND 0.015 0.20	µg/L	1 10/13/2015 01:05 PM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-011

Client Sample ID: MW-34-100-206
Collection Date: 10/6/2015 8:34:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610				PrepDate		Analyst: RB
Hexavalent Chromium	70	0.15	2.0		µg/L	10	10/13/2015 04:35 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	67	0.086	1.0		µg/L	1	10/21/2015 01:08 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-012

Client Sample ID: MW-44-115-206
Collection Date: 10/6/2015 9:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610				PrepDate		Analyst: RB
Hexavalent Chromium	27	0.075	1.0		µg/L	5	10/13/2015 01:43 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	27	0.086	1.0		µg/L	1	10/21/2015 01:20 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-013

Client Sample ID: MW-46-175-206
Collection Date: 10/6/2015 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610				PrepDate		Analyst: RB
Hexavalent Chromium	11	0.075	1.0		µg/L	5	10/13/2015 04:56 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	11	0.086	1.0		µg/L	1	10/21/2015 02:02 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-09-206
Lab Order: N017156	Collection Date: 10/7/2015 8:44:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-014	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610				PrepDate		Analyst: RB
Hexavalent Chromium	200	0.75	10		µg/L	50	10/13/2015 02:48 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	230	0.43	5.0		µg/L	5	10/21/2015 02:10 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-015

Client Sample ID: MW-10-206
Collection Date: 10/7/2015 9:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610				PrepDate		Analyst: RB
Hexavalent Chromium	190	0.75	10		µg/L	50	10/13/2015 03:07 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711				PrepDate	10/14/2015	Analyst: CEI
Chromium	210	0.43	5.0		µg/L	5	10/21/2015 02:26 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-11-206
Lab Order: N017156	Collection Date: 10/7/2015 10:04:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-016	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151013A	QC Batch: R103610				PrepDate		Analyst: RB
Hexavalent Chromium	130	0.30	4.0		µg/L	20	10/13/2015 03:26 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52645				PrepDate	10/14/2015	Analyst: CEI
Chromium	130	0.086	1.0		µg/L	1	10/21/2015 03:44 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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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL **Client Sample ID:** MW-207-206
Lab Order: N017156 **Collection Date:** 10/7/2015 12:00:00 PM
Project: PG&E Topock, 658017.01.06.01 **Matrix:** WATER
Lab ID: N017156-017

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

HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: **IC7_151013A** QC Batch: **R103610** PrepDate Analyst: **RB**
Hexavalent Chromium ND 0.015 0.20 µg/L 1 10/13/2015 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-62-065-206
Lab Order: N017156	Collection Date: 10/7/2015 11:34:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-018	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM							
				SM 3500-CR B			
RunID: WETCHEM_151020F	QC Batch: R103684				PrepDate		Analyst: QBM
Chromium, Hexavalent	560	1.4	10		µg/L	1	10/20/2015
DISSOLVED METALS BY ICP-MS							
EPA 3010A				EPA 6020			
RunID: ICP7_151020B	QC Batch: 52645				PrepDate	10/14/2015	Analyst: CEI
Chromium	610	0.43	5.0		µg/L	5	10/21/2015 04:01 AM

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R103610	SampType: MBLK	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610
Client ID: PBW	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108674
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium	ND	0.20			
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Sample ID LCS-R103610	SampType: LCS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610
Client ID: LCSW	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108675
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium	4.867	0.20	5.000	0	97.3 90 110
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Sample ID N017156-001AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610
Client ID: ZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108677
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium	246.070	4.0	100.0	142.6	103 90 110
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Sample ID N017156-004AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610
Client ID: ZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108679
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium	1.110	0.20	1.000	0.1204	98.9 90 110
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Sample ID N017156-009ADUP	SampType: DUP	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610
Client ID: ZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108683
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Hexavalent Chromium	27.068	1.0			26.93 0.494 20
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Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N017156-009AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108684						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	52.804	1.0	25.00	26.93	103	90	110				

Sample ID N017156-009AMSD	SampType: MSD	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108685						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	52.499	1.0	25.00	26.93	102	90	110	52.80	0.578	20	

Sample ID N017156-010AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108687						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.096	0.20	1.000	0.1186	97.7	90	110				

Sample ID N017156-012AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108689						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	51.165	1.0	25.00	26.95	96.9	90	110				

Sample ID N017156-014AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108693						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	452.390	10	250.0	195.3	103	90	110				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N017156-015AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108695						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	439.625	10	250.0	186.1	101	90	110
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Sample ID N017156-016AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108697						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	233.564	4.0	100.0	132.3	101	90	110
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Sample ID N017156-017AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108699						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.211	0.20	1.000	0.1800	103	90	110
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Sample ID N017156-011AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108703						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	120.281	2.0	50.00	69.79	101	90	110
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Sample ID N017156-013AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6		Analysis Date: 10/13/2015	SeqNo: 2108705						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	36.385	1.0	25.00	11.20	101	90	110
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Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis 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: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N017156-006AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6	Analysis Date: 10/13/2015	SeqNo: 2108707							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.224	1.0	5.000	0	104	90	110				

Sample ID N017156-008AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103610						
Client ID: ZZZZZZ	Batch ID: R103610	TestNo: EPA 218.6	Analysis Date: 10/13/2015	SeqNo: 2108709							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.146	0.20	1.000	0.1502	99.6	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: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID LCS-R103684	SampType: LCS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: LCSW	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111270						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	95.760	10	100.0	0	95.8	85	115				

Sample ID MB-R103684	SampType: MBLK	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: PBW	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111271						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	10									

Sample ID N017129-002DDUP	SampType: DUP	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111276						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	701.862	20						698.5	0.473	20	

Sample ID N017129-002DMS	SampType: MS	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111277						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1201.454	20	500.0	698.5	101	85	115				

Sample ID N017129-002DMSD	SampType: MSD	TestCode: 3500_CrBPG	Units: µg/L	Prep Date:	RunNo: 103684						
Client ID: ZZZZZ	Batch ID: R103684	TestNo: SM 3500-Cr B		Analysis Date: 10/20/2015	SeqNo: 2111278						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1193.094	20	500.0	698.5	98.9	85	115	1201	0.698	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: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID MB-52645	SampType: MBLK	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: PBW	Batch ID: 52645	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/21/2015	SeqNo: 2111365						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	0.139	1.0									
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Sample ID LCS-52645	SampType: LCS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: LCSW	Batch ID: 52645	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/21/2015	SeqNo: 2111366						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	10.104	1.0	10.00	0	101	85	115				
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Sample ID N017156-009B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52645	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/21/2015	SeqNo: 2111374						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	34.169	1.0	10.00	25.71	84.6	75	125				
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Sample ID N017156-009B-MSD	SampType: MSD	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52645	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/21/2015	SeqNo: 2111376						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	33.854	1.0	10.00	25.71	81.4	75	125	34.17	0.927	20	
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Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis 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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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID MB-52711	SampType: MBLK	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: PBW	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111309						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	ND	1.0									
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Sample ID LCS-52711	SampType: LCS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: LCSW	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111310						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	9.896	1.0	10.00	0	99.0	85	115				
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Sample ID N017153-001B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111314						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	9.438	1.0	10.00	0	94.4	75	125				
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Sample ID N017153-001B-MSD	SampType: MSD	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111315						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	9.366	1.0	10.00	0	93.7	75	125	9.438	0.766	20	
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Sample ID N017153-010B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/20/2015	SeqNo: 2111329						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	12.609	1.0	10.00	4.080	85.3	75	125				
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Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis 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: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-014

Client Sample ID: MW-09-206
Collection Date: 10/7/2015 8:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_151008A	QC Batch: R103469				PrepDate	Analyst: LR	
Alkalinity, Bicarbonate (As CaCO3)	130	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Total (As CaCO3)	130	1.2	5.0		mg/L	1	10/8/2015 09:28 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-015

Client Sample ID: MW-10-206
Collection Date: 10/7/2015 9:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_151008A	QC Batch: R103469				PrepDate	Analyst: LR	
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	10/8/2015 09:28 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-016

Client Sample ID: MW-11-206
Collection Date: 10/7/2015 10:04:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_151008A	QC Batch: R103469				PrepDate	Analyst: LR	
Alkalinity, Bicarbonate (As CaCO3)	73	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/8/2015 09:28 AM
Alkalinity, Total (As CaCO3)	73	1.2	5.0		mg/L	1	10/8/2015 09:28 AM

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID	LCS-R103469	SampType:	LCS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	103469			
Client ID:	LCSW	Batch ID:	R103469	TestNo:	SM 2320 B			Analysis Date:	10/8/2015	SeqNo:	2101350			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)		96.529		5.0	100.0	0		96.5	85	115				
Alkalinity, Total (As CaCO3)		98.698		5.0	100.0	0		98.7	85	115				

Sample ID	LCSD-R103469	SampType:	LCSD	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	103469			
Client ID:	LCSS02	Batch ID:	R103469	TestNo:	SM 2320 B			Analysis Date:	10/8/2015	SeqNo:	2101351			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)		98.698		5.0	100.0	0		98.7	85	115	96.53	2.22	20	
Alkalinity, Total (As CaCO3)		100.868		5.0	100.0	0		101	85	115	98.70	2.17	20	

Sample ID	MB-R103469	SampType:	MBLK	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	103469			
Client ID:	PBW	Batch ID:	R103469	TestNo:	SM 2320 B			Analysis Date:	10/8/2015	SeqNo:	2101352			
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										

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 23-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-09-206
Lab Order: N017156	Collection Date: 10/7/2015 8:44:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-014	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Bromide	ND	0.12	1.0		mg/L	2	10/13/2015 04:44 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Chloride	650	6.3	100		mg/L	200	10/13/2015 11:46 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Sulfate	240	0.65	10		mg/L	20	10/13/2015 03:41 PM

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



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ANALYTICAL RESULTS

Print Date: 23-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-10-206
Lab Order: N017156	Collection Date: 10/7/2015 9:24:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-015	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Bromide	ND	0.12	1.0		mg/L	2	10/13/2015 04:59 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Chloride	500	6.3	100		mg/L	200	10/13/2015 12:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Sulfate	260	0.65	10		mg/L	20	10/13/2015 02:38 PM

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



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CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-016

Client Sample ID: MW-11-206
Collection Date: 10/7/2015 10:04:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Bromide	ND	0.12	1.0		mg/L	2	10/13/2015 05:15 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Chloride	520	6.3	100		mg/L	200	10/13/2015 12:49 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_151013A	QC Batch: R103550				PrepDate		Analyst: QBM
Sulfate	200	0.65	10		mg/L	20	10/13/2015 04:28 PM

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



CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	MB-R103550_BR	SampType:	MBLK	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	PBW	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105359			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide		ND		0.50										

Sample ID	LCS-R103550_BR	SampType:	LCS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	LCSW	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105360			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide		2.521		0.50	2.500	0		101	90	110				

Sample ID	N017156-014CMS	SampType:	MS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	ZZZZZ	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105368			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide		4.284		1.0	5.000	0.3260		79.2	80	120				S

Sample ID	N017156-014CMSD	SampType:	MSD	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	ZZZZZ	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105369			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide		4.358		1.0	5.000	0.3260		80.6	80	120	4.284	1.71	20	

Sample ID	N017156-015CDUP	SampType:	DUP	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	ZZZZZ	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105370			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide		0.580		1.0							0.6880	0	20	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R103550_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	PBW	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105323			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride ND 0.50

Sample ID	LCS-R103550_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	LCSW	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105324			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 2.470 0.50 2.500 0 98.8 90 110

Sample ID	N017156-014CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	ZZZZZ	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105330			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 1127.000 100 500.0 651.8 95.0 80 120

Sample ID	N017156-014CMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	ZZZZZ	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105331			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 1137.400 100 500.0 651.8 97.1 80 120 1127 0.919 20

Sample ID	N017156-015CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	103550			
Client ID:	ZZZZZ	Batch ID:	R103550	TestNo:	EPA 300.0			Analysis Date:	10/13/2015	SeqNo:	2105332			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 517.800 100 496.0 4.30 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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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL **Client Sample ID:** MW-65-160-206
Lab Order: N017156 **Collection Date:** 9/30/2015 10:22:00 AM
Project: PG&E Topock, 658017.01.06.01 **Matrix:** WATER
Lab ID: N017156-001

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: **WETCHEM_151019G** QC Batch: **R103694** PrepDate Analyst: **RB**
Nitrate/Nitrite as N 11 0.22 0.50 mg/L 10 10/19/2015

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-65-225-206
Lab Order: N017156	Collection Date: 9/30/2015 11:03:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694			PrepDate			Analyst: RB
Nitrate/Nitrite as N	2.5	0.044	0.10	mg/L	2		10/19/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-003

Client Sample ID: MW-68-180-206
Collection Date: 9/30/2015 8:57:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151019G	QC Batch: R103694				PrepDate		Analyst: RB
Nitrate/Nitrite as N	30	0.44	1.0		mg/L	20	10/19/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-005

Client Sample ID: MW-62-110-206
Collection Date: 10/1/2015 1:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020J	QC Batch: R103696				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.11	0.022	0.050		mg/L	1	10/20/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-64BR-206
Lab Order: N017156	Collection Date: 10/1/2015 10:51:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-006	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695			PrepDate			Analyst: RB
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	10/20/2015

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-007

Client Sample ID: MW-69-195-206
Collection Date: 10/1/2015 12:28:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695				PrepDate		Analyst: RB
Nitrate/Nitrite as N	17	0.44	1.0		mg/L	20	10/20/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-009

Client Sample ID: MW-120-206
Collection Date: 10/6/2015 7:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.17	0.022	0.050		mg/L	1	10/20/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-011

Client Sample ID: MW-34-100-206
Collection Date: 10/6/2015 8:34:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.29	0.022	0.050		mg/L	1	10/20/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-012

Client Sample ID: MW-44-115-206
Collection Date: 10/6/2015 9:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695				PrepDate		Analyst: RB
Nitrate/Nitrite as N	0.17	0.022	0.050		mg/L	1	10/20/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-013

Client Sample ID: MW-46-175-206
Collection Date: 10/6/2015 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695			PrepDate			Analyst: RB
Nitrate/Nitrite as N	0.99	0.022	0.050		mg/L	1	10/20/2015

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-09-206
Lab Order: N017156	Collection Date: 10/7/2015 8:44:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-014	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695	PrepDate	Analyst: RB
Nitrate/Nitrite as N	10 0.22 0.50	mg/L	10 10/20/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-10-206
Lab Order: N017156	Collection Date: 10/7/2015 9:24:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-015	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695	PrepDate	Analyst: RB
Nitrate/Nitrite as N	11 0.22 0.50	mg/L	10 10/20/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-11-206
Lab Order: N017156	Collection Date: 10/7/2015 10:04:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-016	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695			PrepDate			Analyst: RB
Nitrate/Nitrite as N	6.0	0.22	0.50	mg/L	10		10/20/2015

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	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: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-018

Client Sample ID: MW-62-065-206
Collection Date: 10/7/2015 11:34:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

RunID: WETCHEM_151020I	QC Batch: R103695				PrepDate		Analyst: RB
Nitrate/Nitrite as N	4.1	0.11	0.25		mg/L	5	10/20/2015

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R103694	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: PBW	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111569
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-R103694	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: LCSW	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111570
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.492	0.050	0.5000	0	98.3 85 115

Sample ID N017153-002CDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: ZZZZZ	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111572
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	ND	0.050			0 0 20

Sample ID N017153-002CMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: ZZZZZ	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111573
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.544	0.050	0.5000	0	109 75 125

Sample ID N017153-002CMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 103694
Client ID: ZZZZZ	Batch ID: R103694	TestNo: SM4500-NO3		Analysis Date: 10/19/2015	SeqNo: 2111574
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrate/Nitrite as N	0.555	0.050	0.5000	0	111 75 125 0 0 20

Qualifiers:

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-09-206
Lab Order: N017156	Collection Date: 10/7/2015 8:44:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-014	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

	EPA 3010A	EPA 6010B				
RunID: ICP2_151019B	QC Batch: 52684			PrepDate	10/13/2015	Analyst: CEI
Boron	650	11	100	ug/L	1	10/19/2015 09:09 AM
Calcium	110000	31	500	ug/L	1	10/19/2015 09:09 AM
Iron	29	17	20	ug/L	1	10/19/2015 09:09 AM
Magnesium	28000	86	100	ug/L	1	10/19/2015 09:09 AM
Sodium	440000	290	12000	ug/L	25	10/19/2015 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-10-206
Lab Order: N017156	Collection Date: 10/7/2015 9:24:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-015	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

	EPA 3010A			EPA 6010B			
RunID: ICP2_151019B	QC Batch: 52684			PrepDate	10/13/2015		Analyst: CEI
Boron	640	11	100	ug/L	1		10/19/2015 09:15 AM
Calcium	100000	31	500	ug/L	1		10/19/2015 09:15 AM
Iron	110	17	20	ug/L	1		10/19/2015 09:15 AM
Magnesium	15000	86	100	ug/L	1		10/19/2015 09:15 AM
Sodium	380000	290	12000	ug/L	25		10/19/2015 11:37 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-11-206
Lab Order: N017156	Collection Date: 10/7/2015 10:04:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-016	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

	EPA 3010A			EPA 6010B			
RunID: ICP2_151019B	QC Batch: 52684			PrepDate	10/13/2015		Analyst: CEI
Boron	410	11	100	ug/L	1		10/19/2015 09:20 AM
Calcium	120000	31	500	ug/L	1		10/19/2015 09:20 AM
Iron	41	17	20	ug/L	1		10/19/2015 09:20 AM
Magnesium	19000	86	100	ug/L	1		10/19/2015 09:20 AM
Sodium	300000	290	12000	ug/L	25		10/19/2015 11:40 AM

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPB

Sample ID MB-52684	SampType: MBLK	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103651
Client ID: PBW	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109946
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	16.102	100			
Calcium	39.228	500			
Iron	ND	20			
Magnesium	ND	100			

Sample ID LCS1-52684	SampType: LCS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103651
Client ID: LCSW	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109947
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	4562.713	100	5000	0	91.3 85 115
Calcium	8939.236	500	10000	0	89.4 85 115
Iron	103.789	20	100.0	0	104 85 115
Magnesium	9452.533	100	10000	0	94.5 85 115

Sample ID N017156-014B-MS1	SampType: MS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103651
Client ID: ZZZZZ	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109953
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	5502.484	100	5000	647.0	97.1 75 125
Calcium	123549.611	500	10000	113000	105 75 125
Iron	106.409	20	100.0	29.20	77.2 75 125
Magnesium	37703.691	100	10000	27860	98.4 75 125

Sample ID N017156-014B-MSD	SampType: MSD	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103651
Client ID: ZZZZZ	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109954
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	5517.258	100	5000	647.0	97.4 75 125 5502 0.268 20
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Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGPPB

Sample ID N017156-014B-MSD	SampType: MSD	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103651						
Client ID: ZZZZZZ	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109954						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	119213.208	500	10000	113000	62.0	75	125	123500	3.57	20	S
Iron	674.859	20	100.0	29.20	646	75	125	106.4	146	20	SR
Magnesium	36810.958	100	10000	27860	89.5	75	125	37700	2.40	20	

Sample ID MB-52684	SampType: MBLK	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103652						
Client ID: PBW	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109967						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	14.068	500									

Sample ID LCS2-52684	SampType: LCS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103652						
Client ID: LCSW	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109968						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	19175.609	500	20000	0	95.9	85	115				

Sample ID N017156-015B-MS2	SampType: MS	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103652						
Client ID: ZZZZZZ	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109979						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	400974.123	12000	20000	380700	101	75	125				

Sample ID N017156-015B-MSD	SampType: MSD	TestCode: 6010_WDPG	Units: ug/L	Prep Date: 10/13/2015	RunNo: 103652						
Client ID: ZZZZZZ	Batch ID: 52684	TestNo: EPA 6010B EPA 3010A		Analysis Date: 10/19/2015	SeqNo: 2109980						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	399522.052	12000	20000	380700	94.0	75	125	401000	0.363	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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-65-160-206
Lab Order: N017156	Collection Date: 9/30/2015 10:22:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015		Analyst: CEI
Arsenic	0.61	0.016	0.10		µg/L	1	10/20/2015 11:56 PM
Manganese	1.1	0.023	0.50		µg/L	1	10/20/2015 11:56 PM
Molybdenum	30	0.029	0.50		µg/L	1	10/20/2015 11:56 PM
Selenium	7.2	0.070	0.50		µg/L	1	10/20/2015 11:56 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-65-225-206
Lab Order: N017156	Collection Date: 9/30/2015 11:03:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-002	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI	
Arsenic	2.5	0.016	0.10		µg/L	1	10/21/2015 12:02 AM
Manganese	76	0.023	0.50		µg/L	1	10/21/2015 12:02 AM
Molybdenum	49	0.029	0.50		µg/L	1	10/21/2015 12:02 AM
Selenium	2.7	0.070	0.50		µg/L	1	10/21/2015 12:02 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-003

Client Sample ID: MW-68-180-206
Collection Date: 9/30/2015 8:57:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI
Arsenic	2.5	0.016	0.10	µg/L	1	10/21/2015 12:13 AM
Manganese	ND	0.023	0.50	µg/L	1	10/21/2015 12:13 AM
Molybdenum	43	0.029	0.50	µg/L	1	10/21/2015 12:13 AM
Selenium	17	0.070	0.50	µg/L	1	10/21/2015 12:13 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-005

Client Sample ID: MW-62-110-206
Collection Date: 10/1/2015 1:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI
Arsenic	6.8	0.016	0.10		µg/L	1 10/21/2015 12:38 AM
Manganese	91	0.023	0.50		µg/L	1 10/21/2015 12:38 AM
Molybdenum	72	0.029	0.50		µg/L	1 10/21/2015 12:38 AM
Selenium	ND	0.070	0.50		µg/L	1 10/21/2015 12:38 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-64BR-206
Lab Order: N017156	Collection Date: 10/1/2015 10:51:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-006	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015		Analyst: CEI
Arsenic	3.2	0.016	0.10		µg/L	1	10/21/2015 12:52 AM
Manganese	1000	0.23	5.0		µg/L	10	10/21/2015 12:46 AM
Molybdenum	62	0.029	0.50		µg/L	1	10/21/2015 12:52 AM
Selenium	ND	0.070	0.50		µg/L	1	10/21/2015 12:52 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-007

Client Sample ID: MW-69-195-206
Collection Date: 10/1/2015 12:28:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI
Arsenic	2.3	0.016	0.10	µg/L	1	10/21/2015 12:57 AM
Manganese	0.68	0.023	0.50	µg/L	1	10/21/2015 12:57 AM
Molybdenum	82	0.029	0.50	µg/L	1	10/21/2015 12:57 AM
Selenium	12	0.070	0.50	µg/L	1	10/21/2015 12:57 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-120-206
Lab Order: N017156	Collection Date: 10/6/2015 7:00:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-009	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52645			PrepDate	10/14/2015		Analyst: CEI
Arsenic	5.9	0.016	0.10		µg/L	1	10/21/2015 02:41 AM
Manganese	6.4	0.023	0.50		µg/L	1	10/21/2015 02:41 AM
Molybdenum	80	0.029	0.50		µg/L	1	10/21/2015 02:41 AM
Selenium	ND	0.070	0.50		µg/L	1	10/21/2015 02:41 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-011

Client Sample ID: MW-34-100-206
Collection Date: 10/6/2015 8:34:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

RunID: ICP7_151020B	EPA 3010A			EPA 6020			Analyst: CEI
	QC Batch: 52711			PrepDate	10/14/2015		
Arsenic	1.4	0.016	0.10		µg/L	1	10/21/2015 01:08 AM
Manganese	38	0.023	0.50		µg/L	1	10/21/2015 01:08 AM
Molybdenum	61	0.029	0.50		µg/L	1	10/21/2015 01:08 AM
Selenium	ND	0.070	0.50		µg/L	1	10/21/2015 01:08 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-012

Client Sample ID: MW-44-115-206
Collection Date: 10/6/2015 9:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015	Analyst: CEI
Arsenic	5.9	0.016	0.10	µg/L	1	10/21/2015 01:20 AM
Manganese	5.7	0.023	0.50	µg/L	1	10/21/2015 01:20 AM
Molybdenum	85	0.029	0.50	µg/L	1	10/21/2015 01:20 AM
Selenium	ND	0.070	0.50	µg/L	1	10/21/2015 01:20 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-46-175-206
Lab Order: N017156	Collection Date: 10/6/2015 11:26:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-013	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015		Analyst: CEI
Molybdenum	160	0.029	0.50		µg/L	1	10/21/2015 02:02 AM
Selenium	0.81	0.070	0.50		µg/L	1	10/21/2015 02:02 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-09-206
Lab Order: N017156	Collection Date: 10/7/2015 8:44:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-014	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015		Analyst: CEI
Arsenic	1.6	0.016	0.10		µg/L	1	10/21/2015 02:15 AM
Manganese	ND	0.023	0.50		µg/L	1	10/21/2015 02:15 AM
Molybdenum	2.7	0.029	0.50		µg/L	1	10/21/2015 02:15 AM
Selenium	5.6	0.070	0.50		µg/L	1	10/21/2015 02:15 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: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-10-206
Lab Order: N017156	Collection Date: 10/7/2015 9:24:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-015	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52711			PrepDate	10/14/2015		Analyst: CEI
Arsenic	3.4	0.016	0.10		µg/L	1	10/21/2015 02:21 AM
Manganese	6.9	0.023	0.50		µg/L	1	10/21/2015 02:21 AM
Molybdenum	20	0.029	0.50		µg/L	1	10/21/2015 02:21 AM
Selenium	6.1	0.070	0.50		µg/L	1	10/21/2015 02:21 AM

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



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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL	Client Sample ID: MW-11-206
Lab Order: N017156	Collection Date: 10/7/2015 10:04:00 AM
Project: PG&E Topock, 658017.01.06.01	Matrix: WATER
Lab ID: N017156-016	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

	EPA 3010A			EPA 6020			
RunID: ICP7_151020B	QC Batch: 52645			PrepDate	10/14/2015		Analyst: CEI
Arsenic	1.4	0.016	0.10		µg/L	1	10/21/2015 03:44 AM
Manganese	ND	0.023	0.50		µg/L	1	10/21/2015 03:44 AM
Molybdenum	5.4	0.029	0.50		µg/L	1	10/21/2015 03:44 AM
Selenium	4.6	0.070	0.50		µg/L	1	10/21/2015 03:44 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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ANALYTICAL RESULTS

Print Date: 22-Oct-15

CLIENT: CH2M HILL
Lab Order: N017156
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017156-018

Client Sample ID: MW-62-065-206
Collection Date: 10/7/2015 11:34:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151020B	QC Batch: 52645			PrepDate	10/14/2015	Analyst: CEI
Arsenic	1.3	0.016	0.10	µg/L	1	10/21/2015 03:55 AM
Manganese	1.2	0.023	0.50	µg/L	1	10/21/2015 03:55 AM
Molybdenum	13	0.029	0.50	µg/L	1	10/21/2015 03:55 AM
Selenium	3.7	0.070	0.50	µg/L	1	10/21/2015 03:55 AM

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID MB-52645	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687
Client ID: PBW	Batch ID: 52645	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/21/2015	SeqNo: 2111468
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	ND	0.10			
Manganese	ND	0.50			
Molybdenum	ND	0.50			
Selenium	ND	0.50			

Sample ID LCS-52645	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687
Client ID: LCSW	Batch ID: 52645	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/21/2015	SeqNo: 2111469
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	9.573	0.10	10.00	0	95.7 85 115
Manganese	100.132	0.50	100.0	0	100 85 115
Molybdenum	9.889	0.50	10.00	0	98.9 85 115
Selenium	9.484	0.50	10.00	0	94.8 85 115

Sample ID N017156-009B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687
Client ID: ZZZZZ	Batch ID: 52645	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/21/2015	SeqNo: 2111477
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	15.953	0.10	10.00	5.862	101 75 125
Manganese	97.954	0.50	100.0	6.378	91.6 75 125
Molybdenum	93.604	0.50	10.00	80.09	135 75 125
Selenium	9.892	0.50	10.00	0.2681	96.2 75 125

Sample ID N017156-009B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687
Client ID: ZZZZZ	Batch ID: 52645	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/21/2015	SeqNo: 2111479
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	15.574	0.10	10.00	5.862	97.1 75 125 15.95 2.40 20

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N017156-009B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/14/2015	RunNo:	103687
Client ID:	ZZZZZZ	Batch ID:	52645	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	10/21/2015	SeqNo:	2111479
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.549	0.50	100.0	6.378	88.2	75	125	97.95	3.54	20	
Molybdenum	94.586	0.50	10.00	80.09	145	75	125	93.60	1.04	20	S
Selenium	9.282	0.50	10.00	0.2681	90.1	75	125	9.892	6.36	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 | |



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CLIENT: CH2M HILL
Work Order: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID MB-52711	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: PBW	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111412						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.031	0.50									
Selenium	ND	0.50									

Sample ID LCS-52711	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: LCSW	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111413						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.282	0.10	10.00	0	103	85	115				
Manganese	100.510	0.50	100.0	0	101	85	115				
Molybdenum	10.433	0.50	10.00	0	104	85	115				
Selenium	9.603	0.50	10.00	0	96.0	85	115				

Sample ID N017153-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111417						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.653	0.10	10.00	13.90	97.5	75	125				
Molybdenum	46.912	0.50	10.00	36.59	103	75	125				
Selenium	9.315	0.50	10.00	0	93.2	75	125				

Sample ID N017153-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111418						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.707	0.10	10.00	13.90	98.0	75	125	23.65	0.228	20	
Molybdenum	47.584	0.50	10.00	36.59	110	75	125	46.91	1.42	20	
Selenium	9.507	0.50	10.00	0	95.1	75	125	9.315	2.04	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: N017156
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID N017153-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111421						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	363.082	2.5	100.0	246.7	116	75	125				

Sample ID N017153-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111424						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	369.050	2.5	100.0	246.7	122	75	125	363.1	1.63	20	

Sample ID N017153-010B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 10/14/2015	RunNo: 103687						
Client ID: ZZZZZZ	Batch ID: 52711	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/20/2015	SeqNo: 2111432						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.105	0.10	10.00	15.71	83.9	75	125				
Manganese	99.108	0.50	100.0	9.712	89.4	75	125				
Molybdenum	83.856	0.50	10.00	78.80	50.6	75	125				S
Selenium	9.550	0.50	10.00	0.4175	91.3	75	125				

Qualifiers:

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

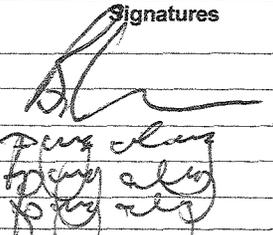


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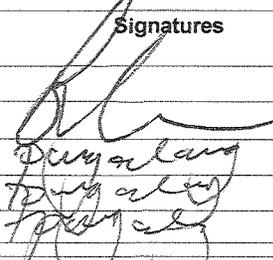
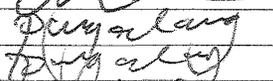
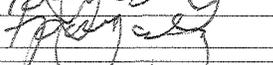
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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container:	250 ml Poly	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	Number of Containers	COMMENTS
Project Number 658017.01.06.01 Task Order Project 2015-GMP-206-Q3 Turnaround Time 10 Days Shipping Date: 9/22/2015 COC Number: GMP-206				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
				Filtered:	Field	Field	Field	Field	Field	Field	NA	NA	NA	NA			
				Holding Time:	28	28	180	180	180	180	7	7	7	28			
DATE	TIME	Matrix		Cr6 (E218.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6010BFF) Field Filtered Ca, Mg, Na, Fe, B	Metals (6020A) Field Filtered As, Mn	Metals (6020A) Field Filtered Chromium	Metals (6020A) Field Filtered Mo, Se	Anions (E300.0) Bromide, Chloride, Sulfate	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3) Nitrate				
MW-65-160-206	9/30/2015	10:22	Water	X			X	X	X				X	N017L5G-1	3		
MW-65-225-206	9/30/2015	11:03	Water		X		X	X	X				X	-2	3		
MW-68-180-206	9/30/2015	8:57	Water		X		X	X	X				X	-3	3		
MW-204-206	10/1/2015	5:10	Water	X										-4	1		
MW-62-110-206	10/1/2015	13:00	Water		X		X	X	X				X	-5	3		
MW-64BR-206	10/1/2015	10:51	Water	X			X	X	X				X	-6	3		
MW-69-195-206	10/1/2015	12:28	Water		X		X	X	X				X	-7	3		
MW-205-206	10/2/2015	10:45	Water	X										-8	1		
MW-120-206	10/6/2015	7:00	Water	X			X	X	X				X	-9	3		
MW-206-206	10/6/2015	12:06	Water	X										-10	1		
MW-34-100-206	10/6/2015	8:34	Water	X			X	X	X				X	-11	3		
MW-44-115-206	10/6/2015	9:22	Water	X			X	X	X				X	-12	3		
MW-46-175-206	10/6/2015	11:26	Water	X				X	X				X	-13	3		
MW-99-206	10/7/2015	8:44	Water	X		X	X	X	X	X	X	X	X	-14	4		

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures 	Date/Time 10-7-15 1415 10/7/15 1415 10/7/15 1947 10/7/15 1947	Shipping Details Method of Shipment: FedEx On Ice: <input checked="" type="radio"/> yes / no Airbill No: 2-94/3-12 Lab Name: Asset Laboratories Lab Phone: (702) 307-2659 IR#1	ATTN: Sample Custody and Marlon	Special Instructions: Sept 28 - Oct 8, 2015 Where provided with multiple Cr6 and CrT bottles, please analyze one bottle, and hold the other bottles. Report Copy to Shawn Duffy (530) 229-3303
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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 658017.01.06.01 Task Order Project 2015-GMP-206-Q3 Turnaround Time 10 Days Shipping Date: 9/22/2015 DOC Number: GMP-206				Container:	250 ml Poly	250 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	125 ml Poly	Number of Containers	COMMENTS
Preservatives:				(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
Filtered:				Field	Field	Field	Field	Field	Field	NA	NA	NA	NA			
Holding Time:				28	28	180	180	180	180	7	7	7	28			
				Cr6 (E218.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6010BFF) Field Filtered Ca, Mg, Na, Fe, B	Metals (6020A) Field Filtered As, Mn	Metals (6020A) Field Filtered Chromium	Metals (6020A) Field Filtered Mo, Se	Anions (E300.0) Bromide, Chloride, Sulfate	TDS (SM2540C)	Alkalinity (SM2320B)	Nitrate/Nitrite (SM4500NO3) Nitrate			
DATE	TIME	Matrix														
AW-10-206	10/7/2015	9:24	Water	X		X	X	X	X	X	X	X	X	NOI 7156-15	4	
AW-11-206	10/7/2015	10:04	Water	X		X	X	X	X	X	X	X	X	↓ -16	4	
AW-207-206	10/7/2015	12:00	Water	X										77	1	
AW-62-065-206	10/7/2015	11:34	Water		X		X	X	X			X	X	↓ -18	3	
TOTAL NUMBER OF CONTAINERS														80		

Signatures Approved by:  Sampled by:  Relinquished by:  Received by: 	Date/Time 10-7-15 1415 10/7/15 1400 10/7/15 1407	Shipping Details Method of Shipment: FedEx On Ice: <input checked="" type="checkbox"/> / no  Airbill No: Lab Name: Asset Laboratories Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marion	Special Instructions: Sept 28 - Oct 8, 2015 Where provided with multiple Cr6 and CrT bottles, please analyze one bottle, and hold the other bottles. 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: 10/7/2015 Workorder: N017156
 Rep sample Temp (Deg C): 2.9/3.1 IR Gun ID: 1
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments

Checklist Completed B for MBC PA 10/8/2015

Reviewed By:  10/14/15

WORKORDER: N017156

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	SM3500-Cr B, EPA 300.0
Claire Ignacio	EPA 6020, EPA 6010B
Ryan Balilu	EPA 218.6, SM4500-NO3F
Lilia Ramit	SM2540C, SM2320B



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

“Serving Clients with Passion and Professionalism”



LABORATORIES, INC.
 1835 W. 205th Street
 Torrance, CA 90501
 Tel: (310) 618-8889
 Fax: (310) 618-0818

Date: 11-25-2015
 EMAX Batch No.: 15K188

Attn: Marlon Cartin

Asset Labs
 3151 W. Post Road
 Las Vegas NV 89118

Subject: Laboratory Report
 Project: PG&E Topock

Enclosed is the Laboratory report for samples received on 11/23/15.
 The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-55-120-206	K188-01	10/21/15	WATER	CHROMIUM HEXVALENT BY IC DISSOLVED CHROMIUM

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
 Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all NELAC & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number E871112
 L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
 California ELAP Accredited Certificate Number 2672

15K188



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

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

EMAX Laboratories
1835 205th Street
Torrance, CA 90501

TEL: (310) 618-8889
FAX: (310) 618-0818
Acct #:

Field Sampler: Barry Collom

20-Nov-15

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				EPA 218.6	EPA 6020
N017349-001A / MW-55-120-206	Water	10/21/2015 11:48:00 AM	8OZP	1	
N017349-001B / MW-55-120-206	Water	10/21/2015 11:48:00 AM	16OZP		1

General Comments:

Please email sample receipt acknowledgement to the PM.
Please use PO# N17349A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: ASAP
Please analyze for Hexavalent Chromium by 218.6 and Total Chromium by 6020.
Sample for 218.6 is outside 28 days holding time; Please proceed with the analysis.

Temp- 17.8° C

Relinquished by: <u>[Signature]</u>	Date/Time 11/20/2015 15:15	Received by: <u>[Signature]</u> GSO# 530032434	Date/Time 11/23/15 00:10
Relinquished by: _____	_____	Received by: _____	_____

1001

Type of Delivery <input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input checked="" type="checkbox"/> GSO <input type="checkbox"/> Others	Airbill / Tracking Number 5300 324 34	ECN 15K188
<input type="checkbox"/> EMAX Courier <input type="checkbox"/> Client Delivery		Recipient Cecilia Chavez
		Date 11-23-15 Time 0910

COC INSPECTION

<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Client PM/FC	<input type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Address	<input checked="" type="checkbox"/> Tel # / Fax #	<input type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input type="checkbox"/> Preservative (if any)	<input checked="" type="checkbox"/> TAT
Safety Issues (if any) <input type="checkbox"/> High concentrations expected <input type="checkbox"/> From Superfund Site <input type="checkbox"/> Rad screening required					
Note: _____					

PACKAGING INSPECTION

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition	<input checked="" type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6 °C but not frozen)	<input checked="" type="checkbox"/> Cooler 1 17.8 °C	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C
	<input checked="" type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
Thermometer: A - S/N _____	FM 11/20/15 S/N 140252070		C - S/N 140252067
			D - S/N 150555630
Comments: <input type="checkbox"/> Temperature is out of range. PM was informed IMMEDIATELY.			
Note: _____			

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1	2	D2	per label: Dissolved metals	R1
↓	↓	↓	(COC: total metals)	
1	1	D3		R1

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS: **Samples collected in October.**

LEGEND:

<p>Code Description-Sample Management</p> <p>D1 Analysis is not indicated in _____</p> <p>D2 Analysis mismatch COC vs label</p> <p>D3 Sample ID mismatch COC vs label</p> <p>D4 Sample ID is not indicated in _____</p> <p>D5 Container -[improper] [leaking] [broken]</p> <p>D6 Date/Time is not indicated in _____</p> <p>D7 Date/Time mismatch COC vs label</p> <p>D8 Sample listed in COC is not received</p> <p>D9 Sample received is not listed in COC</p> <p>D10 No initial/date on corrections in COC/label</p> <p>D11 Container count mismatch COC vs received</p> <p>D12 Container size mismatch COC vs received</p>	<p>Code Description-Sample Management</p> <p>D13 Out of Holding Time</p> <p>D14 Bubble is >6min</p> <p>D15 No trip blank in cooler</p> <p>D16 Preservation not indicated in _____</p> <p>D17 Preservation mismatch COC vs label</p> <p>D18 Insufficient chemical preservative</p> <p>D19 Insufficient Sample</p> <p>D20 No filtration info for dissolved analysis</p> <p>D21 No sample for moisture determination</p> <p>D22 _____</p> <p>D23 _____</p> <p>D24 _____</p>	<p><input type="checkbox"/> Continue to next page.</p> <p>Code Description-Sample Management</p> <p>R1 Proceed as indicated in <input checked="" type="checkbox"/> COC <input type="checkbox"/> Label</p> <p>R2 Refer to attached instruction</p> <p>R3 Cancel the analysis</p> <p>R4 Use vial with smallest bubble first</p> <p>R5 Log-in with latest sampling date and time+1 min</p> <p>R6 Adjust pH as necessary</p> <p>R7 Filter and preserved as necessary</p> <p>R8 _____</p> <p>R9 _____</p> <p>R10 _____</p> <p>R11 _____</p> <p>R12 _____</p>
---	--	--

REVIEWS:

Sample Labeling [Signature]	SRF [Signature]	PM [Signature]
Date 11/23/15	Date 11/23/15	Date 11/23/15

CASE NARRATIVE

Client : ASSET LABS

Project: PG&E TOPOCK

SDG : 15K188

METHOD SW6020A
DISSOLVED CHROMIUM BY ICP-MS

One (1) water sample was received on 11/23/15 to be analyzed for Dissolved Chromium by ICP-MS in accordance with Method SW6020A and project specific requirements.

Holding Time

The sample was digested and analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source (ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. IMK028WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. IMK028WL/IMK028WC was within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was designated on this SDG. However, analytical spike and serial dilution were analyzed to evaluate matrix interference. Results were within expected values.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
DISSOLVED CHROMIUM BY ICP-MS

Client : ASSET LABS
Project : PG&E TOPOCK

SDG NO. : 15K188
Instrument ID : T-IF6

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IMK028WB	1	NA	11/24/1516:05	11/23/1514:01	F6K17031	F6K17028	IMK028W	Method Blank
LCS1W	IMK028WL	1	NA	11/24/1516:09	11/23/1514:01	F6K17032	F6K17028	IMK028W	Lab Control Sample (LCS)
LCD1W	IMK028WC	1	NA	11/24/1516:13	11/23/1514:01	F6K17033	F6K17028	IMK028W	LCS Duplicate
MW-55-120-206AS	K188-01A	1	NA	11/24/1516:17	11/23/1514:01	F6K17034	F6K17028	IMK028W	Analytical Spike Sample
MW-55-120-206	K188-01	1	NA	11/24/1516:22	11/23/1514:01	F6K17035	F6K17028	IMK028W	Field Sample
MW-55-120-206DL	K188-01J	5	NA	11/24/1516:26	11/23/1514:01	F6K17036	F6K17028	IMK028W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW6020A
DISSOLVED CHROMIUM BY ICP-MS

Client	: ASSET LABS	Date Collected:	10/21/15
Project	: PG&E TOPOCK	Date Received:	11/23/15
SDG NO.	: 15K188	Date Extracted:	11/23/15 14:01
Sample ID:	MW-55-120-206	Date Analyzed:	11/24/15 16:22
Lab Samp ID:	K188-01	Dilution Factor:	1
Lab File ID:	F6K17035	Matrix	: WATER
Ext Btch ID:	IMK028W	% Moisture	: NA
Calib. Ref.:	F6K17028	Instrument ID	: T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
.....
Chromium	7.04	1.00	0.200

METHOD SW6020A
DISSOLVED CHROMIUM BY ICP-MS

Client	: ASSET LABS	Date Collected:	NA
Project	: PG&E TOPOCK	Date Received:	11/23/15
SDG NO.	: 15K188	Date Extracted:	11/23/15 14:01
Sample ID:	MBLK1W	Date Analyzed:	11/24/15 16:05
Lab Samp ID:	IMK028WB	Dilution Factor:	1
Lab File ID:	F6K17031	Matrix	: WATER
Ext Btch ID:	IMK028W	% Moisture	: NA
Calib. Ref.:	F6K17028	Instrument ID	: T-IF6

PARAMETERS	RESULTS	RL	MDL
-----	(ug/L)	(ug/L)	(ug/L)
-----	-----	-----	-----
Chromium	ND	1.00	0.200

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: ASSET LABS
PROJECT: PG&E TOPOCK
SDG NO.: 15K188
METHOD: SW6020A (DISSOLVED)

MATRIX: WATER % MOISTURE: NA
DILTN FACTR: 1 1 1
SAMPLE ID: MBLKIW
CONTROL NO.: IMK028WB IMK028WL IMK028WC
LAB FILE ID: F6K17031 F6K17032 F6K17033
DATIME EXTRCTD: 11/23/1514:01 11/23/1514:01 11/23/1514:01 DATE COLLECTED: NA
DATIME ANALYZD: 11/24/1516:05 11/24/1516:09 11/24/1516:13 DATE RECEIVED: 11/23/15
PREP. BATCH: IMK028W IMK028W IMK028W
CALIB. REF: F6K17028 F6K17028 F6K17028

ACCESSION:

PARAMETER	BLNK RSLT ug/L	SPIKE AMT ug/L	BS RSLT ug/L	BS % REC	SPIKE AMT ug/L	BSD RSLT ug/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Chromium	ND	30.0	29.4	98	30.0	29.5	98	0	85-115	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: ASSET LABS
PROJECT: PG&E TOPOCK
BATCH NO.: 15K188
METHOD: SW6020A (DISSOLVED)

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID: MW-55-120-206 MW-55-120-206DL
EMAX SAMP ID: K188-01 K188-01J
LAB FILE ID: F6K17035 F6K17036
DATE EXTRACTED: 11/23/1514:01 11/23/1514:01 DATE COLLECTED: 10/21/15
DATE ANALYZED: 11/24/1516:22 11/24/1516:26 DATE RECEIVED: 11/23/15
PREP. BATCH: IMK028W IMK028W
CALIB. REF: F6K17028 F6K17028

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SERIAL DIL RSLT (ug/L)	DIF RSLT %	QC LIMIT (%)
Chromium	7.04	7.40	5	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: ASSET LABS
PROJECT: PG&E TOPOCK
SDG NO.: 15K188
METHOD: SW6020A (DISSOLVED)

MATRIX: WATER % MOISTURE: NA
DILTN FACTR: 1 1
SAMPLE ID: MW-55-120-206
CONTROL NO.: K188-01 K188-01A
LAB FILE ID: F6K17035 F6K17034
DATIME EXTRCTD: 11/23/1514:01 11/23/1514:01 DATE COLLECTED: 10/21/15
DATIME ANALYZD: 11/24/1516:22 11/24/1516:17 DATE RECEIVED: 11/23/15
PREP. BATCH: IMK028W IMK028W
CALIB. REF: F6K17028 F6K17028

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Chromium	7.04	30.0	34.5	92	75-125

CASE NARRATIVE

Client : ASSET LABS

Project: PG&E TOPOCK

SDG : 15K188

METHOD E218.6 HEXAVALENT CHROMIUM

One (1) water sample was received on 11/23/15 to be analyzed for Hexavalent Chromium in accordance with Method E218.6 and project specific requirements.

Holding Time

The sample was received out of prescribe holding time and was analyzed per client request.

Calibration

Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. Hexavalent Chromium was not detected in HCK012WB. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. HCK012WL/HCK012WC was within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) MS was analyzed. Matrix spike recovery for Hexavalent Chromium was within MS QC limits in K188-01M. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD E218.6
HEXAVALENT CHROMIUM

Client : ASSET LABS
Project : PG&E TOPOCK
Batch No. : 15K188

Matrix : WATER
InstrumentID : 59

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DIL 'N. FACTOR	MOIST (%)	LOQ (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HCK012WB	ND	1	NA	0.2	0.1	11/23/1516:43	NA	IK23014	IK23012	HCK012W	NA	NA
LCS1W	HCK012WL	2.07	1	NA	0.2	0.1	11/23/1516:53	NA	IK23015	IK23012	HCK012W	NA	NA
LCD1W	HCK012WC	2.10	1	NA	0.2	0.1	11/23/1517:04	NA	IK23016	IK23012	HCK012W	NA	NA
MW-55-120-206	K188-01I	7.58	5	NA	1	0.5	11/23/1518:48	NA	IK23026	IK23024	HCK012W	10/21/1511:48	11/23/15
MW-55-120-206DUP	K188-01ID	7.88	5	NA	1	0.5	11/23/1518:58	NA	IK23027	IK23024	HCK012W	10/21/1511:48	11/23/15
MW-55-120-206MS	K188-01IM	12.9	5	NA	1	0.5	11/23/1519:09	NA	IK23028	IK23024	HCK012W	10/21/1511:48	11/23/15

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ASSET LABS
PROJECT : PG&E TOPOCK
BATCH NO. : 15K188
METHOD : E218.6

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : HCK012WB HCK012WL HCK012WC
LAB FILE ID : IK23014 IK23015 IK23016
DATE PREPARED : NA NA NA
DATE ANALYZED : 11/23/1516:43 11/23/1516:53 11/23/1517:04
PREP BATCH : HCK012W HCK012W HCK012W
CALIBRATION REF: IK23012 IK23012 IK23012

ACCESSION:

PARAMETER	MB RESULT (ug/L)	SPIKE AMT (ug/L)	BS RESULT (ug/L)	BS REC (%)	SPIKE AMT (ug/L)	BSD RESULT (ug/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
HEXAVALENT CHROMIUM	ND	2	2.07	103	2	2.10	105	1	90-110	20

EMAX QUALITY CONTROL DATA
MATRIX SPIKE ANALYSIS

CLIENT : ASSET LABS
PROJECT : PG&E TOPOCK
BATCH NO. : 15K188
METHOD : E218.6

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 5 5
SAMPLE ID : MW-55-120-206 MW-55-120-206MS
LAB SAMPLE ID : K188-01I K188-01M
LAB FILE ID : IK23026 IK23028
DATE PREPARED : NA NA
DATE ANALYZED : 11/23/1518:48 11/23/1519:09
PREP BATCH : HCK012W HCK012W
CALIBRATION REF: IK23024 IK23024

ACCESSION:

PARAMETER	PARENT RESULT (ug/L)	SPIKE AMT (ug/L)	MS RESULT (ug/L)	MS REC (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	7.58	5	12.9	106	90-110

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : ASSET LABS
PROJECT : PG&E TOPOCK
BATCH NO. : 15K188
METHOD : E218.6

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 5 5
SAMPLE ID : MW-55-120-206 MW-55-120-206DUP
LAB SAMPLE ID : K188-01I K188-01ID
LAB FILE ID : IK23026 IK23027
DATE PREPARED : NA NA
DATE ANALYZED : 11/23/1518:48 11/23/1518:58
PREP BATCH : HCK012W HCK012W
CALIBRATION REF: IK23024 IK23024

ACCESSION:

PARAMETER	PARENT RESULT (ug/L)	DUP RESULT (ug/L)	RPD (%)	MAX RPD (%)
HEXAVALENT CHROMIUM	7.58	7.88	4	20

November 04, 2015

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.: N017349

RE: PG&E Topock, 658017.01.06.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 21, 2015 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,



Glen Gesmundo
QA Manager

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CALIFORNIA
11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436

NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017349

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (6.3 ug/L) and hexavalent chromium (7.8 ug/L) for sample N017349-001 (MW-55-120-206) are discrepant, sample re-analysis and Matrix Spike protocol were performed and the spike recovery is within criteria.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Chromium on QC sample N017350-010B-MS since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (6.3 ug/L) and hexavalent chromium (7.8 ug/L) for sample N017349-001 (MW-55-120-206) 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 5.9 and 6.7 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.



ASSET Laboratories

Date: 04-Nov-15

CLIENT: CH2M HILL
Project: PG&E Topock, 658017.01.06.01
Lab Order: N017349
Contract No: 2015-GMP-206-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N017349-001A	MW-55-120-206	Water	10/21/2015 11:48:00 AM	10/21/2015	11/4/2015
N017349-001B	MW-55-120-206	Water	10/21/2015 11:48:00 AM	10/21/2015	11/4/2015



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ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 04-Nov-15

CLIENT: CH2M HILL
Lab Order: N017349
Project: PG&E Topock, 658017.01.06.01
Lab ID: N017349-001

Client Sample ID: MW-55-120-206
Collection Date: 10/21/2015 11:48:00 AM
Matrix: WATER

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

HEXAVALENT CHROMIUM BY IC

EPA 218.6

RunID: IC7_151023A	QC Batch: R103813				PrepDate		Analyst: RB
Hexavalent Chromium	7.8	0.015	0.20		µg/L	1	10/23/2015 12:52 PM

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_151029A	QC Batch: 52826				PrepDate	10/23/2015	Analyst: CEI
Chromium	6.3	0.086	1.0		µg/L	1	10/29/2015 07:37 AM

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



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CLIENT: CH2M HILL
Work Order: N017349
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R103813	SampType: MBLK	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103813
Client ID: PBW	Batch ID: R103813	TestNo: EPA 218.6		Analysis Date: 10/23/2015	SeqNo: 2118956
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-R103813	SampType: LCS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103813
Client ID: LCSW	Batch ID: R103813	TestNo: EPA 218.6		Analysis Date: 10/23/2015	SeqNo: 2118957
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	5.006	0.20	5.000	0	100 90 110

Sample ID N017365-001ADUP	SampType: DUP	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103813
Client ID: ZZZZZ	Batch ID: R103813	TestNo: EPA 218.6		Analysis Date: 10/23/2015	SeqNo: 2118959
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	0.557	0.20			0.5543 0.522 20

Sample ID N017365-001AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103813
Client ID: ZZZZZ	Batch ID: R103813	TestNo: EPA 218.6		Analysis Date: 10/23/2015	SeqNo: 2118960
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	1.584	0.20	1.000	0.5543	103 90 110

Sample ID N017365-001AMSD	SampType: MSD	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103813
Client ID: ZZZZZ	Batch ID: R103813	TestNo: EPA 218.6		Analysis Date: 10/23/2015	SeqNo: 2118961
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	1.604	0.20	1.000	0.5543	105 90 110 1.584 1.24 20

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N017349
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N017365-002AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103813						
Client ID: ZZZZZZ	Batch ID: R103813	TestNo: EPA 218.6	Analysis Date: 10/23/2015	SeqNo: 2118963							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.044	0.20	1.000	2.005	104	90	110				

Sample ID N017349-001AMS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 103813						
Client ID: ZZZZZZ	Batch ID: R103813	TestNo: EPA 218.6	Analysis Date: 10/23/2015	SeqNo: 2118978							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.729	0.20	5.000	7.773	99.1	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: N017349
Project: PG&E Topock, 658017.01.06.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID MB-52826	SampType: MBLK	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/23/2015	RunNo: 103870						
Client ID: PBW	Batch ID: 52826	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/29/2015	SeqNo: 2120674						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium ND 1.0

Sample ID LCS-52826	SampType: LCS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/23/2015	RunNo: 103870						
Client ID: LCSW	Batch ID: 52826	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/29/2015	SeqNo: 2120675						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 9.819 1.0 10.00 0 98.2 85 115

Sample ID N017349-001B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/23/2015	RunNo: 103870						
Client ID: ZZZZZZ	Batch ID: 52826	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/29/2015	SeqNo: 2120679						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 15.202 1.0 10.00 6.281 89.2 75 125

Sample ID N017349-001B-MSD	SampType: MSD	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/23/2015	RunNo: 103870						
Client ID: ZZZZZZ	Batch ID: 52826	TestNo: EPA 6020 EPA 3010A		Analysis Date: 10/29/2015	SeqNo: 2120680						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 15.185 1.0 10.00 6.281 89.0 75 125 15.20 0.112 20

Sample ID N017350-010B-MS	SampType: MS	TestCode: 6020DIS_CrP	Units: µg/L	Prep Date: 10/23/2015	RunNo: 103942						
Client ID: ZZZZZZ	Batch ID: 52826	TestNo: EPA 6020 EPA 3010A		Analysis Date: 11/2/2015	SeqNo: 2124692						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium 1887.880 25 10.00 1854 339 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 | |

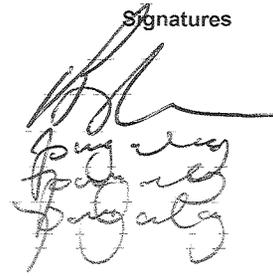
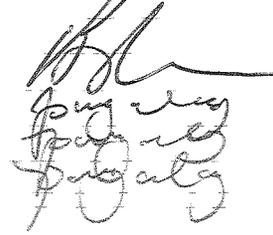
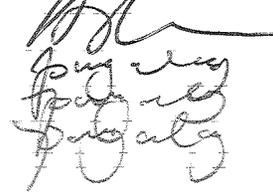
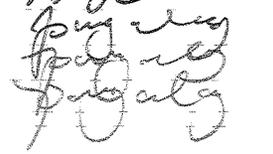


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Project Name PG&E Topock				Container:	250 ml Poly	500 ml Poly	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S	HNO3,		
Project Manager Jay Piper					O4/NH4O	4°C		
Sample Manager Shawn Duffy				Filtered:	Field	Field		
Project Number 658017.01.06.01				Holding Time:	28	180		
Task Order					Cr6 (E218.6) Field Filtered	Metals (6020A) Field Filtered		
Project 2015-GMP-206-Q3								
Turnaround Time 10 Days								
Shipping Date: 10/7/2015								
COC Number: 5								
DATE	TIME	Matrix						
MW-55-120-206	10/21/2015	11:48	Water	x	x	NO7 349-1	2	
TOTAL NUMBER OF CONTAINERS							2	

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

Date/Time
 10-21-15
 2025
 10/21/2015
 10/21/2015

Shipping Details
 Method of Shipment: courier
 On Ice: yes / no 3.72
 Airbill No: 1071
 Lab Name: Asset Laboratories
 Lab Phone: (702) 307-2659

ATTN:
 Sample Custody
 and
 Marlon

Special Instructions:
 Sept 28 - Oct 8, 2015
 Where provided with multiple Cr6 and CrT bottles,
 please analyze one bottle, and hold the other bottles.
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: 10/21/2015 Workorder: N017349
 Rep sample Temp (Deg C): 3.2 IR Gun ID: 1
 Temp Blank: Yes No
 Carrier name: ASSET
 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments

Checklist Completed B for MBC PA 10/26/2015

Reviewed By:  10/26/15

List of Analysts

ASSET Laboratories Work Order: N017349

Item	Pages
Claire Ignacio	EPA 6020_Dissolved
Ryan Balilu	EPA 218.6



Appendix C
Other Groundwater Monitoring Results

TABLE C-1

Arsenic Results in Monitoring Wells, October 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (µg/L)
MW-9	SA	02-Dec-14	MD	1.6
		12-May-15	MD	1.7
		07-Oct-15	MD	1.6
MW-10	SA	02-Dec-14	MD	3.2
		07-Oct-15	MD	3.4
MW-11	SA	02-Dec-14	MD	1.5
		02-Dec-14	FD MD	1.4
		12-May-15	MD	1.4
		07-Oct-15	MD	1.4
MW-12	SA	15-Dec-14	MD	40.0
MW-13	SA	13-Nov-14	MD	1.9
MW-14	SA	12-Nov-14	MD	0.94
		06-May-15	MD	0.88
MW-20-130	DA	15-Dec-14	MD	3.9
		15-Dec-14	FD MD	3.9
		19-May-15	MD	4.8
MW-22	SA	18-Dec-14	MD	14.0
		22-Apr-15	MD	12.0
MW-23-060	BR	10-Nov-14	3V	3.1
		30-Apr-15	3V	3.1
MW-23-080	BR	10-Nov-14	3V	3.4
		30-Apr-15	3V	3.6
MW-24A	SA	04-Nov-14	MD	0.28
		29-Apr-15	MD	ND (0.10)
		29-Apr-15	FD MD	ND (0.10)
MW-24B	DA	18-Dec-14	MD	2.5
		29-Apr-15	MD	2.3
MW-24BR	BR	04-Dec-14	3V	0.41
MW-25	SA	02-Dec-14	MD	1.2
		11-May-15	MD	1.1
MW-26	SA	15-Dec-14	MD	2.1
		15-Dec-14	FD MD	1.9
		19-May-15	MD	1.8
MW-27-20	SA	04-Nov-14	MD	1.7
MW-27-60	MA	04-Nov-14	MD	11.0
		04-Nov-14	FD MD	11.0

TABLE C-1

Arsenic Results in Monitoring Wells, October 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (µg/L)
MW-27-85	DA	04-Nov-14	MD	1.6
		20-Apr-15	MD	1.0
		20-Apr-15	FD MD	1.0
MW-28-25	SA	11-Nov-14	MD	1.0
		21-Apr-15	MD	1.1
MW-28-90	DA	11-Nov-14	MD	1.7
		21-Apr-15	MD	1.7
MW-29	SA	10-Nov-14	MD	7.8
		21-Apr-15	MD	6.8
MW-30-30	SA	10-Nov-14	MD	1.1
MW-30-50	MA	10-Nov-14	MD	2.7
		10-Nov-14	FD MD	2.8
MW-31-60	SA	03-Dec-14	MD	1.1
		13-May-15	MD	1.1
MW-31-135	DA	05-Nov-14	MD	3.3
MW-32-20	SA	11-Nov-14	MD	3.3
		11-Nov-14	FD MD	3.7
MW-32-35	SA	11-Nov-14	MD	21.0
		20-Apr-15	MD	2.3
MW-33-40	SA	11-Nov-14	MD	8.9
		27-Apr-15	MD	11.0
MW-33-90	MA	12-Nov-14	MD	1.2
		27-Apr-15	MD	0.99
MW-33-150	DA	12-Nov-14	MD	0.74
		27-Apr-15	MD	1.0
MW-33-210	DA	12-Nov-14	MD	1.0
		27-Apr-15	MD	0.92
		27-Apr-15	FD MD	0.88
MW-34-55	MA	06-Nov-14	MD	2.1
MW-34-80	DA	06-Nov-14	MD	1.3
		20-Apr-15	MD	1.3
MW-34-100	DA	02-Oct-14	MD	1.3
		01-Dec-14	MD	1.6
		01-Dec-14	FD MD	1.5
		16-Feb-15	MD	1.5
		20-Apr-15	MD	0.84

TABLE C-1

Arsenic Results in Monitoring Wells, October 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Sample Method	Dissolved Arsenic (µg/L)
MW-34-100	DA	20-Apr-15	FD	MD	0.86
		06-Oct-15		MD	1.4
MW-35-60	SA	13-Nov-14		MD	0.93
		07-May-15		MD	1.1
MW-35-135	DA	13-Nov-14		MD	0.84
		07-May-15		MD	0.85
MW-36-20	SA	15-Dec-14		MD	1.7
MW-36-40	SA	15-Dec-14		MD	4.7
MW-36-50	MA	15-Dec-14		MD	4.3
MW-36-70	MA	15-Dec-14		MD	3.3
MW-36-90	DA	15-Dec-14		MD	25.0
		23-Apr-15		MD	20.0
MW-36-100	DA	13-Nov-14		MD	8.9
		23-Apr-15		MD	8.3
MW-37S	MA	12-Nov-14		MD	1.8
MW-38D	DA	05-Nov-14		3V	7.4
		30-Apr-15		3V	6.3
MW-38S	SA	05-Nov-14		3V	13.0
		09-Feb-15		3V	14.0
		30-Apr-15		3V	13.0
		28-Sep-15		3V	14.0
MW-39-40	SA	16-Dec-14		MD	21.0
MW-39-50	MA	16-Dec-14		MD	3.1
MW-39-60	MA	16-Dec-14		MD	5.3
		16-Dec-14	FD	MD	6.1
MW-39-100	DA	01-Dec-14		MD	2.0
		21-Apr-15		MD	4.1
MW-40D	DA	04-Dec-14		MD	4.5
		12-May-15		MD	4.3
MW-40S	SA	04-Dec-14		MD	1.2
MW-41D	DA	17-Dec-14		MD	2.9
		06-May-15		MD	1.8
MW-41M	DA	04-Nov-14		MD	1.9
		04-Nov-14	FD	MD	1.9
MW-41S	SA	04-Nov-14		MD	1.8

TABLE C-1

Arsenic Results in Monitoring Wells, October 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (µg/L)	
MW-42-30	SA	05-Nov-14	MD	3.8	
MW-42-55	MA	06-Nov-14	MD	18.0	
		20-Apr-15	MD	21.0	
MW-42-65	MA	06-Nov-14	MD	3.6	
		20-Apr-15	MD	3.2	
MW-43-25	SA	05-Nov-14	MD	23.0	
MW-43-75	DA	05-Nov-14	MD	13.0	
MW-43-90	DA	05-Nov-14	MD	2.9	
MW-44-70	MA	11-Nov-14	MD	4.5	
		23-Apr-15	MD	3.7	
MW-44-115	DA	12-Nov-14	MD	5.4	
		17-Feb-15	MD	5.6	
		17-Feb-15	FD	MD	5.5
		23-Apr-15	MD	5.2	
		06-Oct-15	MD	5.9	
		06-Oct-15	FD	MD	5.9
MW-44-125	DA	12-Nov-14	MD	3.3	
		12-Nov-14	FD	MD	3.2
		23-Apr-15	MD	3.1	
		23-Apr-15	FD	MD	3.1
MW-47-55	SA	11-Nov-14	MD	1.1	
		07-May-15	MD	1.0	
MW-49-135	DA	22-Dec-14	MD	1.6	
MW-50-200	DA	16-Dec-14	MD	3.1	
MW-51	MA	15-Dec-14	MD	3.7	
		20-May-15	MD	3.4	
MW-52D	DA	17-Dec-14	Slant	3.5	
		22-Apr-15	Slant	2.8	
MW-52M	DA	17-Dec-14	Slant	1.8	
		22-Apr-15	Slant	1.5	
MW-52S	MA	17-Dec-14	Slant	0.16	
		22-Apr-15	Slant	0.12	
MW-53D	DA	17-Dec-14	Slant	2.9	
		22-Apr-15	Slant	3.0	
MW-53M	DA	17-Dec-14	Slant	0.85	
		22-Apr-15	Slant	0.68	

TABLE C-1

Arsenic Results in Monitoring Wells, October 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (µg/L)
MW-54-85	DA	18-Nov-14	MD	3.5
		18-Nov-14	FD MD	3.6
		28-Apr-15	MD	4.5
MW-54-140	DA	18-Nov-14	MD	3.1
		28-Apr-15	MD	3.1
MW-54-195	DA	18-Nov-14	MD	ND (1.0)
		28-Apr-15	MD	1.1
MW-57-070	BR	10-Dec-14	3V	1.4
		21-May-15	3V	1.3
MW-57-185	BR	10-Nov-14	3V	12.0
		11-May-15	3V	15.0
MW-58BR	BR	09-Dec-14	MD	1.1
		10-Feb-15	MD	1.2
		18-May-15	MD	1.2
		30-Sep-15	MD	2.9
MW-59-100	SA	15-Dec-14	MD	2.1
		15-Dec-14	FD MD	2.0
		19-May-15	MD	2.2
MW-60-125	BR	10-Dec-14	3V	1.8
		14-May-15	3V	1.3
MW-60BR-245	BR	04-Dec-14	3V	6.8
		10-Feb-15	3V	6.2
		14-May-15	3V	6.7
		29-Sep-15	3V	5.9
MW-61-110	BR	10-Dec-14	3V	3.4
		13-May-15	3V	3.3
MW-62-065	BR	09-Dec-14	3V	1.4
		16-Feb-15	3V	1.5
		16-Feb-15	FD 3V	1.5
		13-May-15	3V	1.4
		13-May-15	FD 3V	1.5
		07-Oct-15	3V	1.3
MW-62-110	BR	09-Dec-14	Flute	6.7
		11-Feb-15	Flute	6.3
		19-May-15	Flute	7.4
		01-Oct-15	Flute	6.8

TABLE C-1

Arsenic Results in Monitoring Wells, October 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (µg/L)
MW-62-190	BR	09-Dec-14	Flute	4.7
		19-May-15	Flute	3.8
MW-63-065	BR	05-Nov-14	3V	1.4
		10-Feb-15	3V	1.4
		29-Apr-15	3V	1.2
		28-Sep-15	3V	1.3
MW-64BR	BR	08-Dec-14	MD	3.0
		18-Feb-15	MD	2.8
		18-May-15	MD	6.0
		01-Oct-15	MD	3.2
MW-65-160	SA	03-Dec-14	MD	0.61
		24-Mar-15	MD	0.67
		11-May-15	MD	0.62
		11-May-15	FD MD	0.64
		30-Sep-15	MD	0.61
MW-65-225	DA	03-Dec-14	MD	2.9
		17-Feb-15	MD	2.8
		11-May-15	MD	2.9
		30-Sep-15	MD	2.5
MW-66-165	SA	10-Dec-14	MD	1.1
		13-May-15	MD	1.2
MW-66-230	DA	22-Dec-14	MD	6.6
		21-May-15	MD	6.3
MW-66BR-270	BR	16-Dec-14	3V	ND (0.50)
		18-May-15	3V	ND (0.10)
MW-67-185	SA	11-Dec-14	MD	1.2
		20-May-15	MD	1.2
MW-67-225	MA	11-Dec-14	MD	3.1
		20-May-15	MD	3.2
MW-67-260	DA	11-Dec-14	MD	8.0
		20-May-15	MD	8.2
MW-68-180	SA	09-Dec-14	MD	2.5
		18-Feb-15	MD	2.4
		18-May-15	MD	2.8
		30-Sep-15	MD	2.5
		30-Sep-15	FD MD	2.4

TABLE C-1

Arsenic Results in Monitoring Wells, October 2014 through October 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (µg/L)
MW-68-240	DA	18-Dec-14	MD	1.6
		21-May-15	MD	1.8
MW-68BR-280	BR	18-Dec-14	3V	1.2
		27-May-15	3V	1.3
MW-69-195	BR	11-Dec-14	3V	2.5
		17-Feb-15	3V	2.3
		14-May-15	3V	2.3
		14-May-15	FD 3V	2.3
		01-Oct-15	3V	2.3
MW-70-105	BR	02-Dec-14	3V	4.5
		07-May-15	3V	4.3
MW-70BR-225	BR	16-Dec-14	3V	1.9
		27-May-15	3V	1.9
MW-71-035	SA	06-Nov-14	MD	1.3
		06-May-15	MD	10.0
MW-72-080	BR	01-Dec-14	3V	12.0
		11-Feb-15	3V	12.0
		11-May-15	3V	11.0
		29-Sep-15	3V	12.0
MW-72BR-200	BR	17-Nov-14	3V	16.0
		11-Feb-15	3V	14.0
		04-May-15	3V	12.0
		29-Sep-15	3V	16.0
MW-73-080	BR	02-Dec-14	3V	1.4
		10-Feb-15	3V	2.9
		06-May-15	3V	1.5
		29-Sep-15	3V	1.3
MW-74-240	BR	11-Dec-14	3V	9.7
		14-May-15	3V	9.9

TABLE C-1

Arsenic Results in Monitoring Wells, October 2014 through October 2015
*Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Notes:

3V = three volume.

FD = field duplicate.

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

MD = minimal drawdown.

ND = not detected at listed reporting limit.

µg/L = micrograms per liter.

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

The California primary drinking water standard maximum contaminant level (MCL) for arsenic is 10 µg/L.
The Background Study Upper Tolerance Limit for arsenic at the site is 24.3 µg/L.

Wells are assigned to separate Aquifer zones for results reporting:

SA = shallow interval of Alluvial Aquifer.

MA = mid-depth interval of Alluvial Aquifer.

DA = deep interval of Alluvial Aquifer.

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

TABLE C-2

Additional Analytes from Wells in Bat Cave Wash, Third Quarter 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Alkalinity (total) (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
							Calcium	Magnesium	Iron	Sodium	Boron
MW-9	07-Oct-15	650	ND (1.00) J	240	130	1700	110	28.0	0.0290 J	440	0.650
MW-10	07-Oct-15	500	ND (1.00)	260	110	1500	100	15.0	0.110	380	0.640
MW-11	07-Oct-15	520	ND (1.00)	200	73.0	1400	120	19.0	0.0410	300	0.410

Notes:

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

mg/L = milligrams per liter

ND = not detected at the listed reporting limit.

Alkalinity (total) reported as calcium carbonate.

Appendix D
Groundwater Monitoring Data for GMP and
Interim Measures Monitoring Wells

Table D-1

Chromium Concentrations of Wells within Approximately 800 feet of TW-3D Compared to the Maximum Detected Chromium Concentrations from 2014, Third Quarter 2015

Third Quarter 2015 Interim Measure Performance Monitoring and Site-wide

Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Assessment Monitoring Well	Maximum 2014 Total Chromium Concentration and New Trigger Levels (µg/L)	2015 Third Quarter Total Chromium Result (µg/L)	Maximum 2014 Hexavalent Chromium Concentration and New Trigger Levels (µg/L)	2015 Third Quarter Hexavalent Chromium Result (µg/L)	Trigger Level Exceeded? (Yes if triggered blank if not)
Shallow Zone Wells					
MW-20-070	2,400	--	2,200	--	
MW-26	2,300	--	2,400	--	
MW-27-020	ND (1.0)	--	ND (0.20)	--	
MW-28-025	ND (1.0)	--	ND (0.20)	--	
MW-30-030	ND (1.0)	--	0.21	--	
MW-31-060	660	--	600	--	
MW-32-020	ND (5.0)	--	ND (1.0)	--	
MW-32-035	ND (1.0)	--	ND (1.0)	--	
MW-33-040	ND (1.0)	--	0.28	--	
MW-36-020	ND (1.0)	--	ND (0.20)	--	
MW-36-040	ND (1.0)	--	0.34	--	
MW-39-040	ND (1.0)	--	ND (0.20)	--	
MW-42-030	ND (1.0)	--	0.54	--	
MW-47-055	16.0	--	16.0	--	
Middle Zone Wells					
MW-20-100	2,900	--	2,900	--	
MW-27-060	ND (1.0)	--	ND (0.20)	--	
MW-30-050	ND (1.0)	--	ND (0.20)	--	
MW-33-090	15.5	--	13.3	--	
MW-34-055	ND (1.0)	--	ND (0.20)	--	
MW-36-050	ND (1.0)	--	ND (0.20)	--	
MW-36-070	ND (1.0)	--	ND (0.20)	--	
MW-39-050	ND (1.0)	--	ND (0.20)	--	
MW-39-060	ND (1.0)	--	ND (0.20)	--	
MW-39-070	ND (1.0)	--	ND (0.20)	--	
MW-42-055	2.8	--	0.35	--	
MW-42-065	ND (1.0)	--	ND (0.20)	--	
MW-44-070	ND (1.0)	--	ND (0.20)	--	
MW-51	4,800	--	4,800	--	
Deep Zone Wells					
MW-20-130	9,000	--	9,100	--	
MW-27-085	ND (1.0)	--	ND (1.0)	--	
MW-28-090	ND (1.0)	--	ND (0.20)	--	
MW-31-135	12.0	--	12.0	--	

Table D-1

Chromium Concentrations of Wells within Approximately 800 feet of TW-3D Compared to the Maximum Detected Chromium Concentrations from 2014, Third Quarter 2015

Third Quarter 2015 Interim Measure Performance Monitoring and Site-wide

Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Assessment Monitoring Well	Maximum 2014 Total Chromium Concentration and New Trigger Levels (µg/L)	2015 Third Quarter Total Chromium Result (µg/L)	Maximum 2014 Hexavalent Chromium Concentration and New Trigger Levels (µg/L)	2015 Third Quarter Hexavalent Chromium Result (µg/L)	Trigger Level Exceeded? (Yes if triggered blank if not)
Deep Zone Wells					
MW-33-150	10.8	--	12.0	--	
MW-33-210	13.5	--	13.0	--	
MW-34-080	ND (1.0)	--	ND (0.20)	--	
MW-34-100	270	67	263	70	
MW-36-090	ND (1.0)	--	ND (0.20)	--	
MW-36-100	62.0	--	65.0	--	
MW-39-080	ND (1.0)	--	ND (0.20)	--	
MW-39-100	49.0	--	57.0	--	
MW-44-115	42.9	27	41.6	27	
MW-44-125	5.9	--	4.0J	--	
MW-45-095a	14.2 ^a	--	13.7 ^a	--	
MW-46-175	46.1	11	46.3	11	
MW-46-205	4.8	--	5.5	--	
MW-47-115	20.0	--	24.0	--	
PE-01	6.0	3.1	5.6	3.2	
TW-04	6.5 ^a	--	7.4 ^a	--	

Notes:

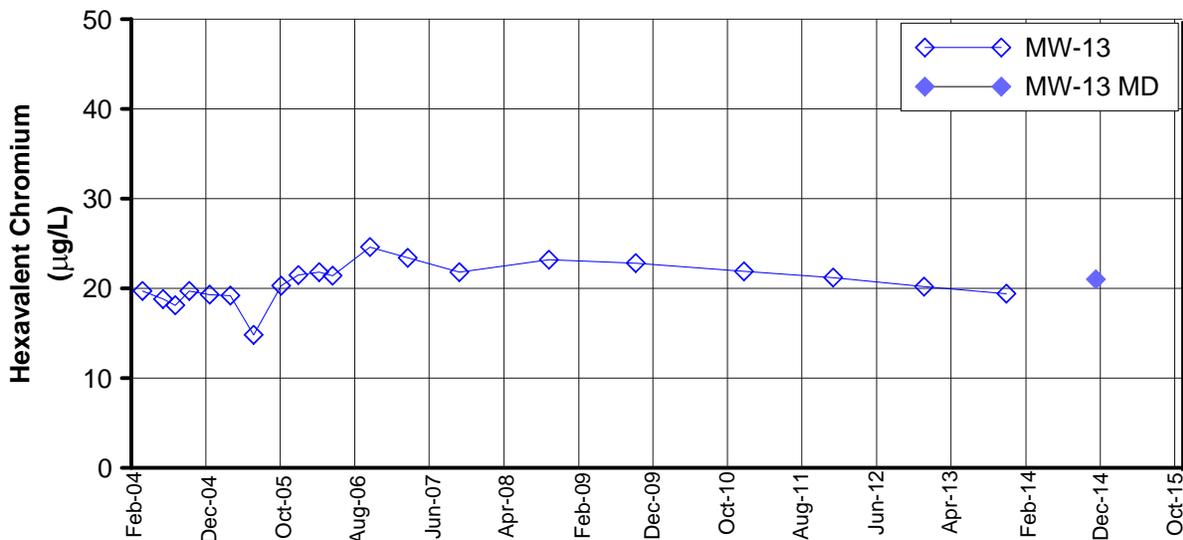
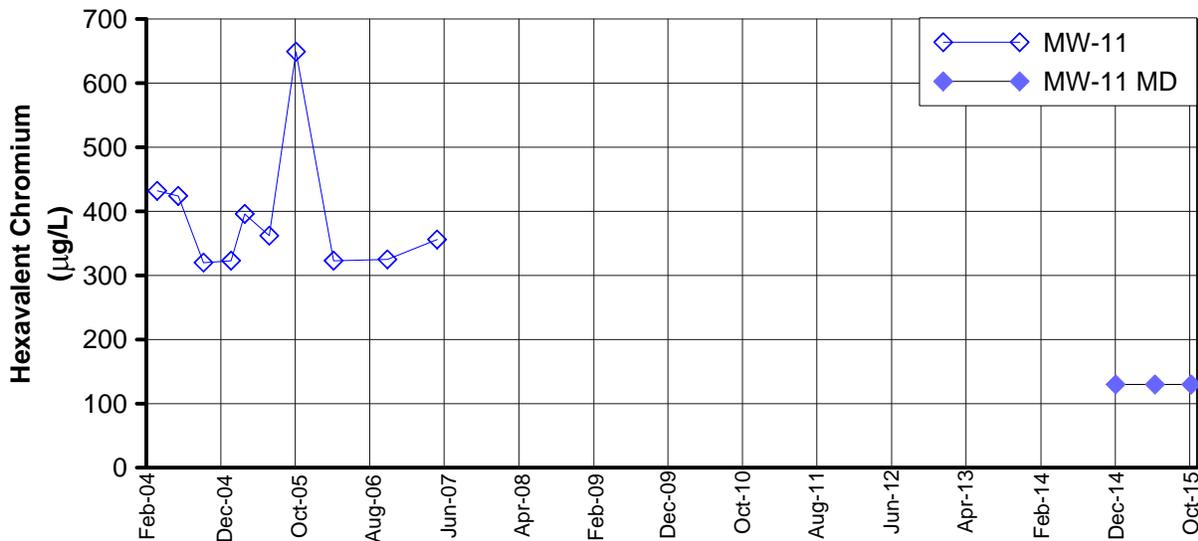
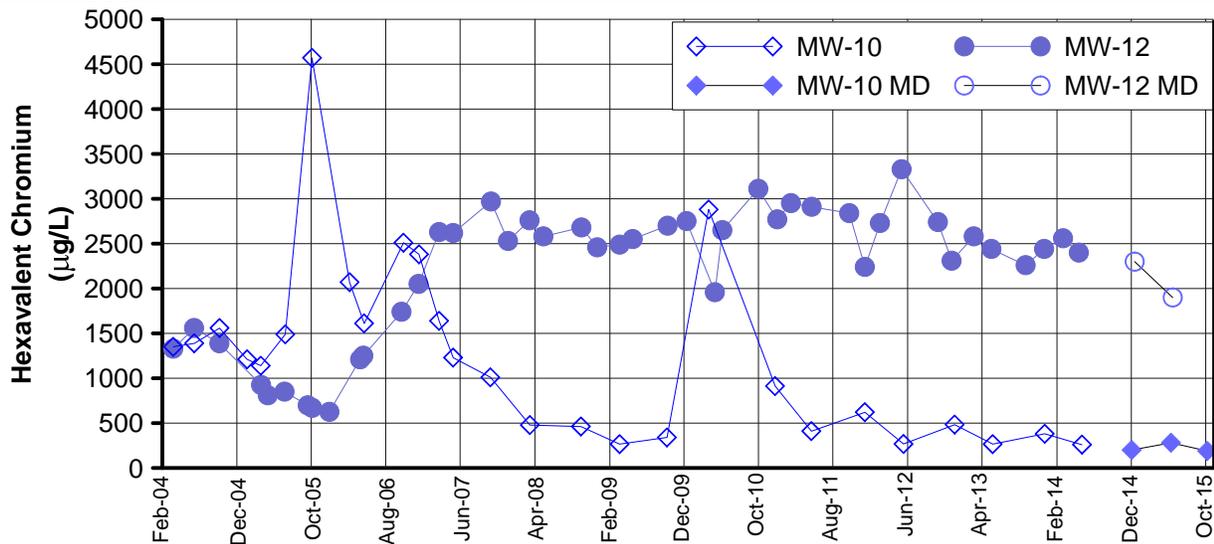
^a Result is the maximum from 2013

--- = data not collected this quarter.

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

ND = not detected at the listed reporting limit.

µg/L = micrograms per liter.

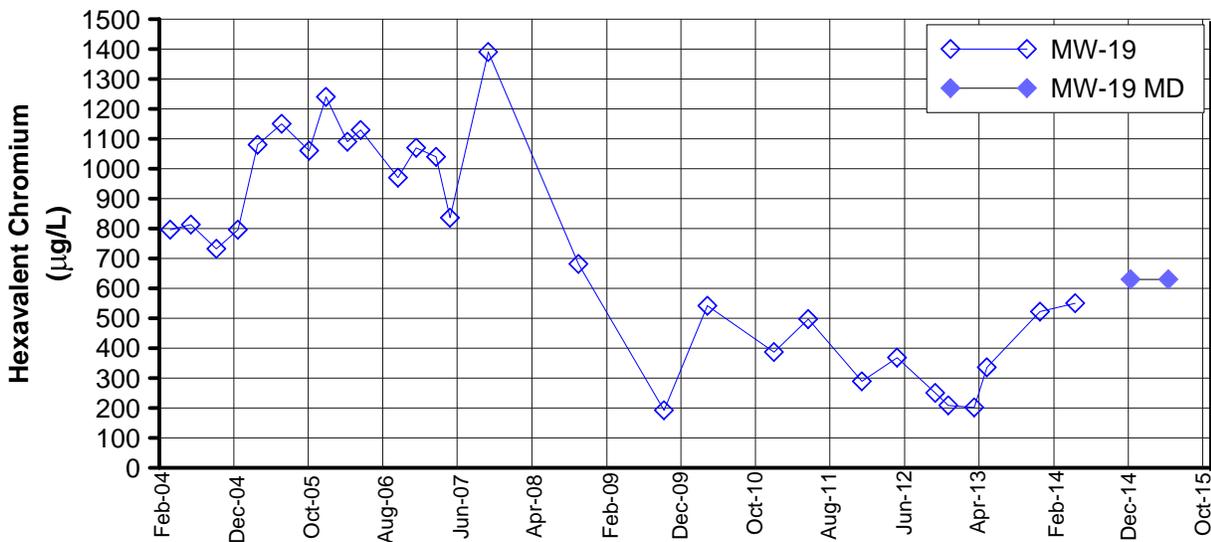
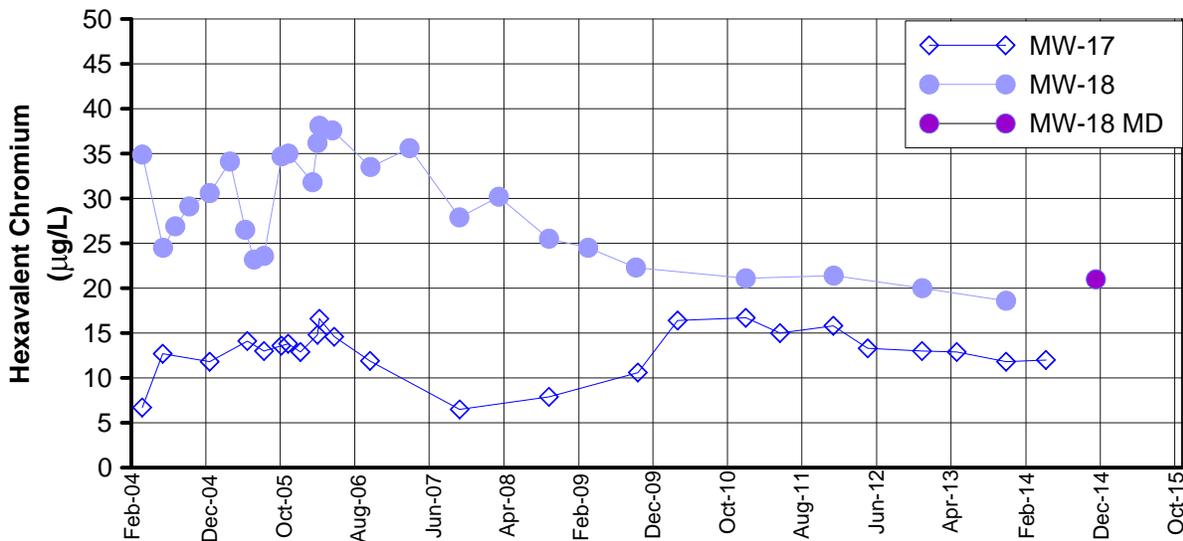
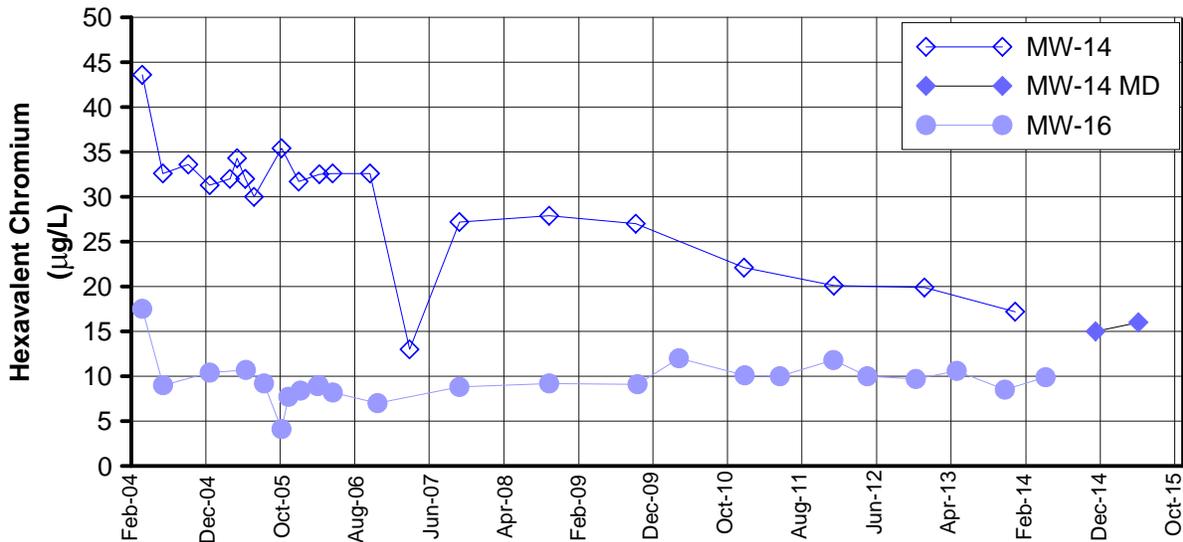


Notes:

1) For MW-11 data from July 2007 - June 2014, please see: ARCADIS. 2014. 2014 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test. November 19.

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

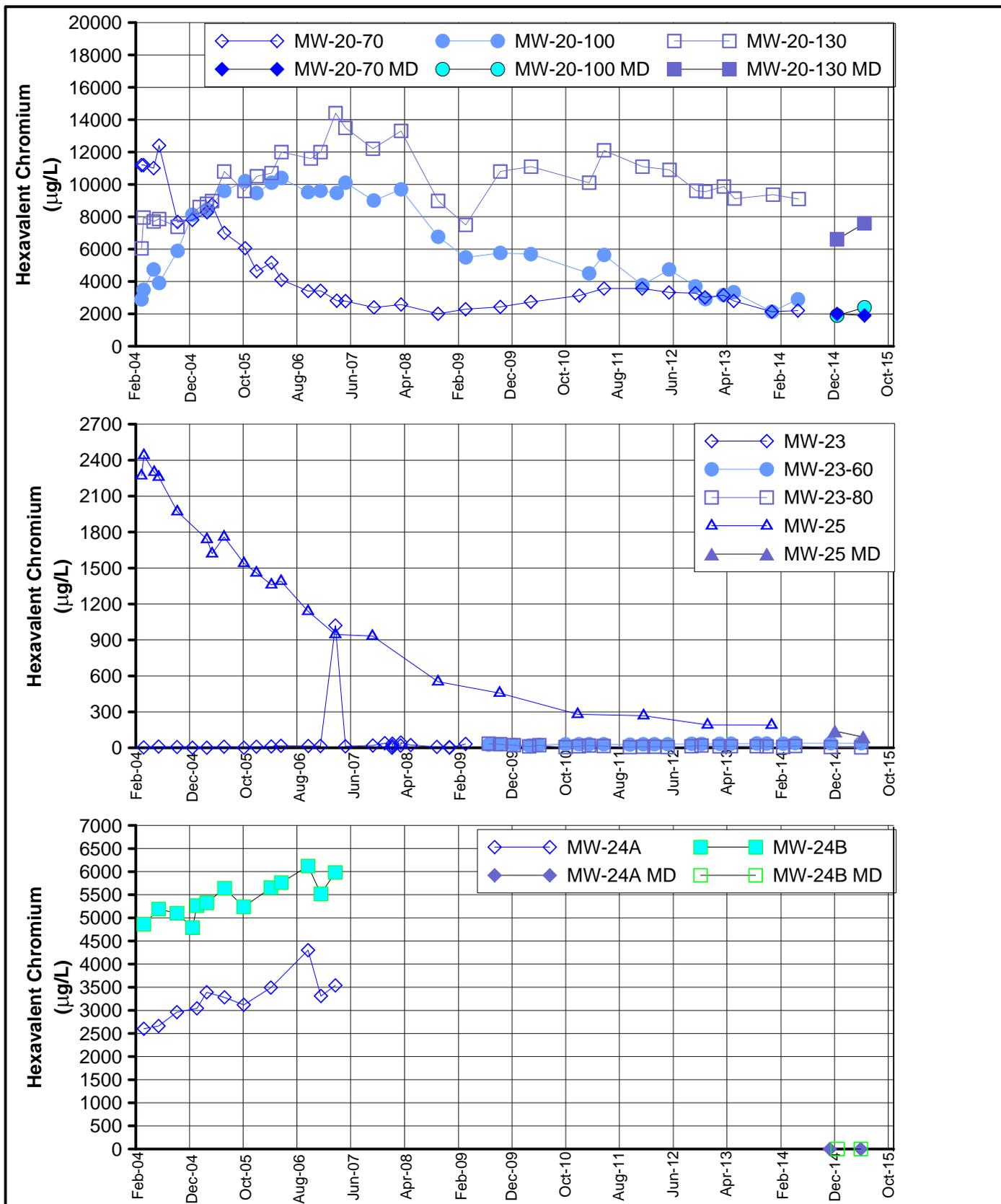
**FIGURE D-1
HEXAVALENT CHROMIUM
IN MW-10, MW-11, MW-12, AND MW-13
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**



Notes:

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**

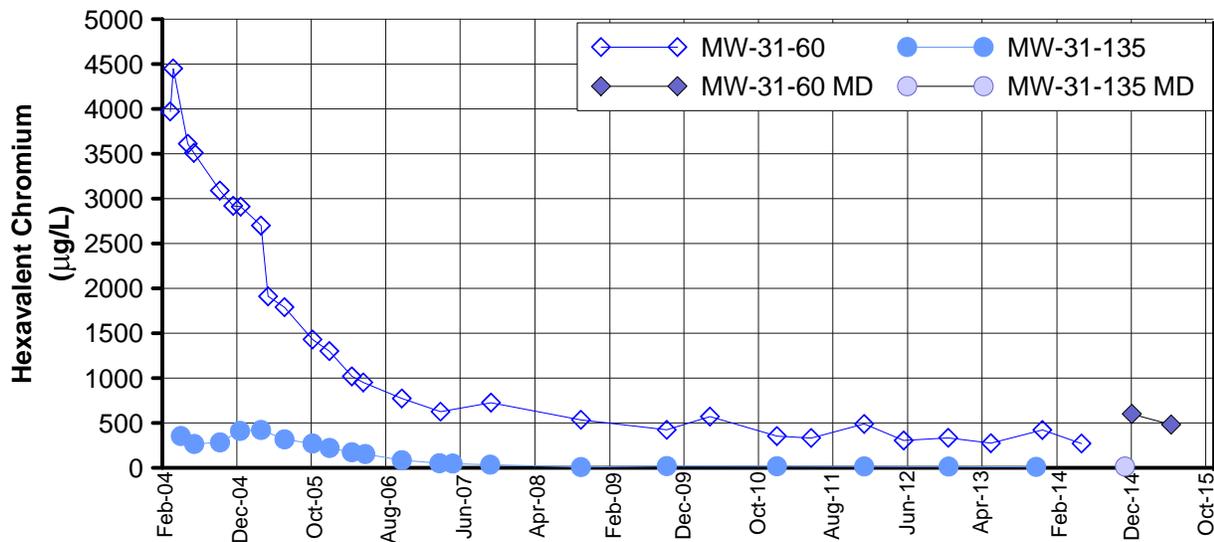
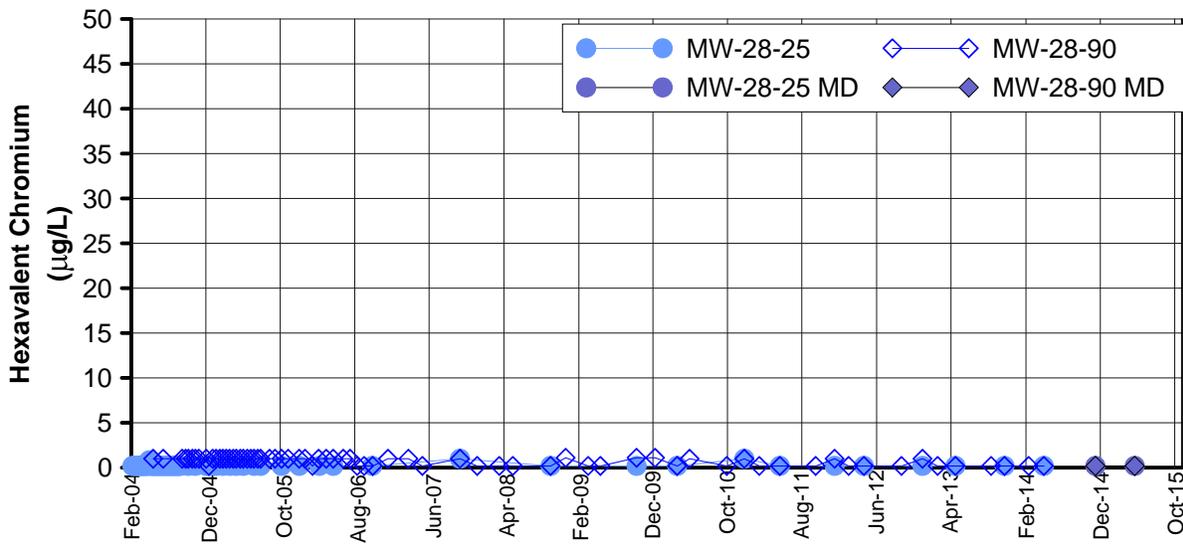
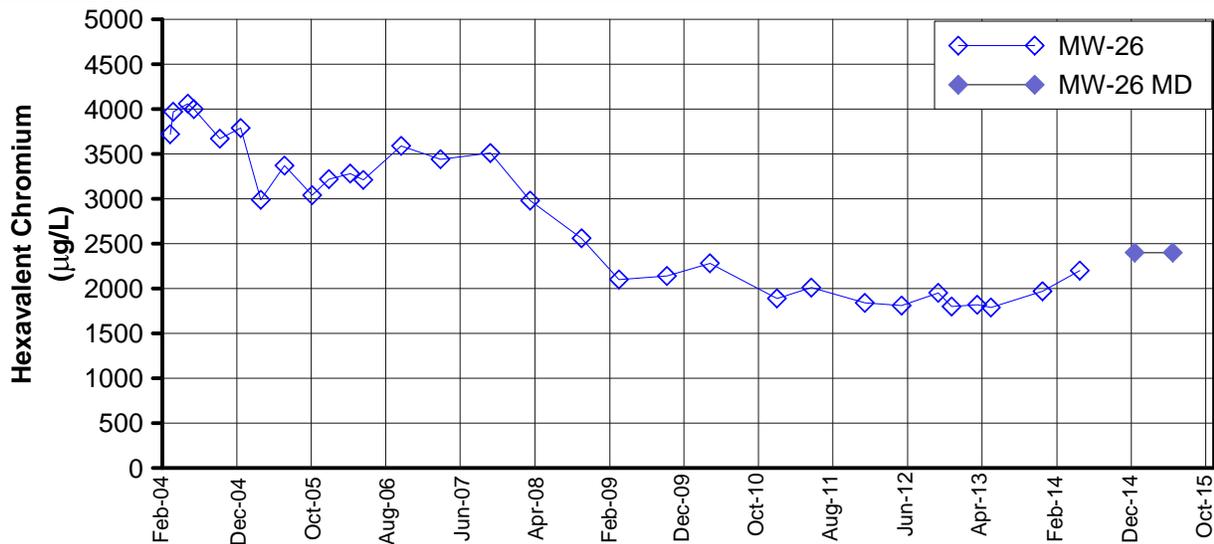


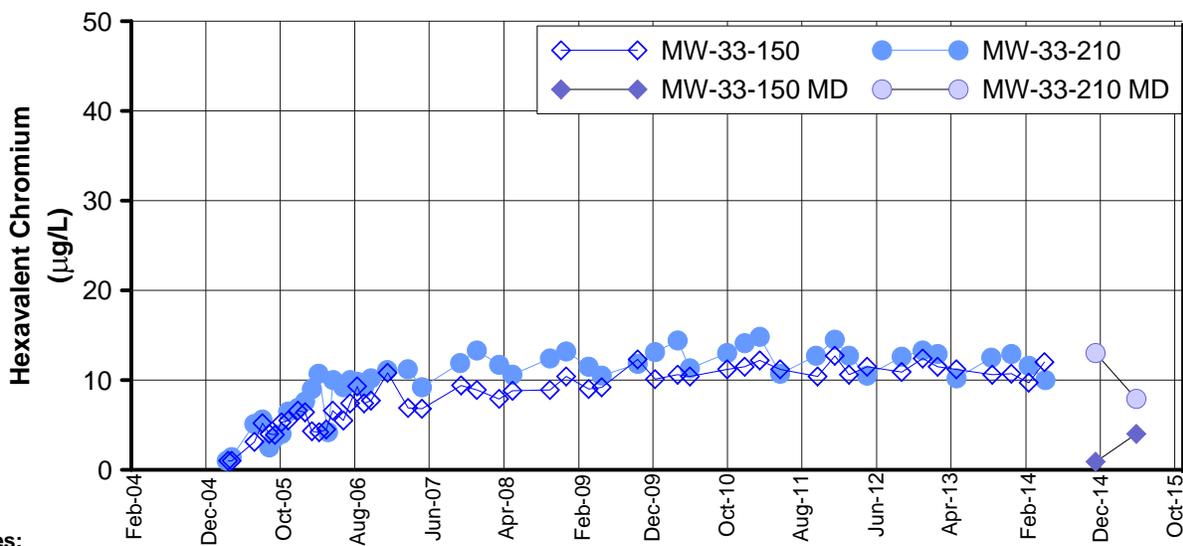
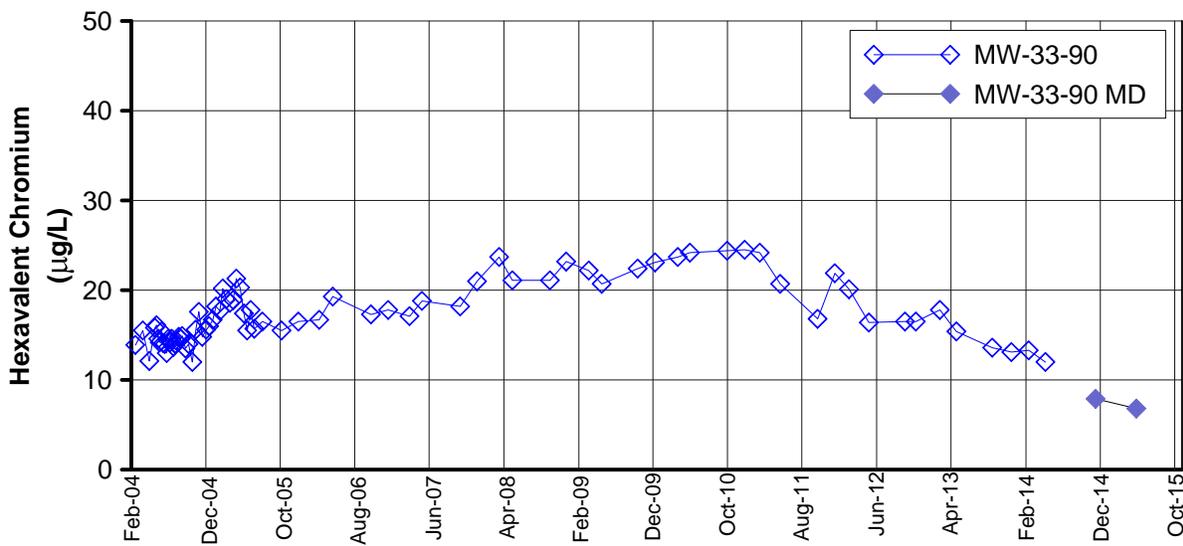
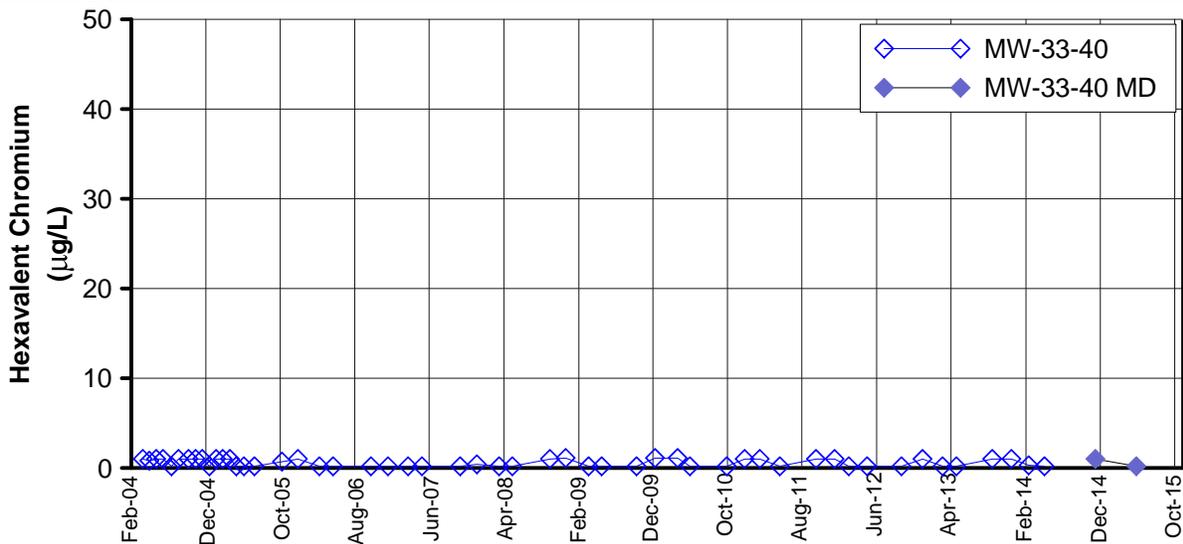
Notes:
 1) For MW-24 data from July 2007 - June 2014, please see: ARCADIS. 2014. 2014 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test. November 19.

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-3
 HEXAVALENT CHROMIUM
 IN MW-20, MW-23, AND MW-24 CLUSTERS AND MW-25
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA**







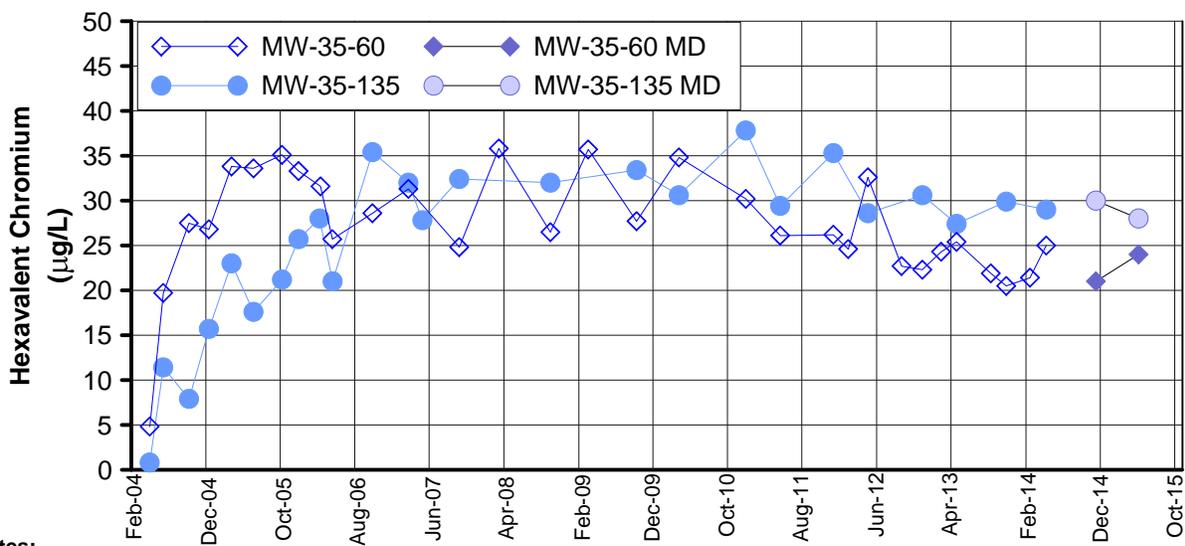
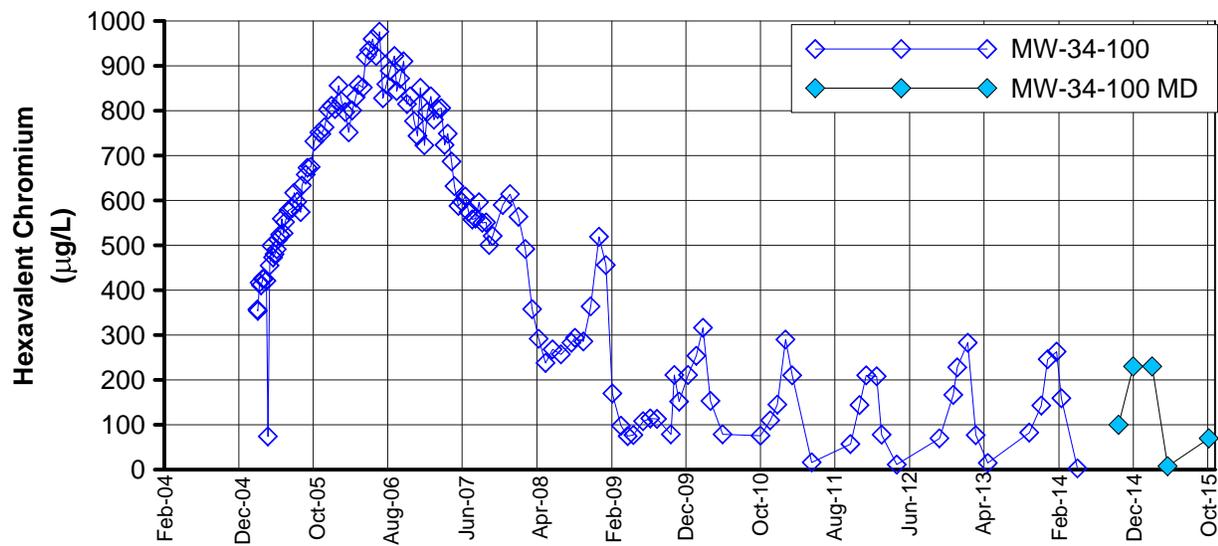
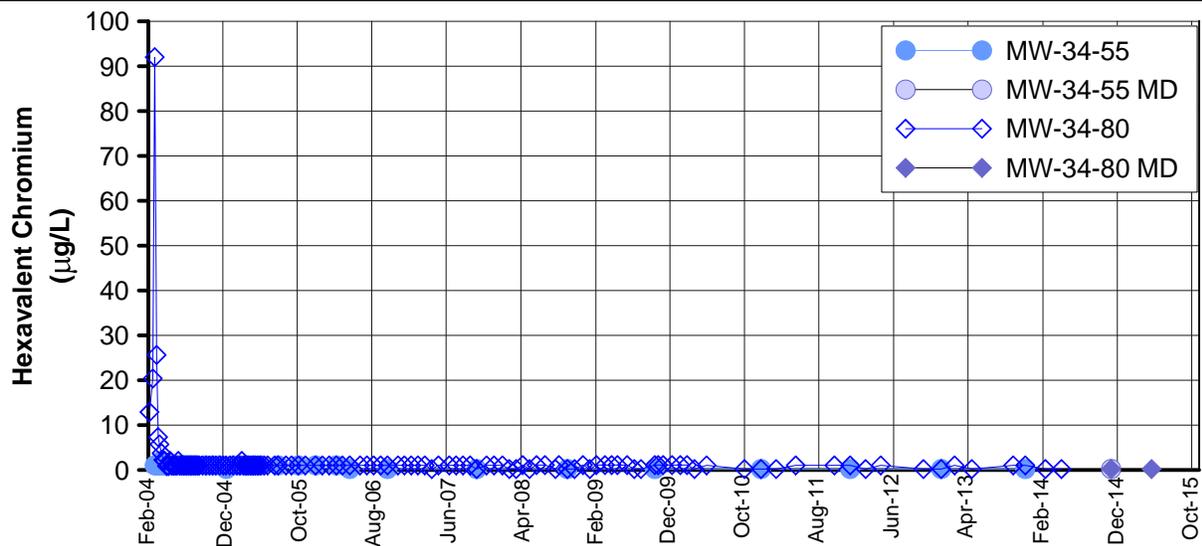
Notes:

- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
- 2) The trigger level for MW-33-40 is 20 µg/L.
- 3) The trigger level for MW-33-90 is 25 µg/L.
- 4) The trigger level for MW-33-150 is 20 µg/L.
- 5) The trigger level for MW-33-210 is 20 µg/L.

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-5
HEXAVALENT CHROMIUM
IN MW-33 CLUSTER**
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA





Notes:

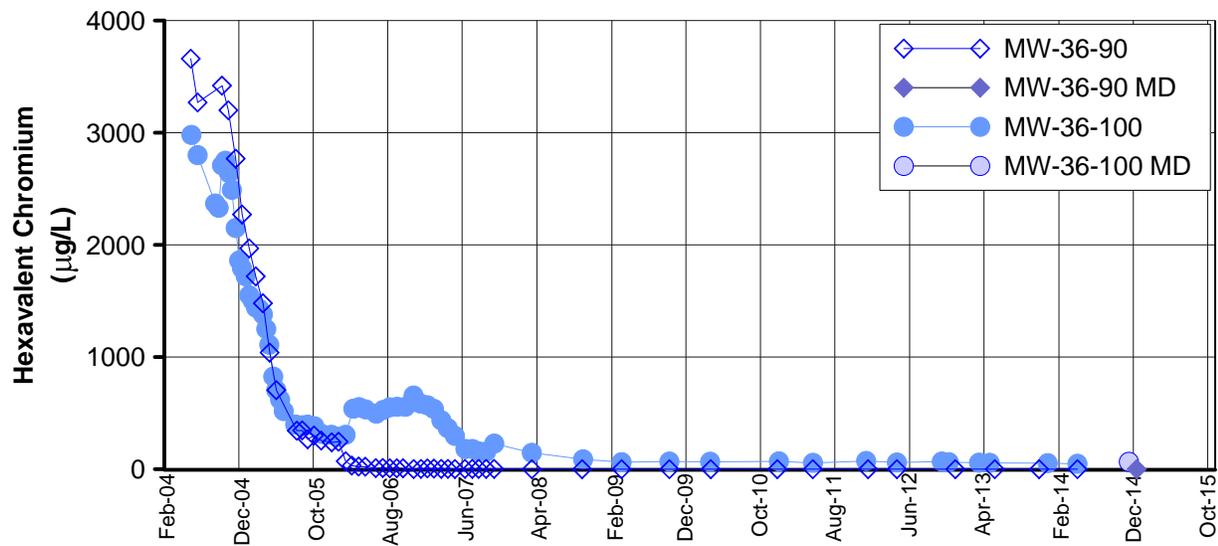
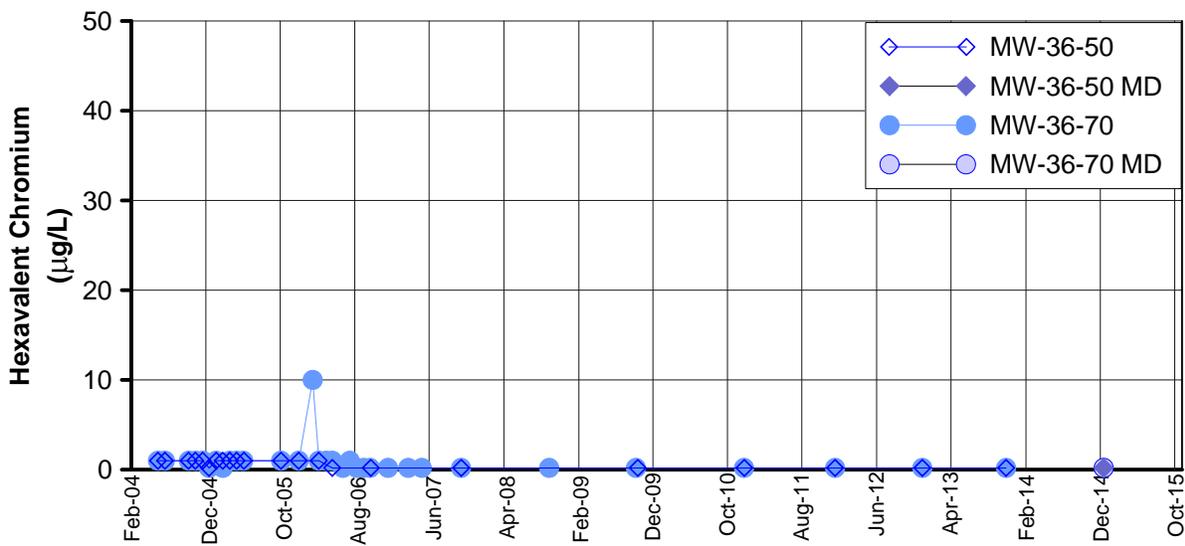
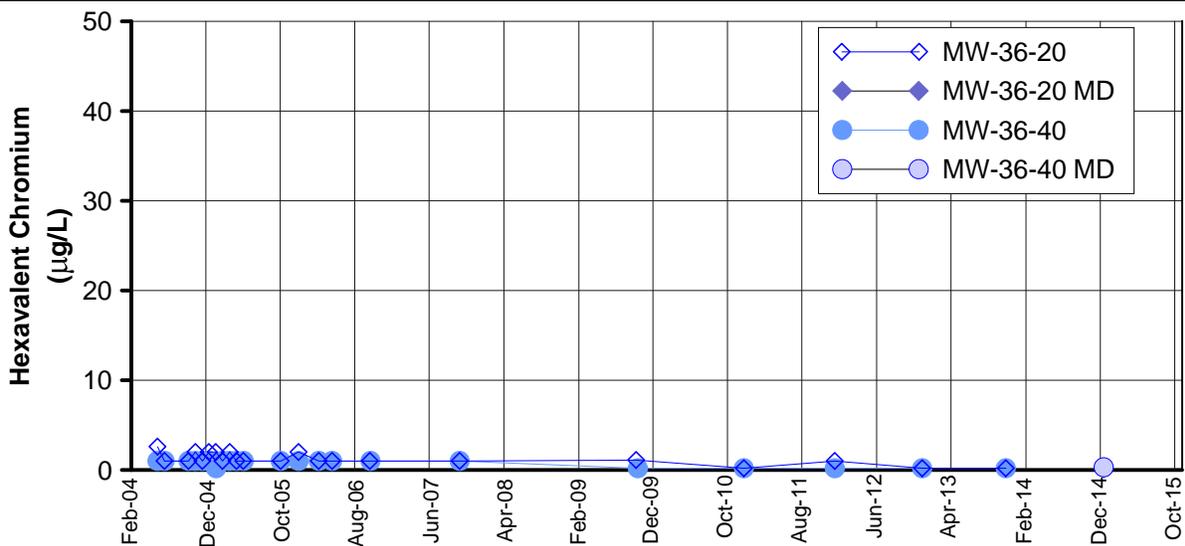
- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
- 2) The trigger level for MW-34-80 is 20 µg/L.
- 3) The trigger level for MW-34-100 is 750 µg/L.

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-6
HEXAVALENT CHROMIUM
IN MW-34 AND MW-35 CLUSTERS**

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



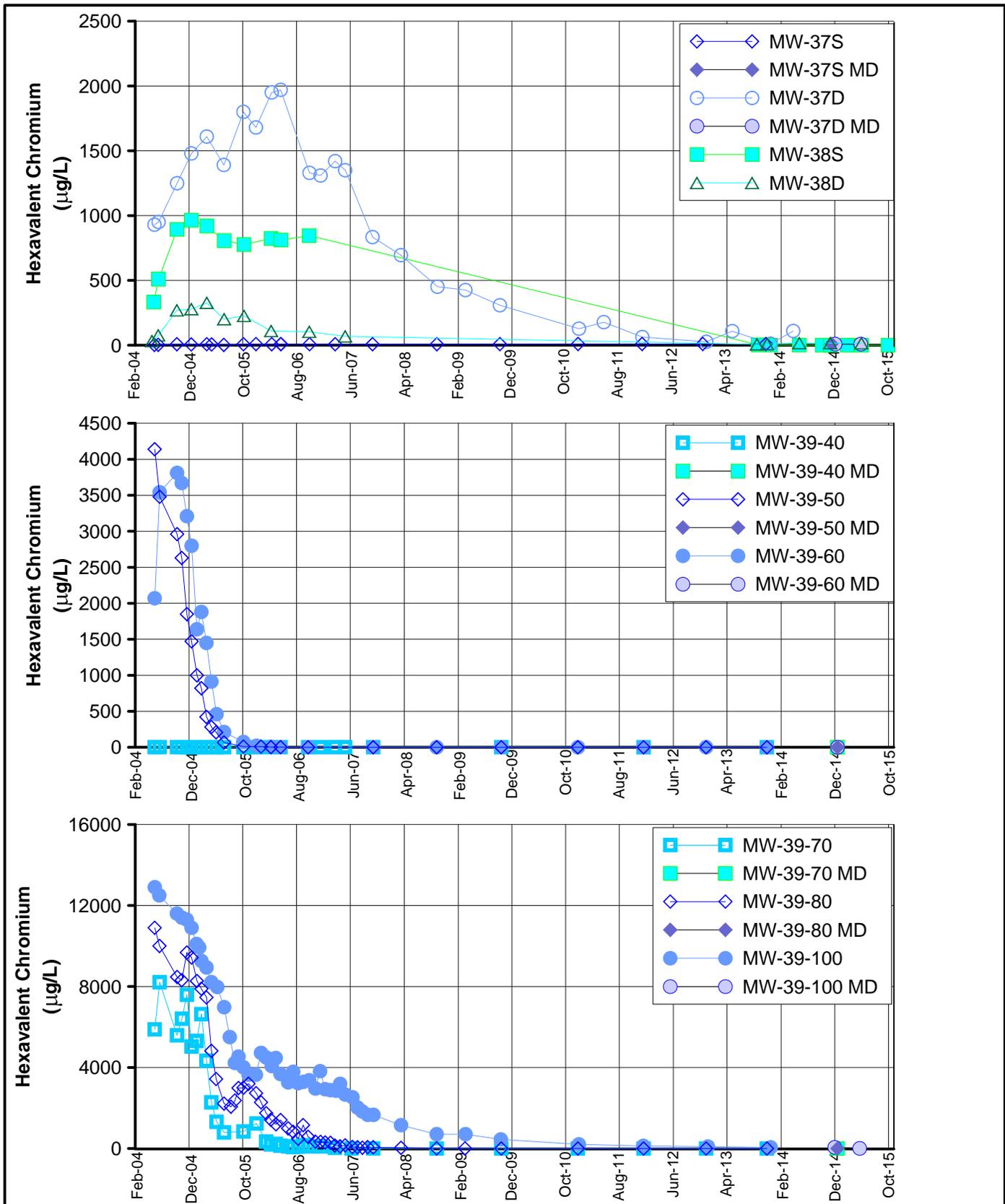


- Notes:**
- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
 - 2) The trigger level for MW-36-70 is 20 µg/L.

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-7
HEXAVALENT CHROMIUM
IN MW-36 CLUSTER**
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

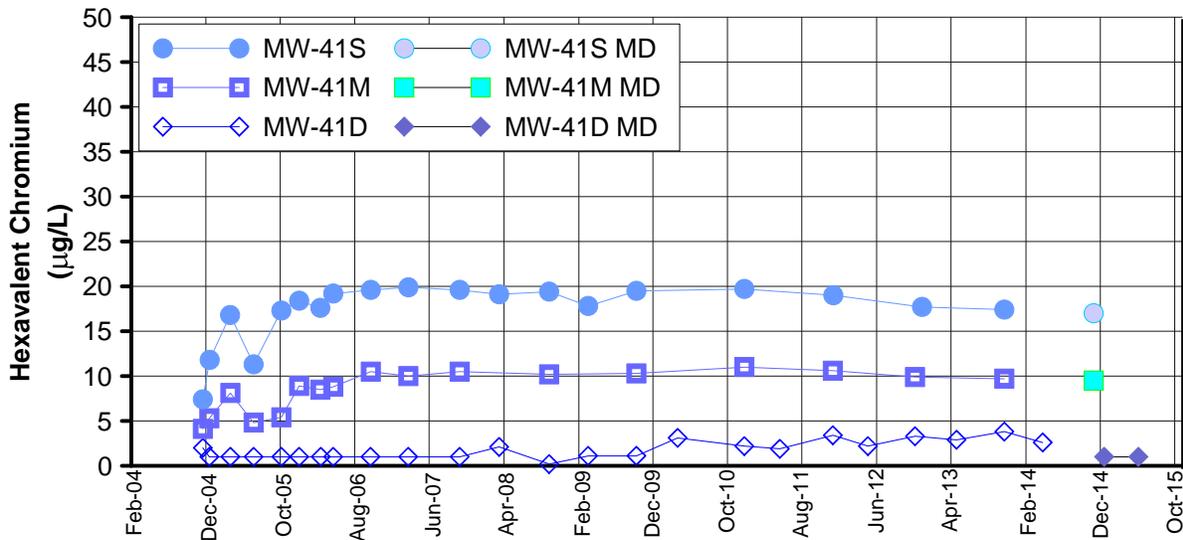
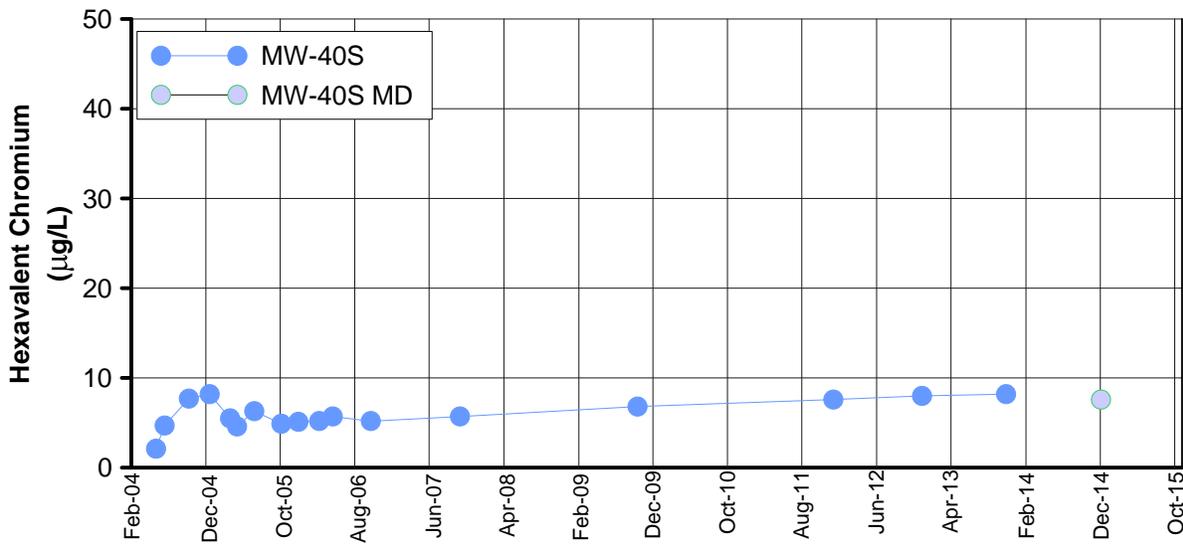
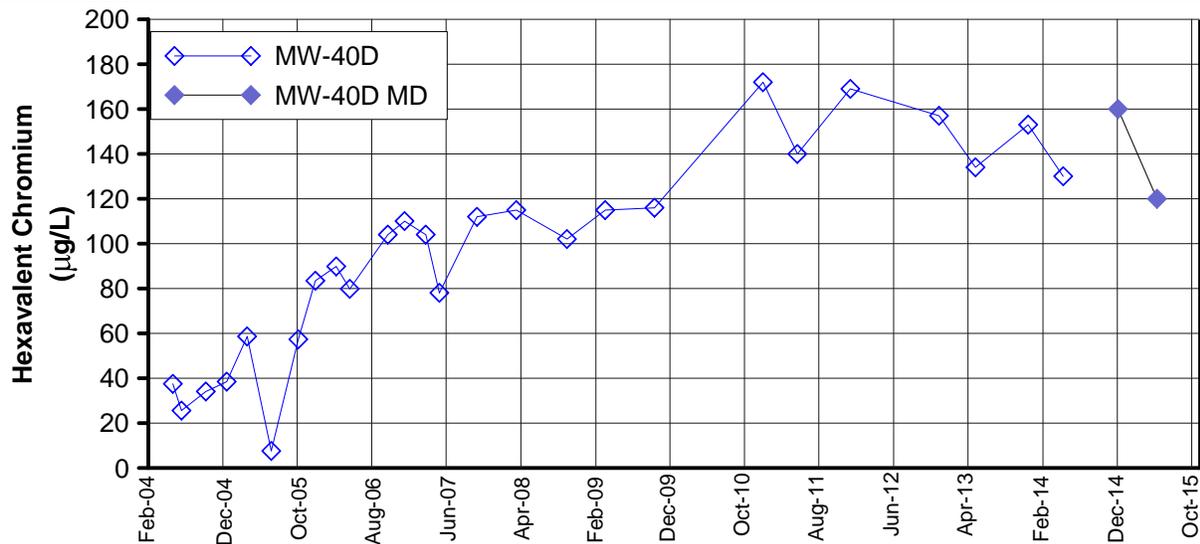




Notes:

- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
 - 2) The trigger level for MW-39-40 is 20 µg/L.
 - 3) For MW-38 data from July 2007 - January 2010, please see: ARCADIS. 2014. 2014 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test. November 19.
- MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-8
HEXAVALENT CHROMIUM
IN MW-37, MW-38, AND MW-39 CLUSTERS**
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



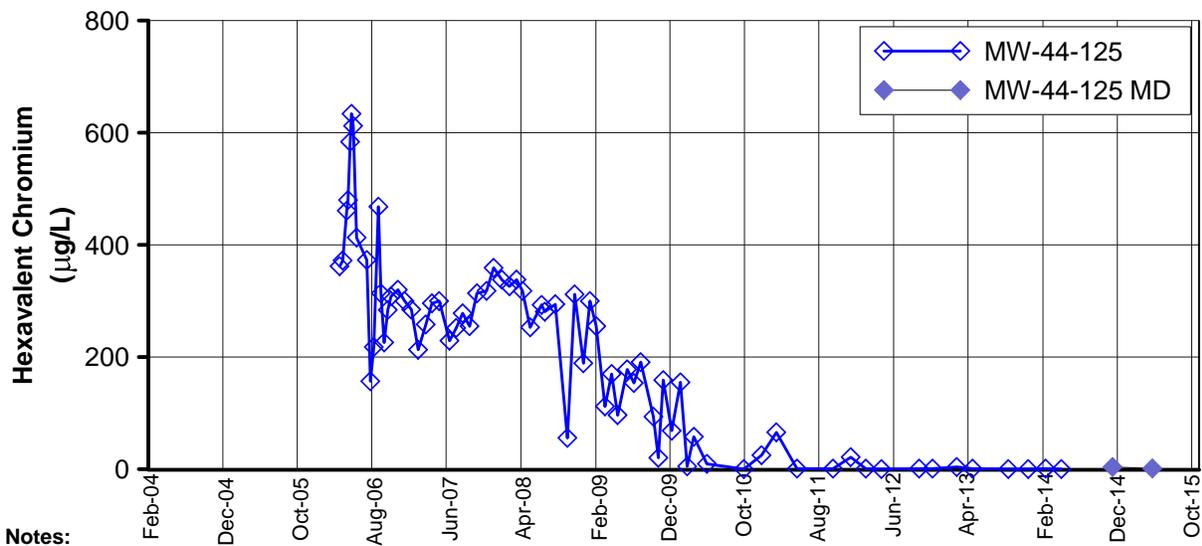
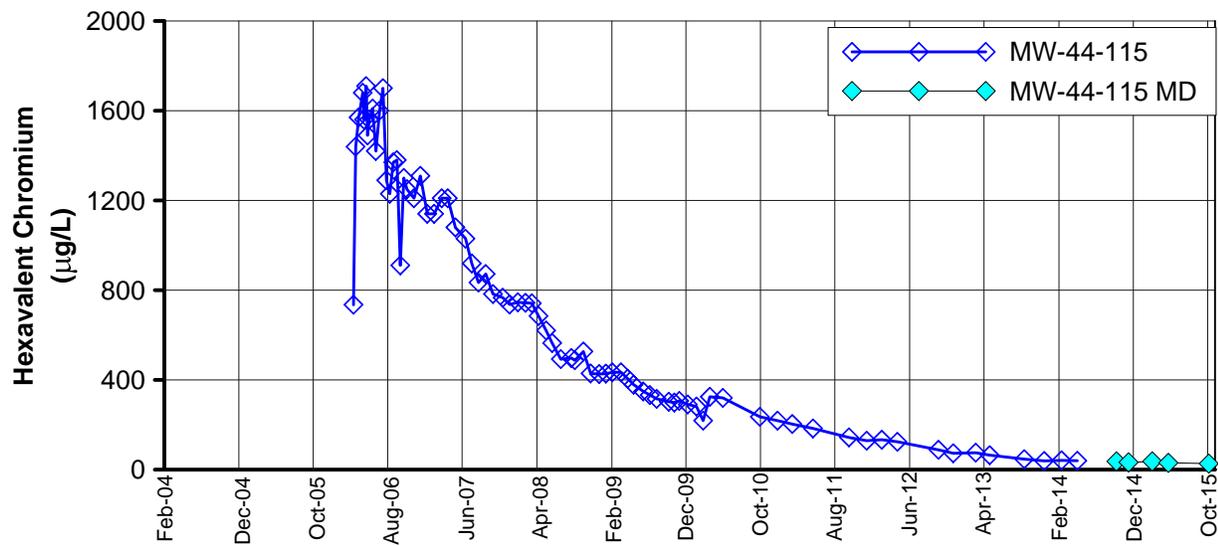
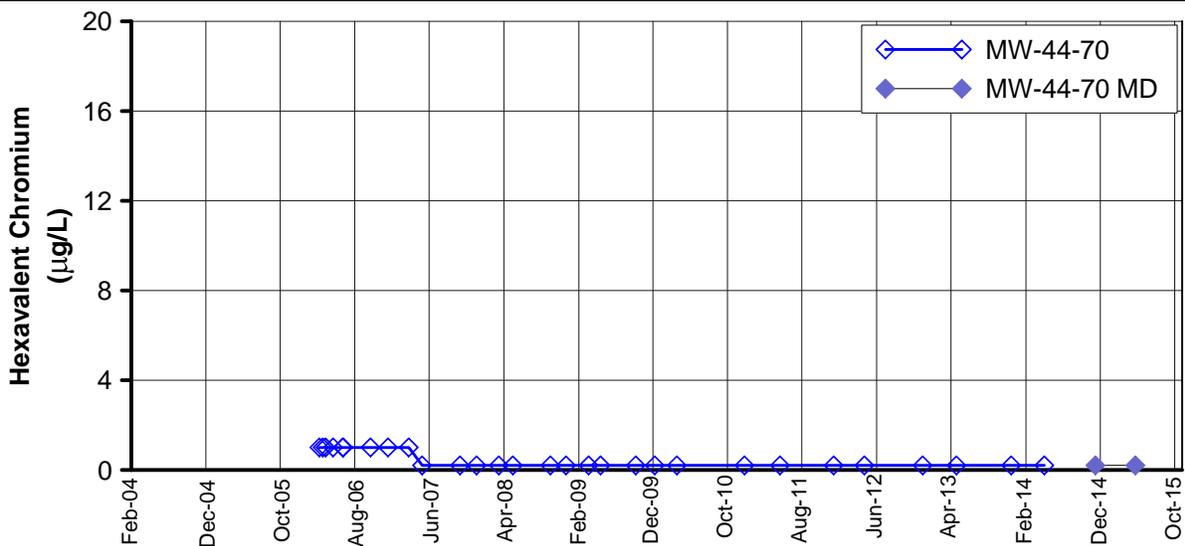
Notes:

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS**

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA





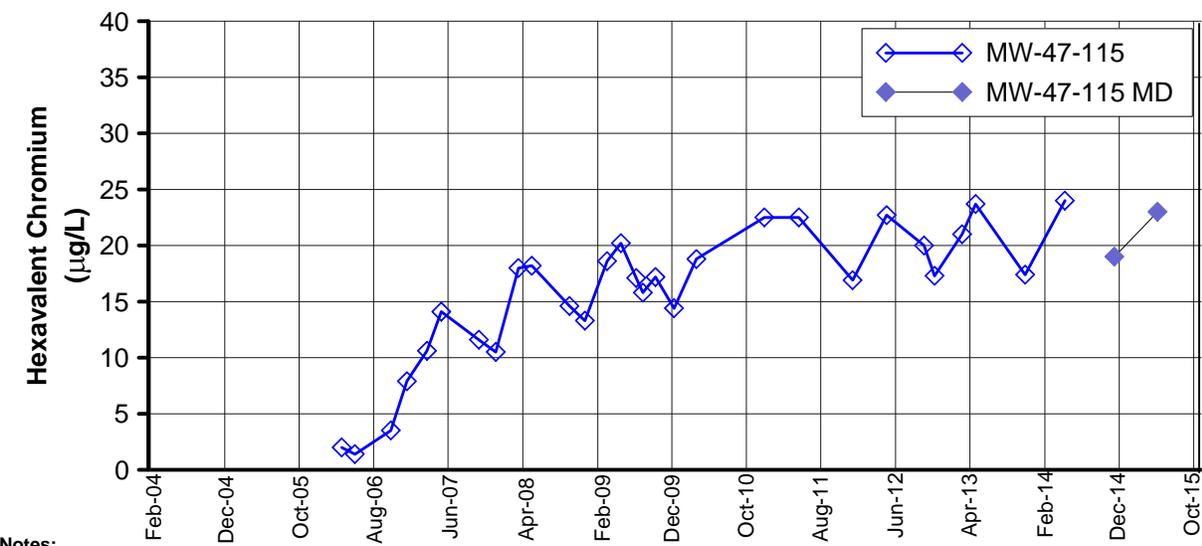
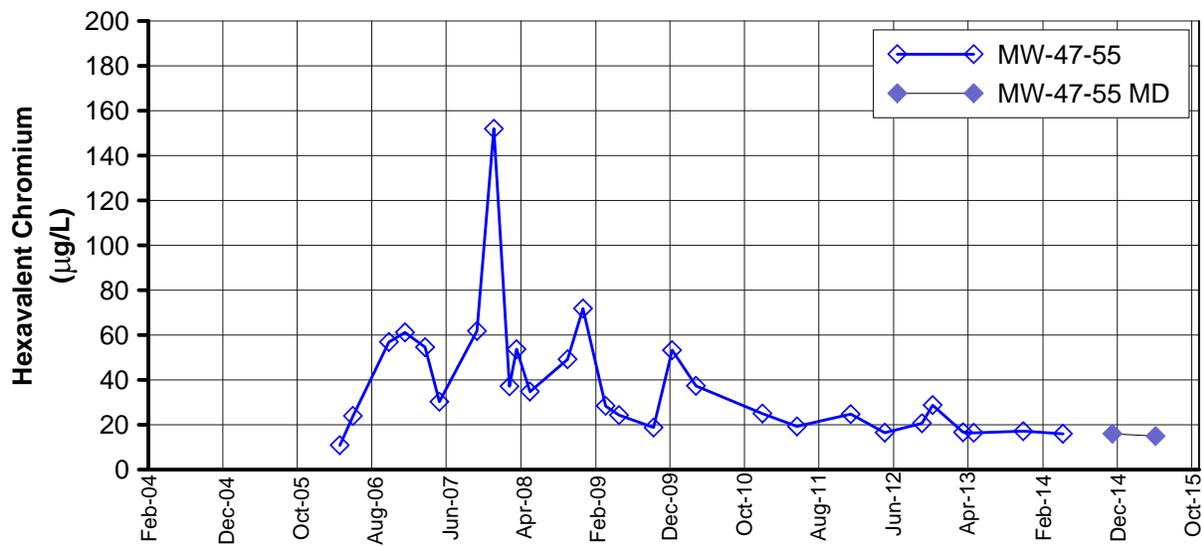
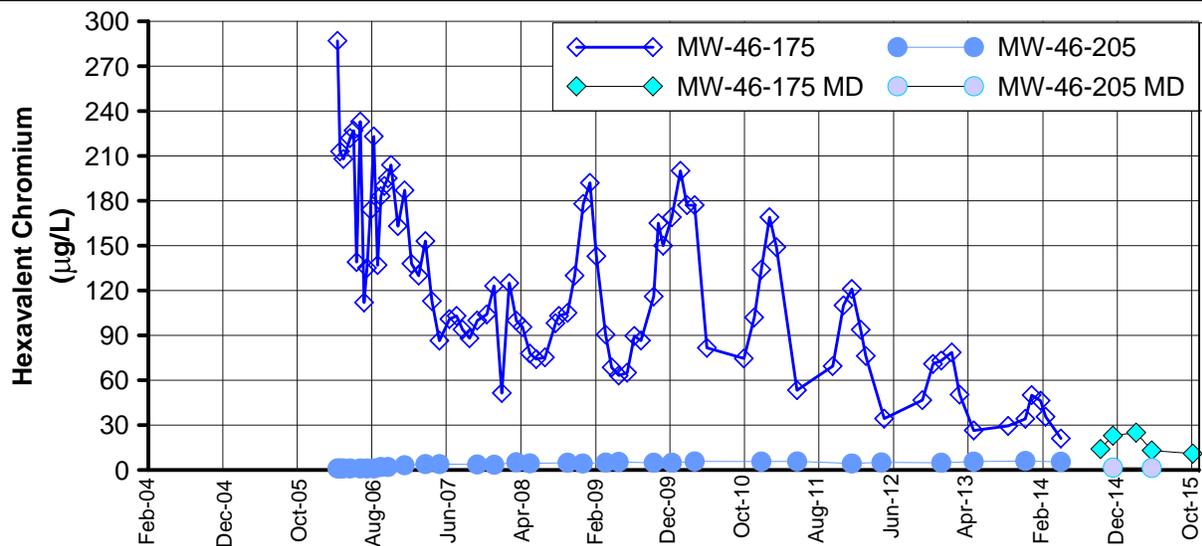
Notes:

- 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
- 2) The trigger level for MW-44-70 is 20 µg/L.
- 3) The trigger level for MW-44-115 is 1,200 µg/L.
- 4) The trigger level for MW-44-125 is 475 µg/L.

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-10
HEXAVALENT CHROMIUM
IN MW-44 CLUSTER**
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

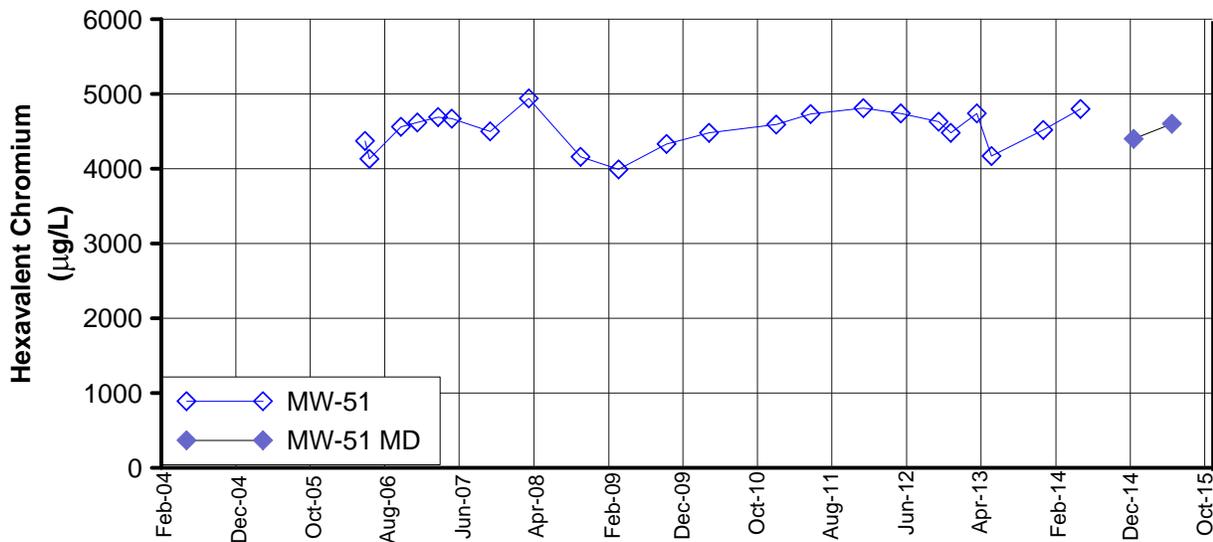
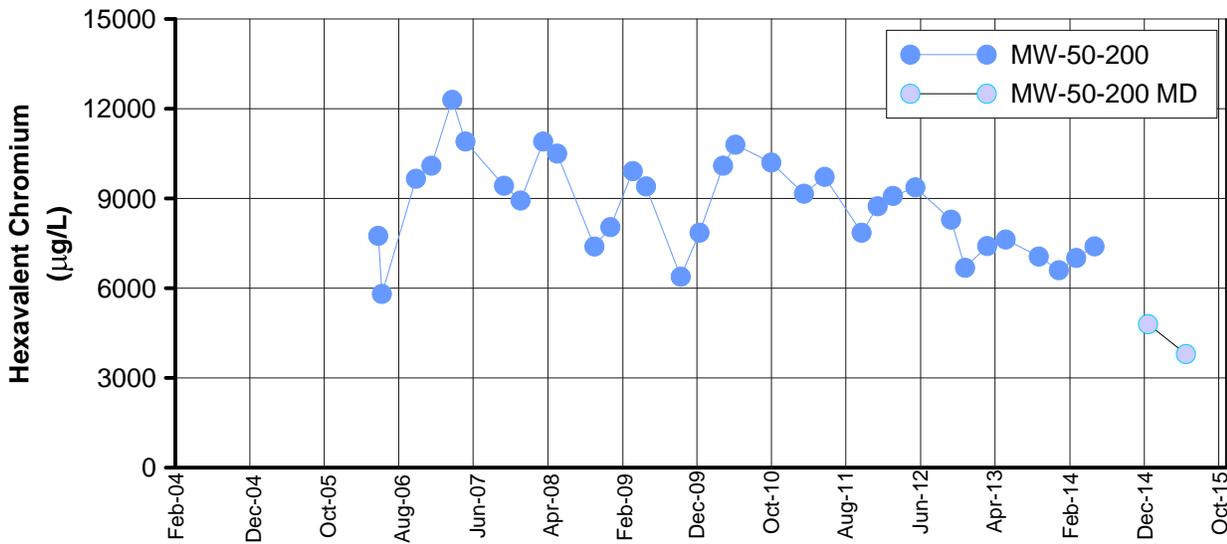
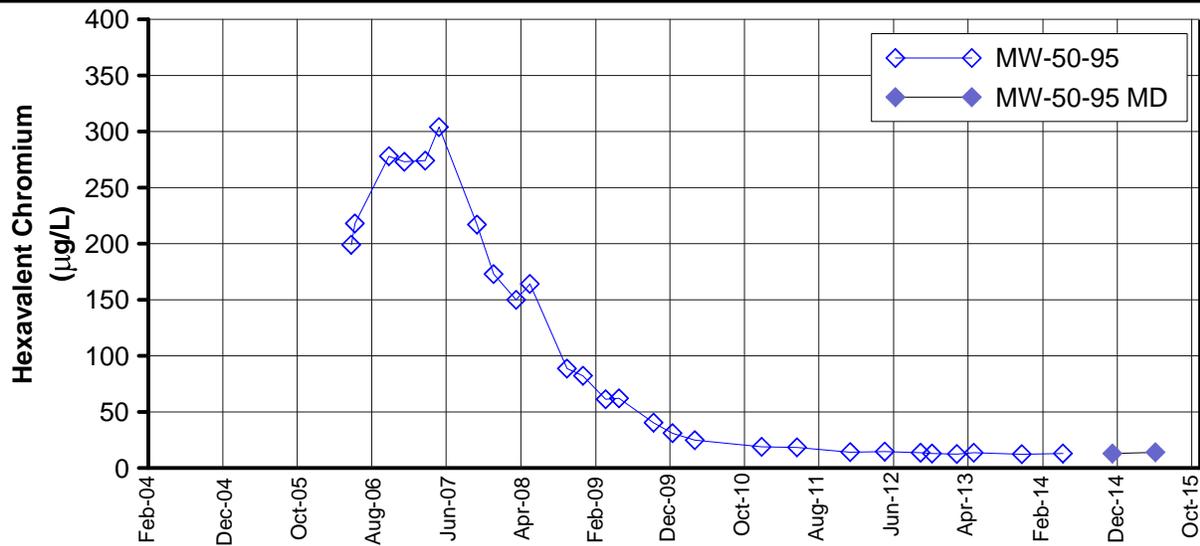




Notes:
 1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
 2) The trigger level for MW-46-175 is 225 µg/L.
 3) The trigger level for MW-46-205 is 20 µg/L.
 4) The trigger level for MW-47-55 is 475 µg/L.
 5) The trigger level for MW-47-115 is 31 µg/L.
 MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-11
 HEXAVALENT CHROMIUM
 IN MW-46 AND MW-47 CLUSTERS**
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA



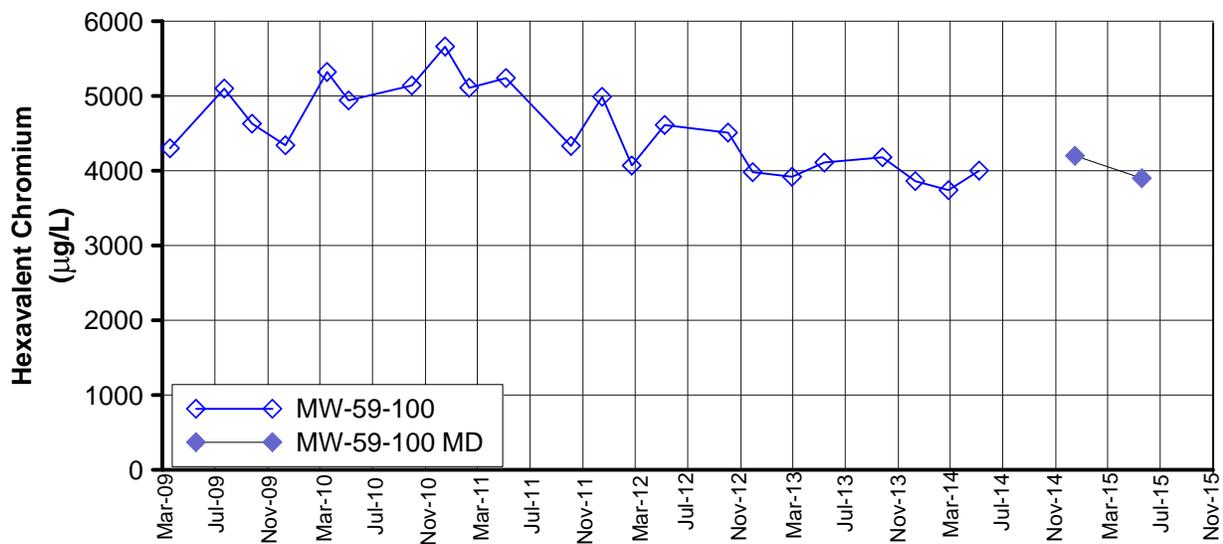
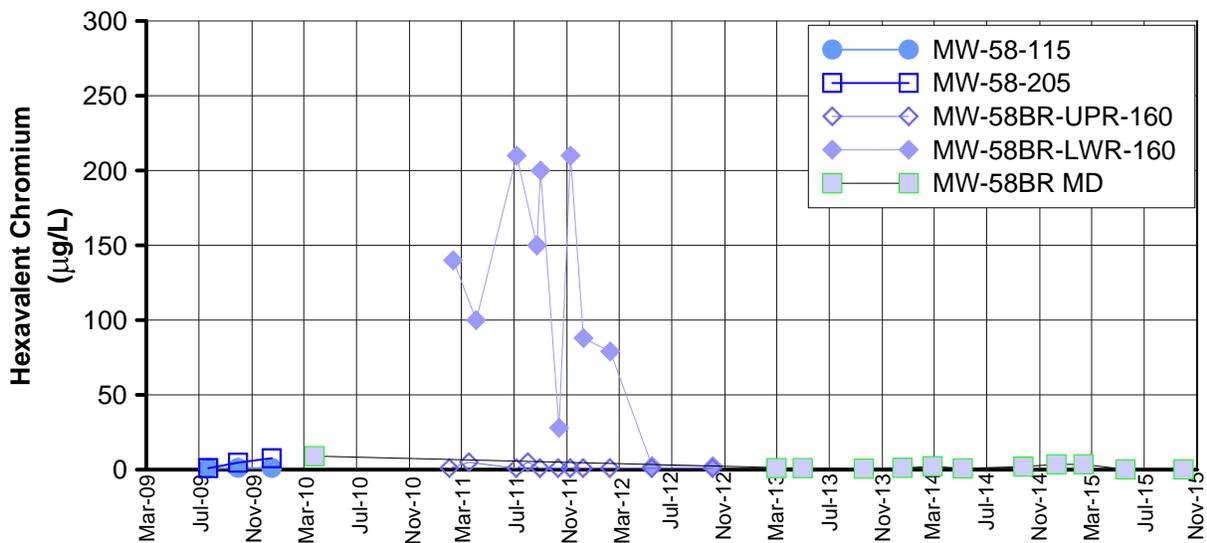
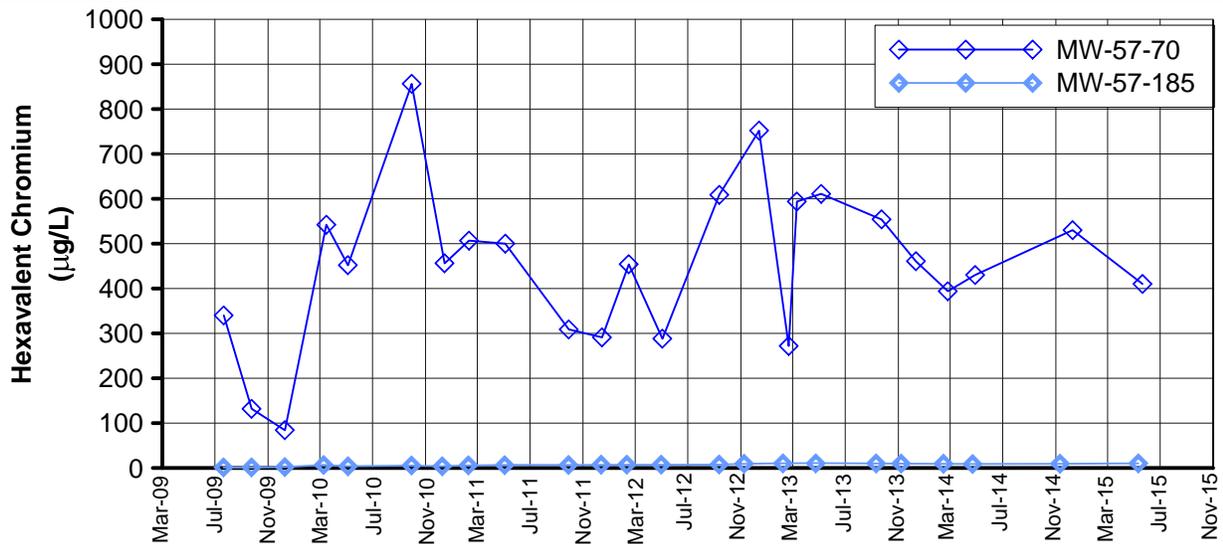


Notes:

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-12
HEXAVALENT CHROMIUM
IN MW-50 AND MW-51 CLUSTERS**

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

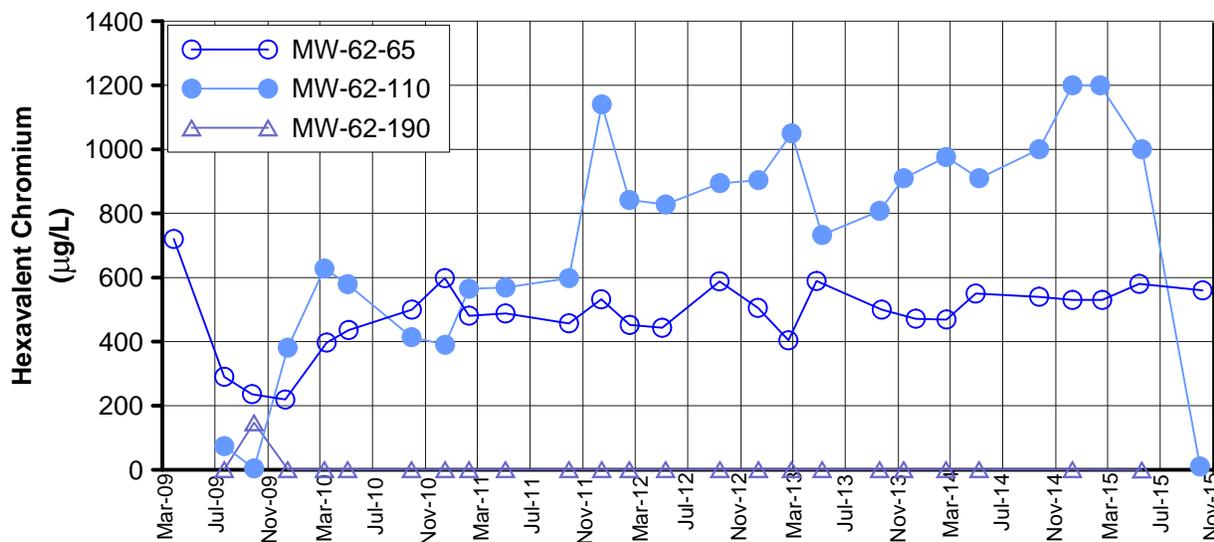
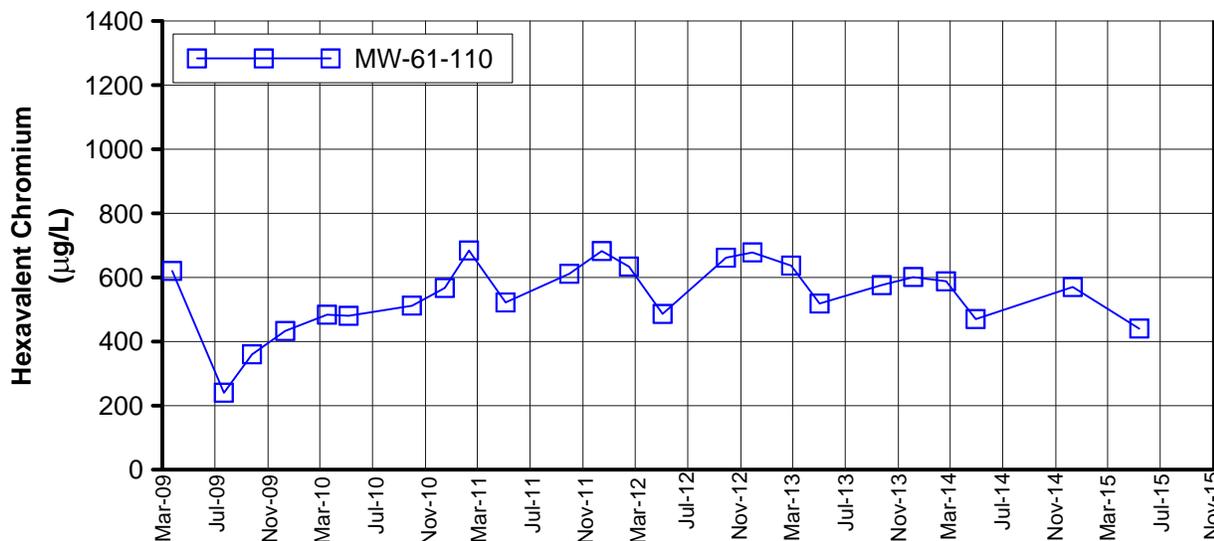
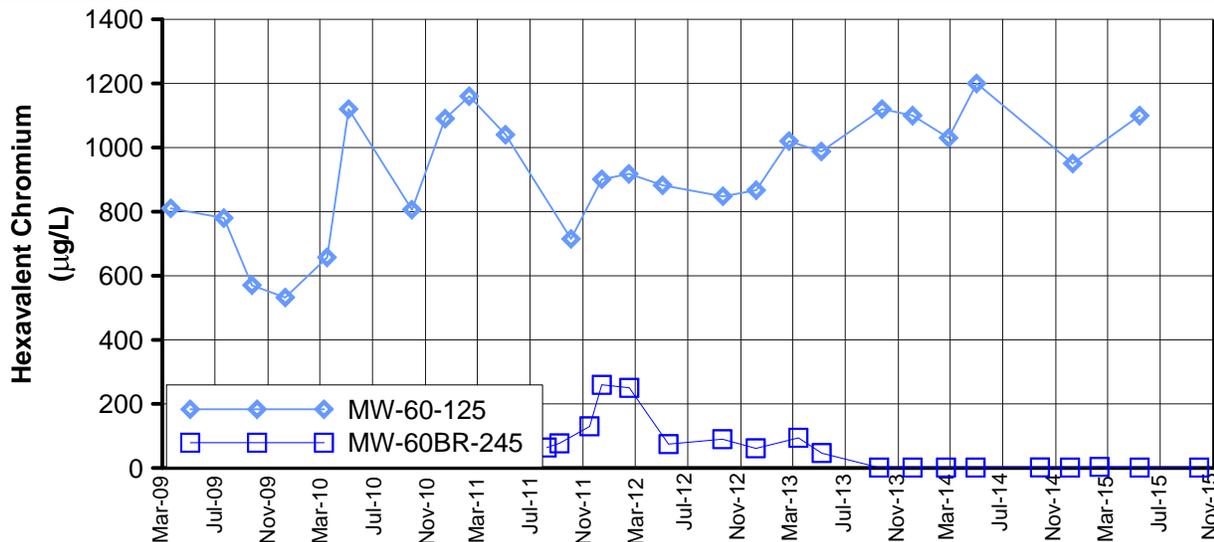


Note:

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**

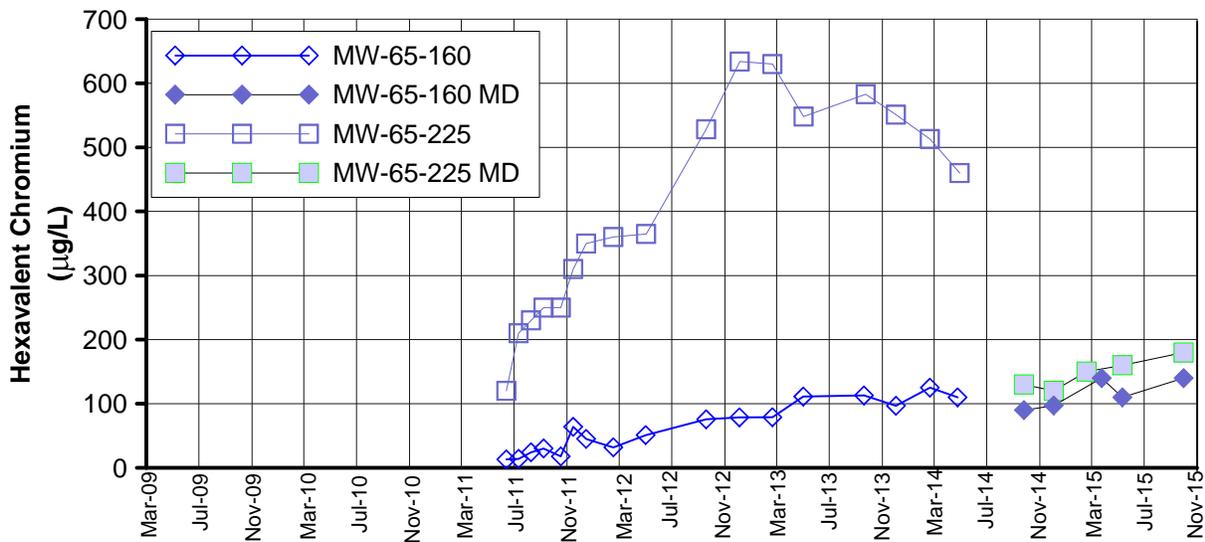
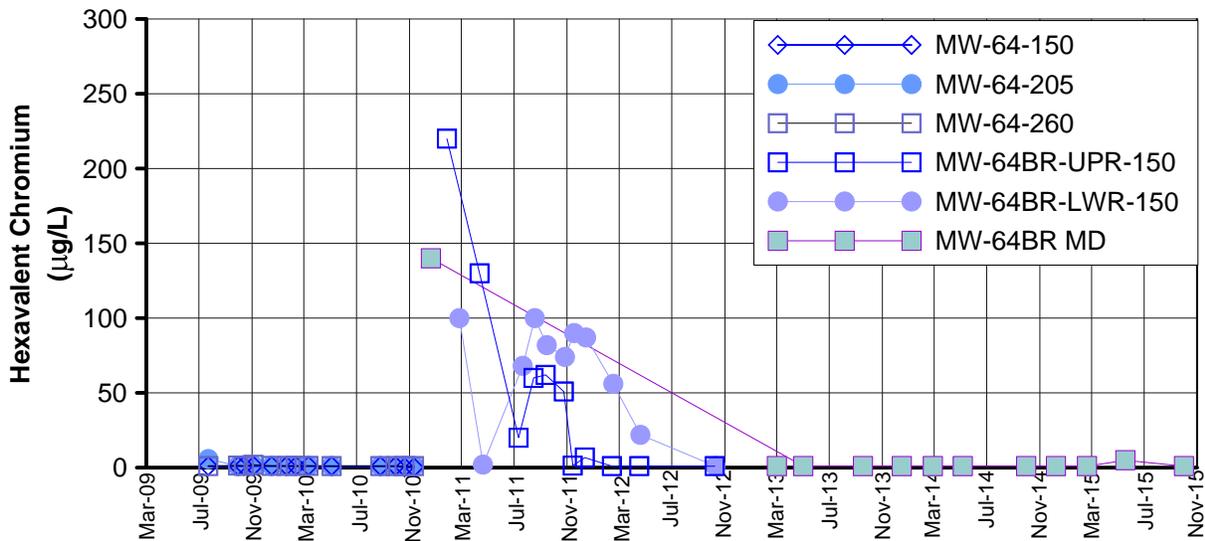
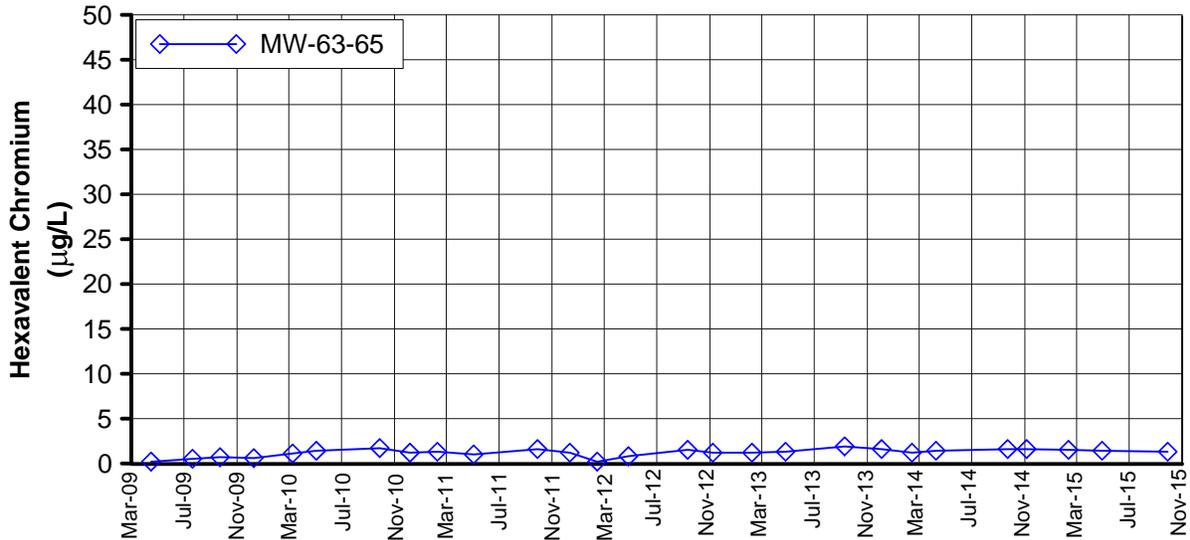




Notes:

- 1) MW-62-110 and MW-62-190 are sampled by flexible liner underground technologies sampling system.

FIGURE D-14
HEXAVALENT CHROMIUM IN THE MW-60 CLUSTER,
MW-61-110 AND THE MW-62 CLUSTER
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

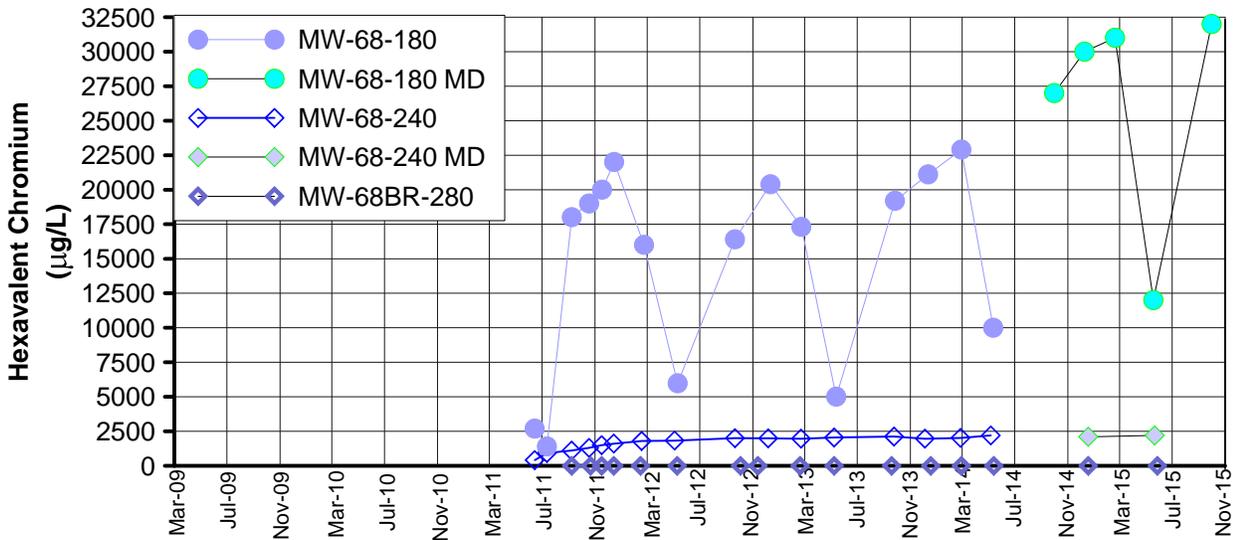
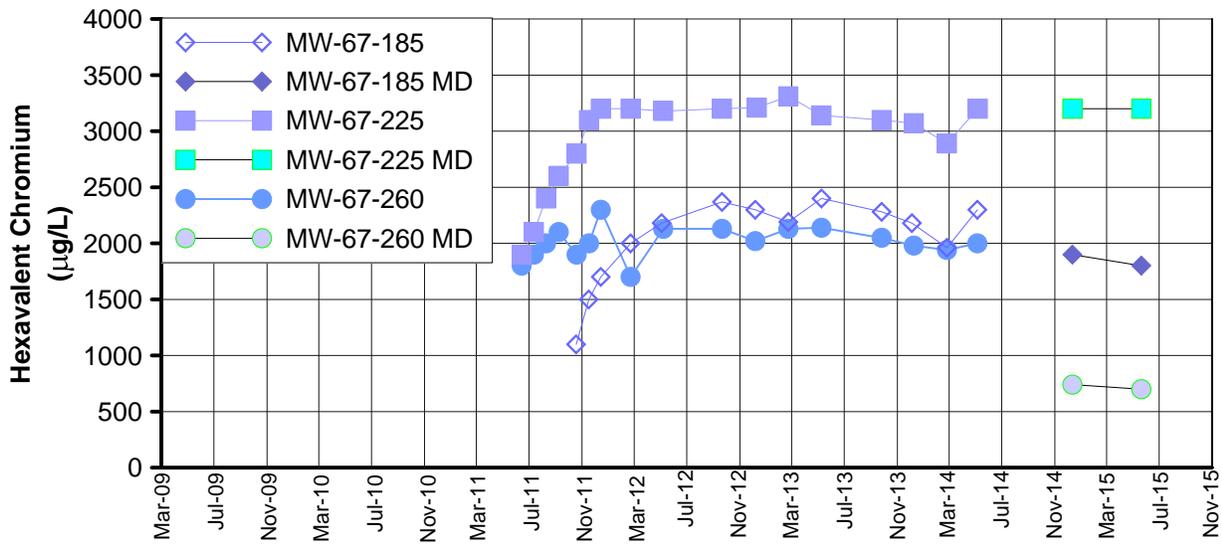
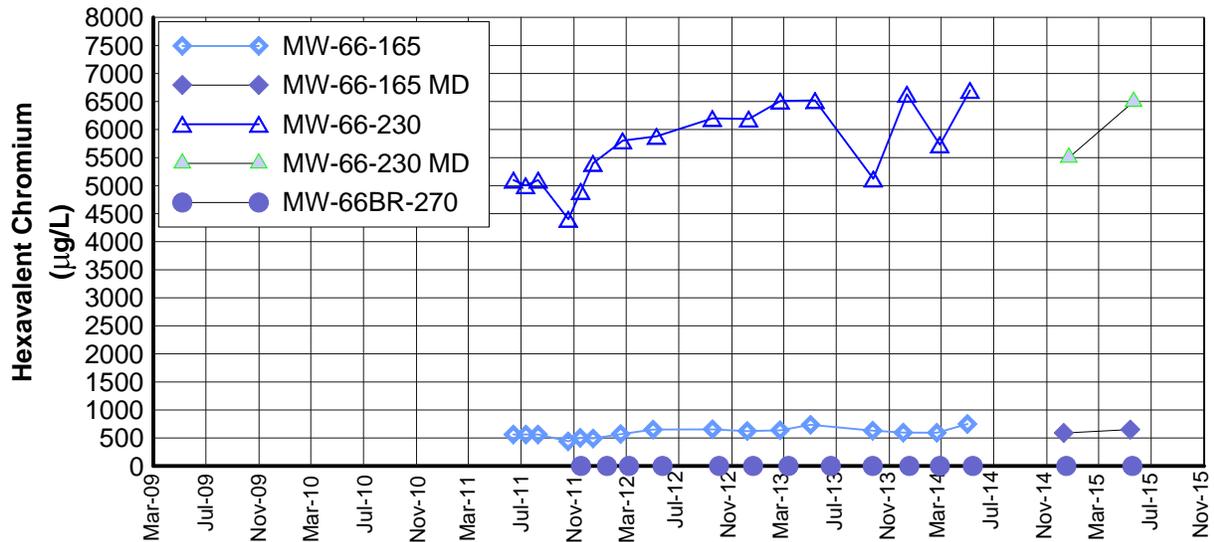


Notes:

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-15
HEXAVALENT CHROMIUM
IN MW-63-65, MW-64 CLUSTER AND MW-65 CLUSTER
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**



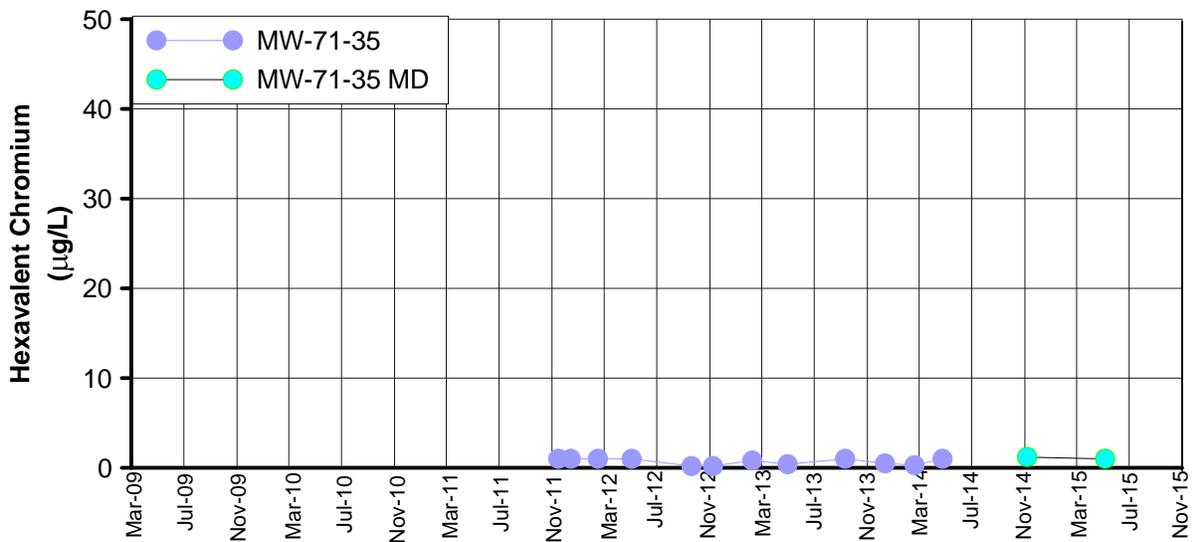
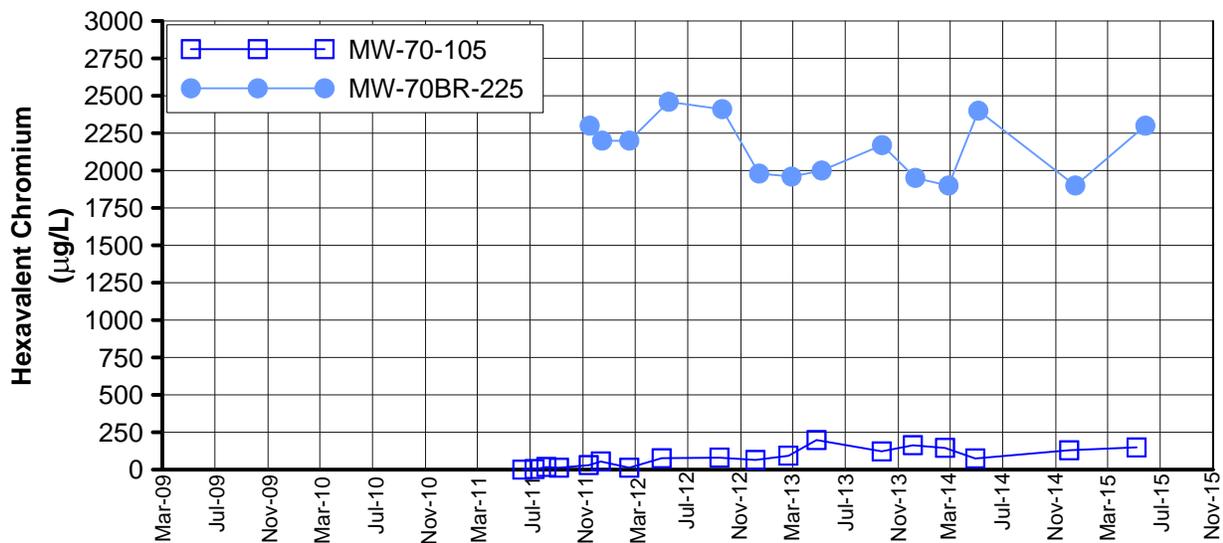
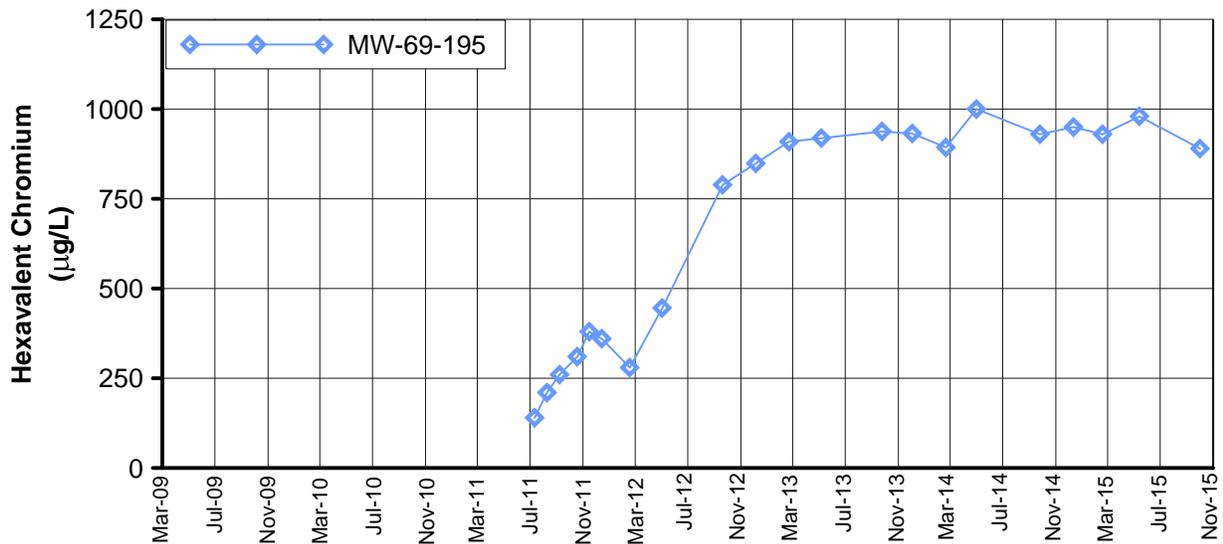


Notes:

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-16
HEXAVALENT CHROMIUM
IN MW-66, MW-67, AND MW-68 CLUSTERS**

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

MD = minimal drawdown, hexavalent chromium sample collected using minimal drawdown sampling method. Data not indicated with (MD) was collected using the three-volume purge sampling method.

**FIGURE D-17
HEXAVALENT CHROMIUM
IN MW-69-195, THE MW-70 CLUSTER, AND MW-71-35
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**

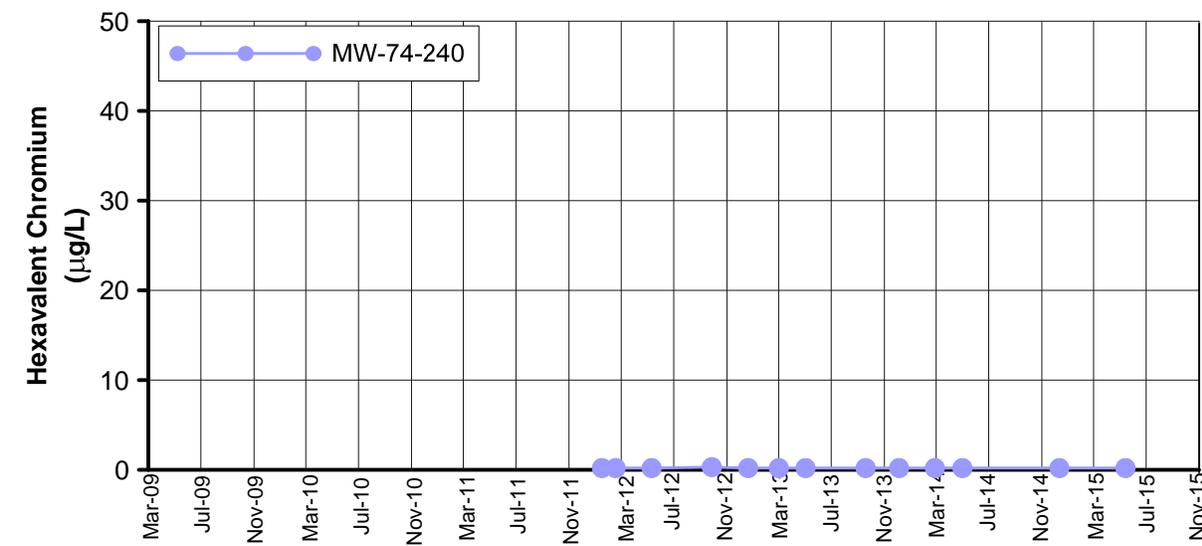
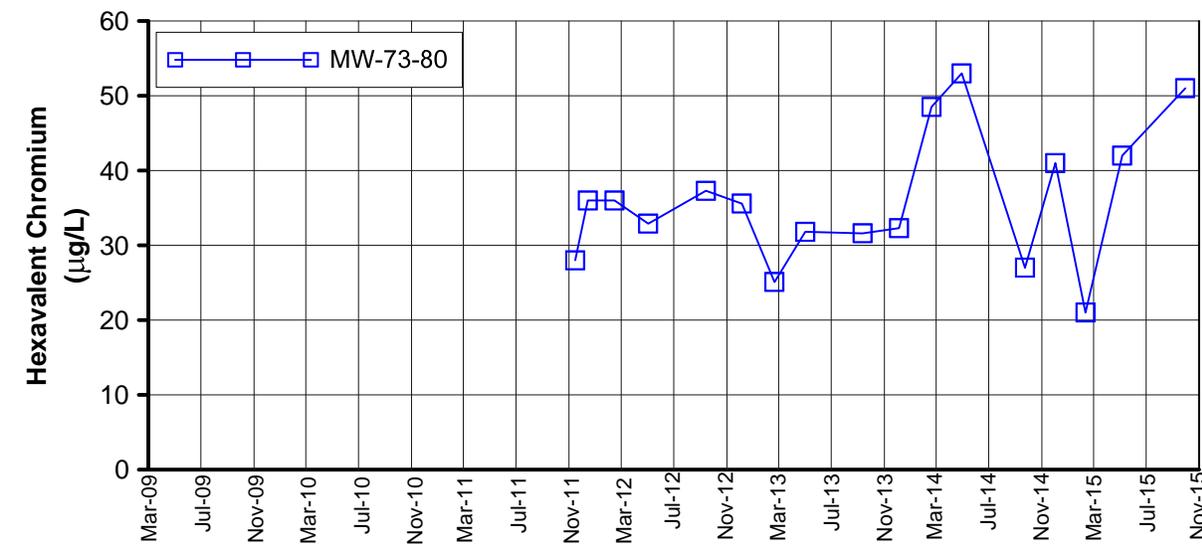
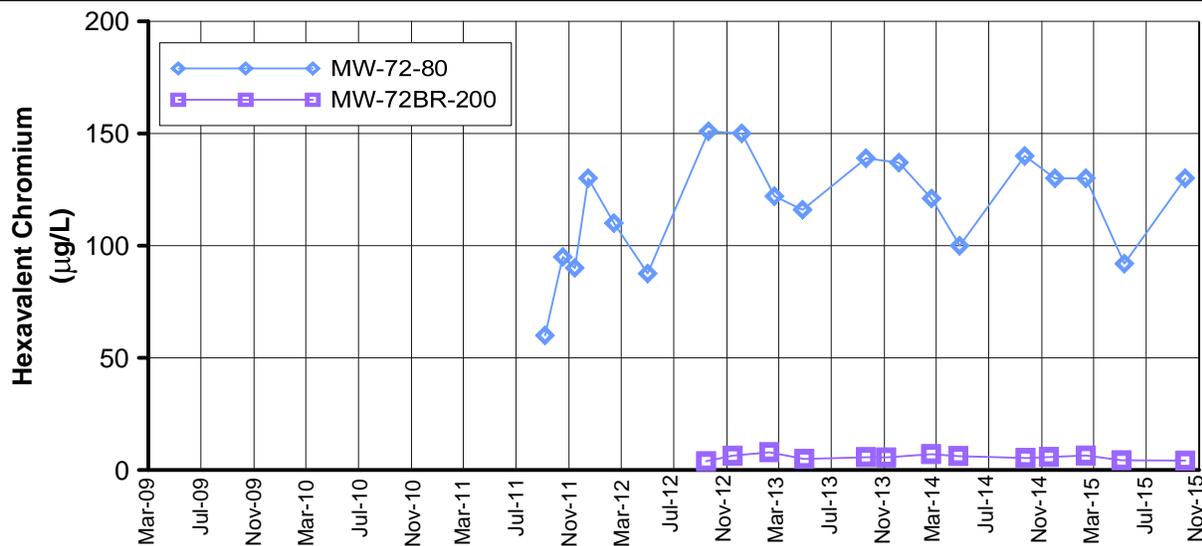
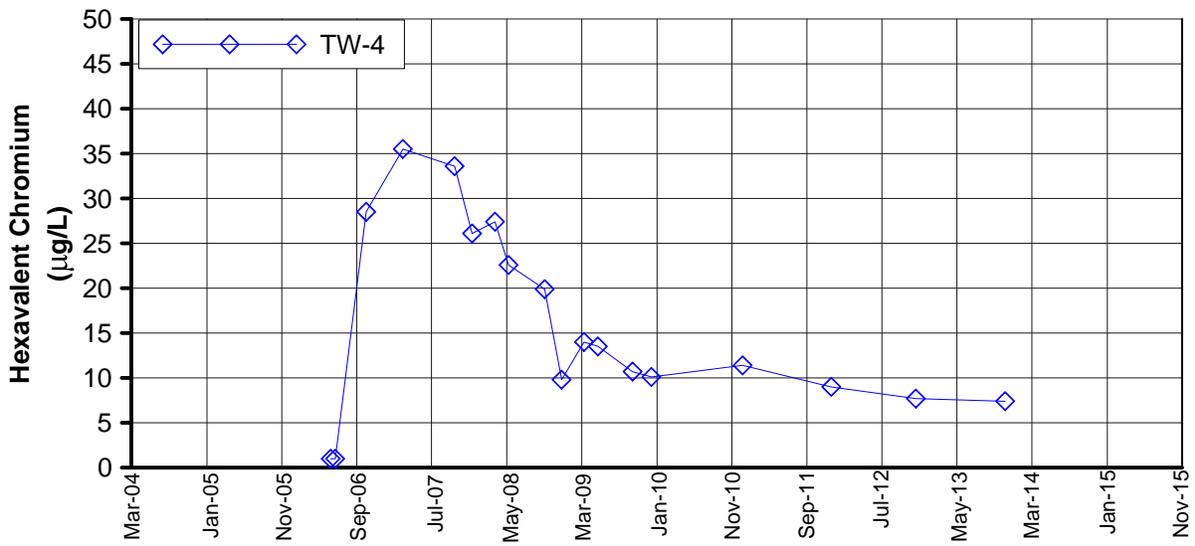


FIGURE D-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-80, AND MW-74-240
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
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**FIGURE D-19
HEXAVALENT CHROMIUM
IN TW-4**

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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Appendix E
Interim Measures Extraction System
Operations Log, Third Quarter 2015

Interim Measures Extraction System Operations Log, Third Quarter 2015, PG&E Topock Performance Monitoring Program

During Third Quarter 2015 (July through October), extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction well TW-2S was operated for a brief time on August 31, 2015 and on September 1 through September 3, 2015 while extraction well TW-2D was operated on July 8 through July 9, 2015 and on September 2 and September 3, 2015. The operational run time for the Interim Measure groundwater extraction system (combined or individual pumping) was approximately 94.5 percent during Third Quarter 2015.

The Interim Measure Number 3 (IM-3) facility treated approximately 22,770,209 gallons of extracted groundwater during Third Quarter 2015. The IM-3 facility also treated 1,145 gallons of water generated from the Groundwater Monitoring Program and 35,100 gallons of injection well development water. Ten containers of solids from the IM-3 facility were transported offsite during the reporting period.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 5.5 percent of downtime during Third Quarter 2015) are summarized below. The times shown are in Pacific Standard Time to be consistent with other data collected (for example, water level data) at the site.

E.1 July 2015

- **July 1, 2015 (unplanned):** The extraction well system was offline from 12:22 a.m. to 2:24 a.m. due to loss of power from the City of Needles. Extraction system downtime was 2 hours, 2 minutes.
- **July 1, 2015 (unplanned):** The extraction well system was offline from 7:12 a.m. to 7:20 a.m. due to loss of power from the City of Needles. Extraction system downtime was 8 minutes.
- **July 7, 2015 (planned):** The extraction well system was offline from 9:42 a.m. to 9:44 am, 9:56 a.m. to 10:00 am, from 10:08 a.m. to 10:10 am, from 10:12 a.m. to 10:14 am, from 10:18 a.m. to 10:20 am, and from 10:30 a.m. to 10:34 a.m. due to testing of critical alarms and the leak detection system. Extraction system downtime was 16 minutes.
- **July 8, 2015 (unplanned):** The extraction well system was offline from 9:22 a.m. to 11:20 a.m. and 11:32 a.m. to 11:54 a.m. to change out the microfilter modules and to replace flow control valves FCV-200 and FCV-701. Extraction system downtime was 2 hours, 20 minutes.
- **July 10, 2015 (unplanned):** The extraction well system was offline from 6:40 a.m. to 7:24 a.m. to clean the microfilter strainer. Extraction system downtime was 44 minutes.
- **July 13, 2015 (unplanned):** The extraction well system was offline from 12:12 p.m. to 1:52 p.m. to replace a valve on the reverse osmosis system and conduct tank management. Extraction system downtime was 1 hour, 40 minutes.
- **July 13, 2015 (unplanned):** The extraction well system was offline from 5:46 p.m. to 5:56 p.m. due to loss of power from the City of Needles. Extraction system downtime was 10 minutes.
- **July 14, 2015 (unplanned):** The extraction well system was offline from 11:06 a.m. to 11:38 a.m. to clean the microfilter strainer. Extraction system downtime was 32 minutes.

- **July 16, 2015 (unplanned):** The extraction well system was offline from 8:12 p.m. to 8:28 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 16 minutes.
- **July 17, 2015 (unplanned):** The extraction well system was offline from 5:00 a.m. to 5:06 a.m. to return the facility to power from the City of Needles. Extraction system downtime was 6 minutes.
- **July 17, 2015 (unplanned):** The extraction well system was offline from 7:00 p.m. to 7:02 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 2 minutes.
- **July 18, 2015 (unplanned):** The extraction well system was offline from 12:18 a.m. to 12:24 a.m. and from 12:34 a.m. to 12:58 a.m. to return the facility to power from the City of Needles. Extraction system downtime was 30 minutes.
- **July 18, 2015 (unplanned):** The extraction well system was offline from 1:34 p.m. to 4:08 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 2 hours, 34 minutes.
- **July 19, 2015 (unplanned):** The extraction well system was offline from 10:42 a.m. to 10:44 a.m. to return the facility to power from the City of Needles. Extraction system downtime was 2 minutes.
- **July 20, 2015 (unplanned):** The extraction well system was offline from 9:38 a.m. to 11:24 a.m. due to the failure of the air compressor. Extraction system downtime was 1 hour, 46 minutes.
- **July 27, 2015 (unplanned):** The extraction well system was offline from 2:20 a.m. to 2:36 a.m. due to a high level alarm in the iron oxidation reactor 1 (T-301A). Extraction system downtime was 16 minutes.
- **July 26, 2015 (unplanned):** The extraction well system was offline from 6:10 a.m. to 8:50 a.m. and 11:10 a.m. to 3:00 p.m. to repair leaks in the microfilter system. Extraction system downtime was 6 hours, 30 minutes.
- **July 27, 2015 (unplanned):** The extraction well system was offline from 11:50 a.m. to 12:52 p.m. to change out the microfilter modules. Extraction system downtime was 1 hour, 2 minutes.
- **July 30, 2015 (unplanned):** The extraction well system was offline from 3:02 p.m. to 3:22 p.m. and from 3:26 p.m. to 3:32 p.m. and 4:44 pm to 8:24 due to storms that resulted in the City of Needles supplying single phase power instead of the required 3-phase power. This event caused failure of the main air compressor and failure of the CPU for the primary reverse osmosis system. Extraction system downtime was 4 hours, 34 minutes.
- **July 31, 2015 (unplanned):** The extraction well system was offline from 5:26 p.m. to 6:00 p.m. due to failure of the air compressor and resetting of the microfilter system settings. Extraction system downtime was 34 minutes.
- **July 31, 2015 (unplanned):** The extraction well system was offline from 10:14 p.m. to 11:22 p.m. due to the failure of the air compressor. Extraction system downtime was 1 hour, 8 minutes.

E.2 August 2015

- **August 1, 2015 (unplanned):** The extraction well system was offline from 12:40 a.m. to 12:48 a.m. due to failure of the air compressor. Extraction system downtime was 8 minutes.
- **August 1, 2015 (unplanned):** The extraction well system was offline from 08:02 a.m. to 08:30 a.m. due failure of the air compressor. Extraction system downtime was 28 minutes.

- **August 6, 2015 (planned):** The extraction well system was offline from 8:46 a.m. to 9:16 a.m. due to testing of critical alarms and the leak detection system. Extraction system downtime was 30 minutes.
- **August 6, 2015 (unplanned):** The extraction well system was offline from 3:48 p.m. to 5:20 p.m. and from 5:36 p.m. to 6:54 p.m. due to loss of power from the City of Needles caused by a storm in the area. During the power outage, the ferrous pump lost connection with the Human Machine Interface which had to be re-established before the extraction well system could be restarted. Extraction system downtime was 2 hours, 50 minutes.
- **August 7, 2015 (unplanned):** The extraction well system was offline from 12:00 a.m. to 12:14 a.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 14 minutes.
- **August 7, 2015 (unplanned):** The extraction well system was offline from 5:20 a.m. to 5:32 a.m. to return the facility to power from the City of Needles. Extraction system downtime was 12 minutes.
- **August 10-14, 2015 (planned):** The extraction well system was offline from 6:52 a.m. on August 10, 2015 through 7:48 a.m. on August 14, 2015 and from 10:28 a.m. to 2:54 p.m. on August 14, 2015 for semiannual scheduled maintenance. Extraction system downtime was 4 days, 5 hours and 22 minutes.
- **August 14, 2015 (unplanned):** The extraction well system was offline from 4:42 p.m. to 5:22 p.m. due to loss of power from the City of Needles. Extraction system downtime was 40 minutes.
- **August 17, 2015 (unplanned):** The extraction well system was offline from 4:50 a.m. to 5:02 a.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 12 minutes.
- **August 17, 2015 (unplanned):** The extraction well system was offline from 10:40 a.m. to 10:42 a.m. to return the facility to power from the City of Needles. Extraction system downtime was 2 minutes.
- **August 17, 2015 (unplanned):** The extraction well system was offline from 1:38 p.m. to 3:08 p.m. to replace a belt on the air compressor. Extraction system downtime was 1 hour, 30 minutes.
- **August 17, 2015 (unplanned):** The extraction well system was offline from 3:50 p.m. to 4:42 p.m. replace a leaking seal on the Raw Water Feed Pump (P-200). Extraction system downtime was 52 minutes.
- **August 18, 2015 (unplanned):** The extraction well system was offline from 12:32 p.m. to 1:50 p.m. to replace a CPVC fitting on the polymer skid. Extraction system downtime was 1 hour, 18 minutes.
- **August 21, 2015 (unplanned):** The extraction well system was offline from 11:42 a.m. to 12:02 p.m. for tank management. Extraction system downtime was 20 minutes.
- **August 25, 2015 (unplanned):** The extraction well system was offline from 11:30 a.m. to 1:16 p.m. to repair the Raw Water Feed Pump (P-200). Extraction system downtime was 1 hour, 46 minutes.
- **August 26, 2015 (unplanned):** The extraction well system was offline from 10:38 a.m. to 2:20 p.m. to repair the LCV-603 Reverse Osmosis valve. Extraction system downtime was 3 hours, 42 minutes.
- **August 29, 2015 (unplanned):** The extraction well system was offline from 4:30 p.m. to 6:12 p.m. to repair the treated water pH control acid pump (P-801B). Extraction system downtime was 1 hour, 42 minutes.
- **August 31, 2015 (unplanned):** The extraction well system was offline from 5:58 p.m. to 6:22 p.m. and 7:04 p.m. to 7:46 p.m. to diagnose an HMI connection issue with a pneumatically controlled valve. The valve was replaced with a manual version to maintain plant operation. Extraction system downtime was 1 hour, 6 minutes.

E.3 September 2015

- **September 1, 2015 (unplanned):** The extraction well system was offline from 7:40 p.m. to 8:48 p.m. due to high level in the Raw Water Storage Tank (T-100). Extraction system downtime was 1 hour, 8 minutes.
- **September 2, 2015 (planned):** The extraction well system was offline from 12:28 p.m. to 12:36 p.m. and 12:50 p.m. to 12:56 p.m. due to testing of critical alarms and the leak detection system. Extraction system downtime was 14 minutes.
- **September 10, 2015 (unplanned):** The extraction well system was offline from 5:16 p.m. to 6:20 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 1 hour, 4 minutes.
- **September 10, 2015 (unplanned):** The extraction well system was offline from 10:58 a.m. to 11:16 a.m. to return the facility to power from the City of Needles. Extraction system downtime was 18 minutes.
- **September 11, 2015 (planned):** The extraction well system was offline from 7:28 p.m. to 7:36 p.m. to bring extraction well PE-1 back online. Extraction system downtime 8 minutes.
- **September 14, 2015 (unplanned):** The extraction well system was offline from 10:02 a.m. to 11:08 a.m. due to a failure of the microfilter system. Extraction system downtime was 1 hour, 6 minutes.
- **September 21, 2015 (unplanned):** The extraction well system was offline from 1:36 p.m. to 1:48 p.m. for maintenance of the extraction well electrical boxes at IM-2. Extraction system downtime was 12 minutes.
- **September 29, 2015 (unplanned):** The extraction well system was offline from 9:38 a.m. to 10:34 a.m. to change out the microfilter modules. Extraction system downtime was 56 minutes.

E.4 October 2015

- **October 3, 2015 (unplanned):** The extraction well system was offline from 2:26 a.m. to 2:28 a.m. due to loss of power from the City of Needles. Extraction system downtime was 2 minutes.
- **October 5, 2015 (unplanned):** The extraction well system was offline from 5:22 p.m. to 5:32 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 10 minutes.
- **October 5, 2015 (unplanned):** The extraction well system was offline from 9:42 p.m. to 9:54 p.m. and 9:56 p.m. to 10:10 p.m. to return the facility to power from the City of Needles. Extraction system downtime was 26 minutes.
- **October 6, 2015 (unplanned):** The extraction well system was offline from 7:38 a.m. to 8:32 a.m. to repair a solenoid failure at the secondary Reverse Osmosis system control valve. Extraction system downtime was 54 minutes.
- **October 7, 2015 (planned):** The extraction well system was offline from 9:54 a.m. to 10:00 a.m., from 10:02 a.m. to 10:04 a.m., from 10:06 a.m. to 10:08 a.m., from 10:10 a.m. to 10:12 a.m., from 10:22 a.m. to 10:24 a.m., and from 10:44 a.m. to 11:06 a.m. due to testing of critical alarms and the leak detection system. Extraction system downtime was 36 minutes.
- **October 13, 2015 (unplanned):** The extraction well system was offline from 8:28 a.m. to 11:26 a.m. to remove a blockage in the piping between Iron Oxidation Reactor 2 (T-301B) and Iron Oxidation Reactor 3 (T-301C). Extraction system downtime was 2 hour, 58 minutes.
- **October 14, 2015 (unplanned):** The extraction well system was offline from 12:04 p.m. to 1:06 p.m. to change out the microfilter modules. Extraction system downtime was 1 hour, 2 minutes.

- **October 16, 2015 (unplanned):** The extraction well system was offline from 5:36 a.m. to 5:48 a.m. to switch to generator power due to storms in the area. Extraction system downtime was 12 minutes.
- **October 16, 2015 (unplanned):** The extraction well system was offline from 11:04 a.m. to 11:08 a.m. to return the facility to power from the City of Needles. Extraction system downtime was 4 minutes.
- **October 16, 2015 (unplanned):** The extraction well system was offline from 9:30 p.m. to 9:36 p.m. to failure of the air compressor. Extraction system downtime was 6 minutes.
- **October 20, 2015 (unplanned):** The extraction well system was offline from 12:58 p.m. to 1:52 p.m. due to maintenance on the City of Needles transformer. The facility was transferred to backup generator power during this time. Extraction system downtime was 54 minutes.
- **October 21, 2015 (unplanned):** The extraction well system was offline from 10:08 a.m. to 10:22 a.m. to return the facility to power from the City of Needles. Extraction system downtime was 14 minutes.
- **October 27, 2015 (unplanned):** The extraction well system was offline from 4:22 p.m. to 9:04 p.m. to repair the Pretreated Water Transfer Pump (P-500) that seized due to scaling. Extraction system downtime was 4 hours, 42 minutes.

Appendix F
Hydraulic Data for Interim Measures
Reporting Period

TABLE F-1

Average Monthly and Quarterly Groundwater Elevations, Third Quarter 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	July 2015	August 2015	September 2015	October 2015	Quarter Average	Days in Quarter Average
I-3	River Station	455.50	455.45	INC	454.80	455.36	108
MW-20-070	Shallow Zone	454.44	454.47	454.21	453.99	454.28	123
MW-20-100	Middle Zone	453.90	454.01	453.65	453.44	453.75	123
MW-20-130	Deep Zone	453.52	453.69	453.23	453.03	453.37	123
MW-22	Shallow Zone	455.20	455.25	455.26	INC	455.21	112
MW-25	Shallow Zone	455.90	455.83	455.74	455.57	455.76	123
MW-26	Shallow Zone	455.59	455.54	455.42	455.28	455.46	123
MW-27-020	Shallow Zone	455.39	455.30	455.56	454.83	455.27	123
MW-27-060	Middle Zone	455.40	455.31	455.53	454.76	455.25	123
MW-27-085	Deep Zone	455.39	455.30	455.53	454.72	455.23	123
MW-28-025	Shallow Zone	455.41	455.32	455.54	454.70	455.24	123
MW-28-090	Deep Zone	455.48	455.44	455.57	454.84	455.33	123
MW-30-050	Middle Zone	455.10	454.99	455.11	454.54	454.94	123
MW-31-060	Shallow Zone	455.26	455.21	455.10	454.75	455.08	123
MW-31-135	Deep Zone	454.65	454.67	454.47	454.11	454.47	123
MW-32-035	Shallow Zone	455.18	455.15	455.30	454.72	455.09	123
MW-33-040	Shallow Zone	455.43	455.25	455.30	454.80	455.19	123
MW-33-090	Middle Zone	455.73	INC	455.80	INC	INC	63
MW-33-150	Deep Zone	455.58	455.52	455.56	455.03	455.42	123
MW-34-055	Middle Zone	455.33	455.30	455.52	454.74	455.22	123
MW-34-080	Deep Zone	455.43	455.41	455.63	454.77	455.31	123
MW-34-100	Deep Zone	455.25	455.21	455.43	454.57	455.11	123
MW-35-060	Shallow Zone	455.91	455.84	455.90	455.33	455.74	123
MW-35-135	Deep Zone	456.30	456.24	456.20	455.75	456.12	123
MW-36-020	Shallow Zone	455.22	455.14	455.32	454.72	455.10	123
MW-36-040	Shallow Zone	455.18	455.10	455.26	454.54	455.02	123
MW-36-050	Middle Zone	455.05	454.97	455.15	INC	455.01	98
MW-36-070	Middle Zone	455.15	455.06	455.22	454.48	454.98	123
MW-36-090	Deep Zone	454.35	INC	454.45	453.73	454.18	94
MW-36-100	Deep Zone	454.53	454.57	454.66	453.87	454.41	123
MW-39-040	Shallow Zone	455.03	454.94	455.02	454.44	454.85	123
MW-39-050	Middle Zone	454.88	454.86	454.90	454.32	454.74	123
MW-39-060	Middle Zone	454.74	454.73	454.73	454.18	454.59	123
MW-39-070	Middle Zone	454.32	454.36	454.23	453.78	454.17	123
MW-39-080	Deep Zone	454.38	454.45	454.31	453.87	454.25	123
MW-39-100	Deep Zone	454.80	454.89	454.80	454.34	454.71	123
MW-42-030	Shallow Zone	454.96	454.86	454.99	454.41	454.80	123
MW-42-065	Middle Zone	455.03	454.98	455.15	454.52	454.92	123
MW-43-025	Shallow Zone	455.42	455.31	455.59	454.77	455.27	123
MW-43-090	Deep Zone	455.80	455.70	455.98	455.07	455.63	123
MW-44-070	Middle Zone	455.27	455.22	455.40	454.68	455.14	123
MW-44-115	Deep Zone	454.89	454.92	454.98	454.28	454.77	123
MW-44-125	Deep Zone	455.17	455.15	455.38	454.72	455.10	123
MW-45-095a	Deep Zone	454.06	454.46	455.12	453.39	454.25	123
MW-46-175	Deep Zone	455.46	455.43	455.49	454.82	455.30	123
MW-47-055	Shallow Zone	455.81	455.72	455.77	455.28	455.64	123
MW-47-115	Deep Zone	455.87	455.78	455.74	455.32	455.68	123
MW-49-135	Deep Zone	455.93	455.83	455.93	455.33	455.75	123

TABLE F-1

Average Monthly and Quarterly Groundwater Elevations, Third Quarter 2015
 Third Quarter 2015 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

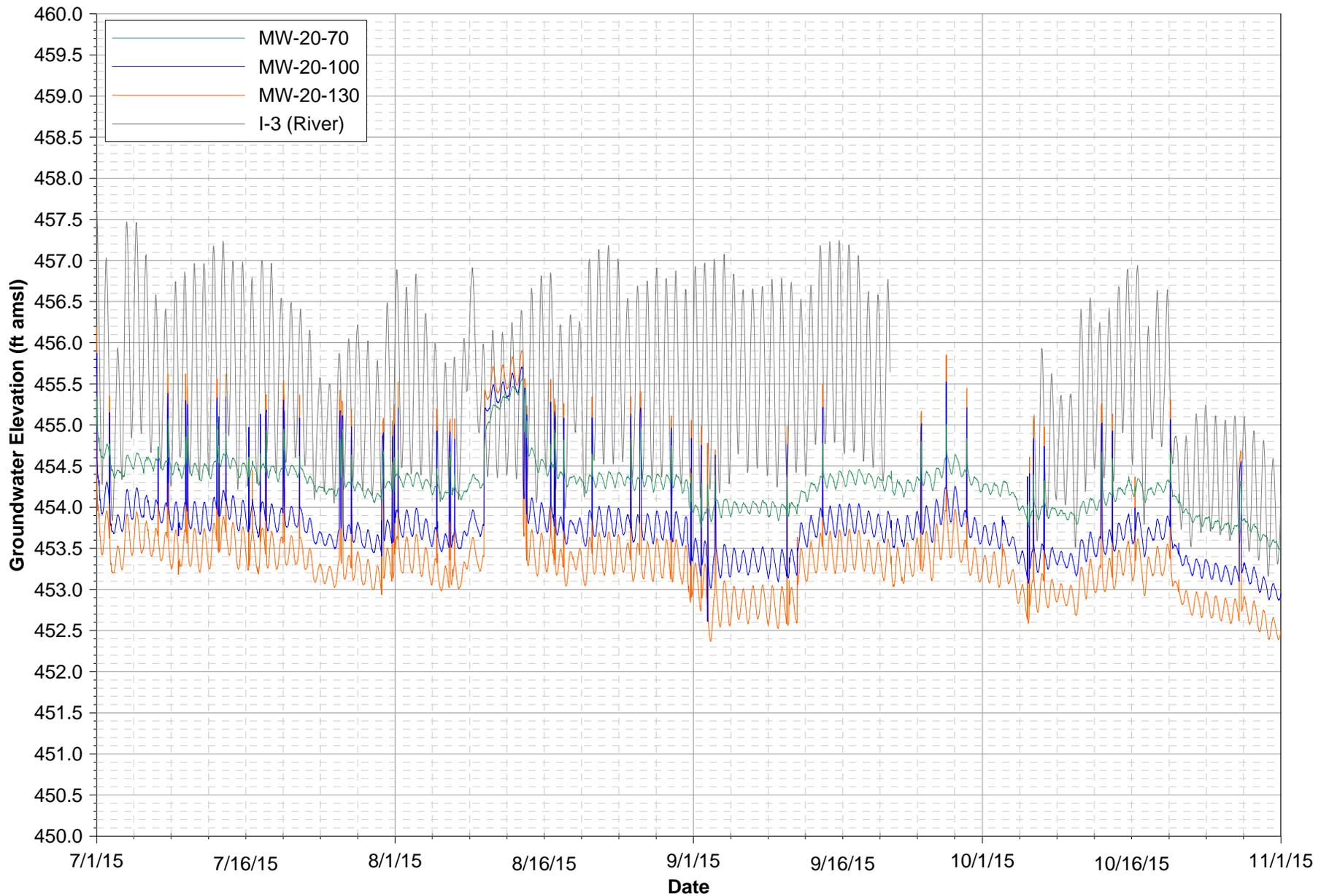
Well ID	Aquifer Zone	July 2015	August 2015	September 2015	October 2015	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	455.49	455.43	455.35	455.02	455.32	123
MW-51	Middle Zone	455.58	455.55	455.43	455.35	455.47	116
MW-54-085	Deep Zone	INC	455.69	455.90	455.17	INC	92
MW-54-140	Deep Zone	455.99	455.78	456.03	455.46	455.81	122
MW-54-195	Deep Zone	456.13	456.00	456.15	455.69	455.99	123
MW-55-045	Middle Zone	456.23	456.07	456.21	455.92	456.11	123
MW-55-120	Deep Zone	456.23	456.04	456.16	455.90	456.08	123
PT2D	Deep Zone	454.15	454.25	454.05	453.60	454.01	123
PT5D	Deep Zone	454.68	454.75	454.68	INC	454.68	98
PT6D	Deep Zone	454.60	454.67	454.56	454.02	454.46	123
RRB	River Station	455.81	455.77	455.99	455.10	455.67	122

NOTES:

Averages reported in ft amsl (feet above mean sea level).

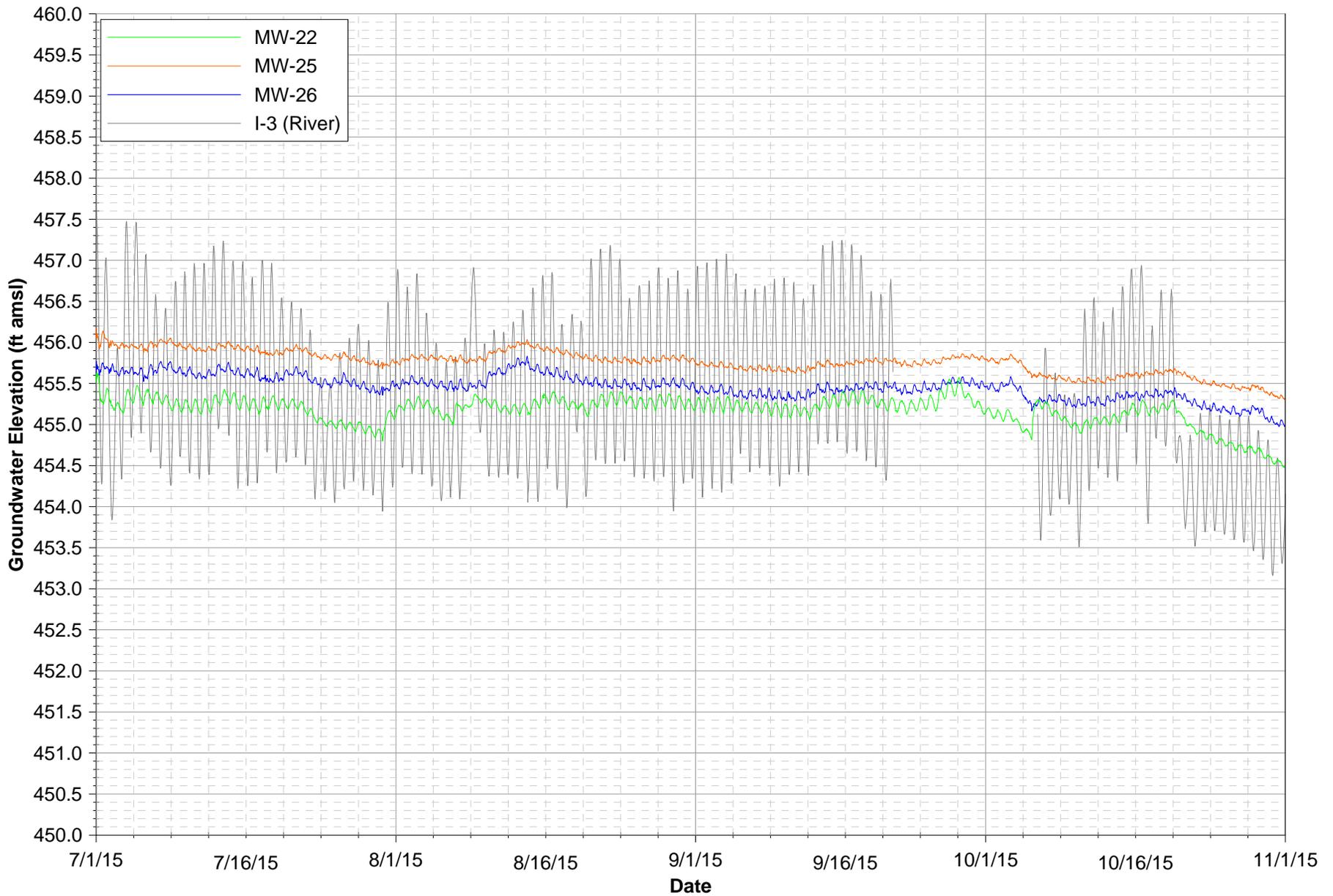
Quarterly Average = average of daily averages over reporting period.

INC = Data incomplete, less than 75% of data available over reporting period due to rejection or field equipment malfunction.



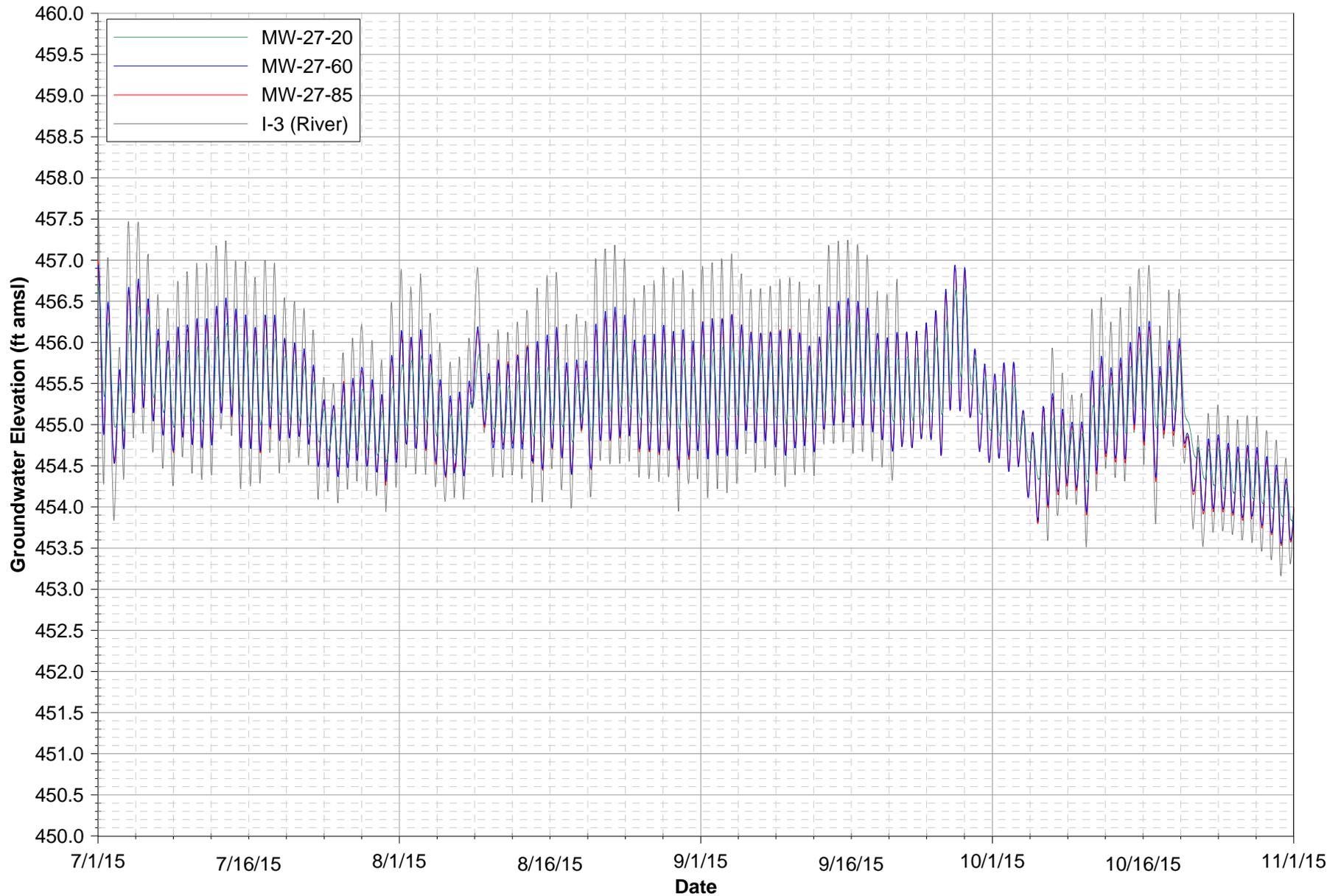
- Notes:
1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1A
MW-20 CLUSTER HYDROGRAPHS
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



- Notes:
1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1B
MW-22, MW-25, AND MW-26 HYDROGRAPHS
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

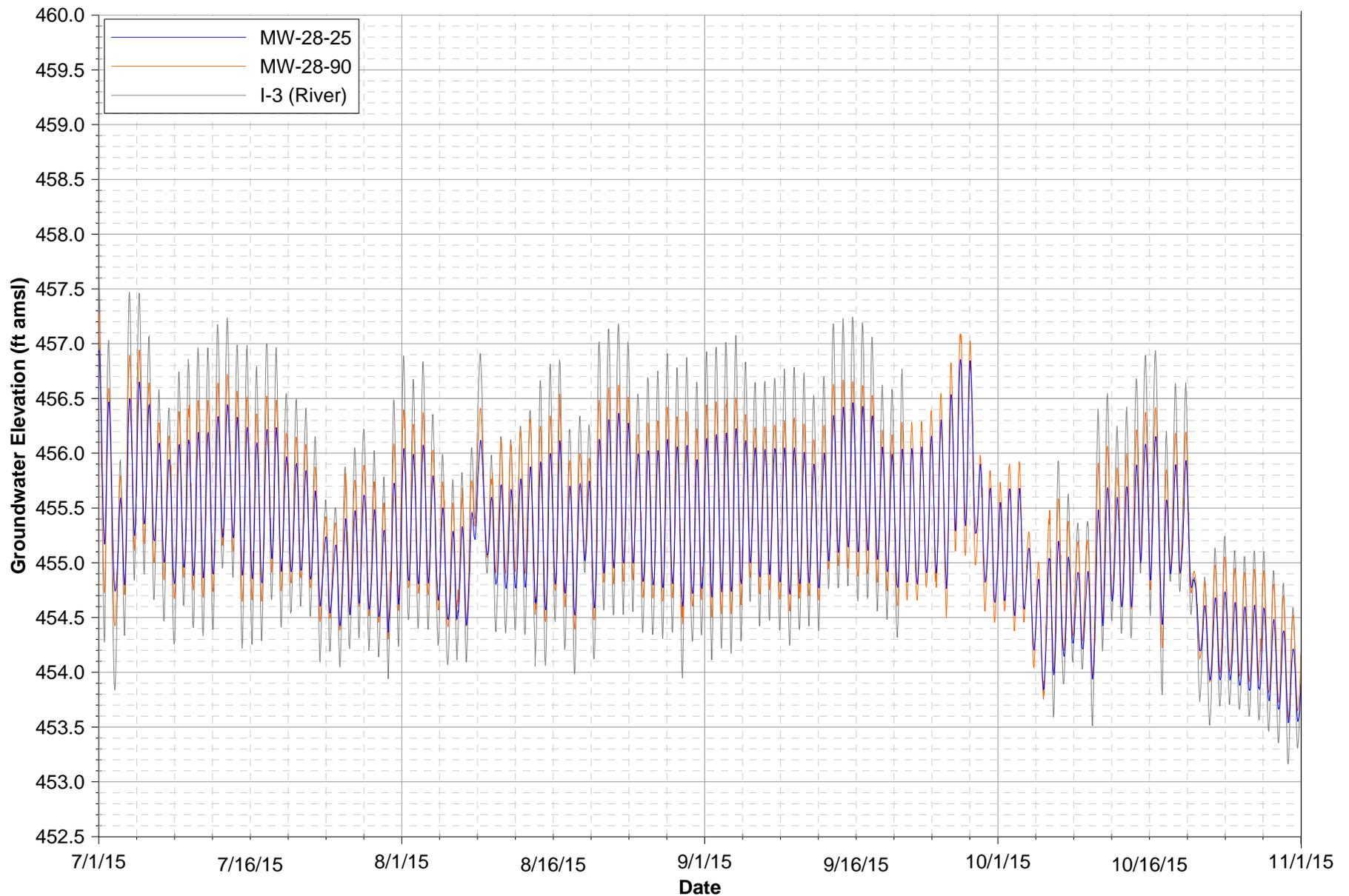


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

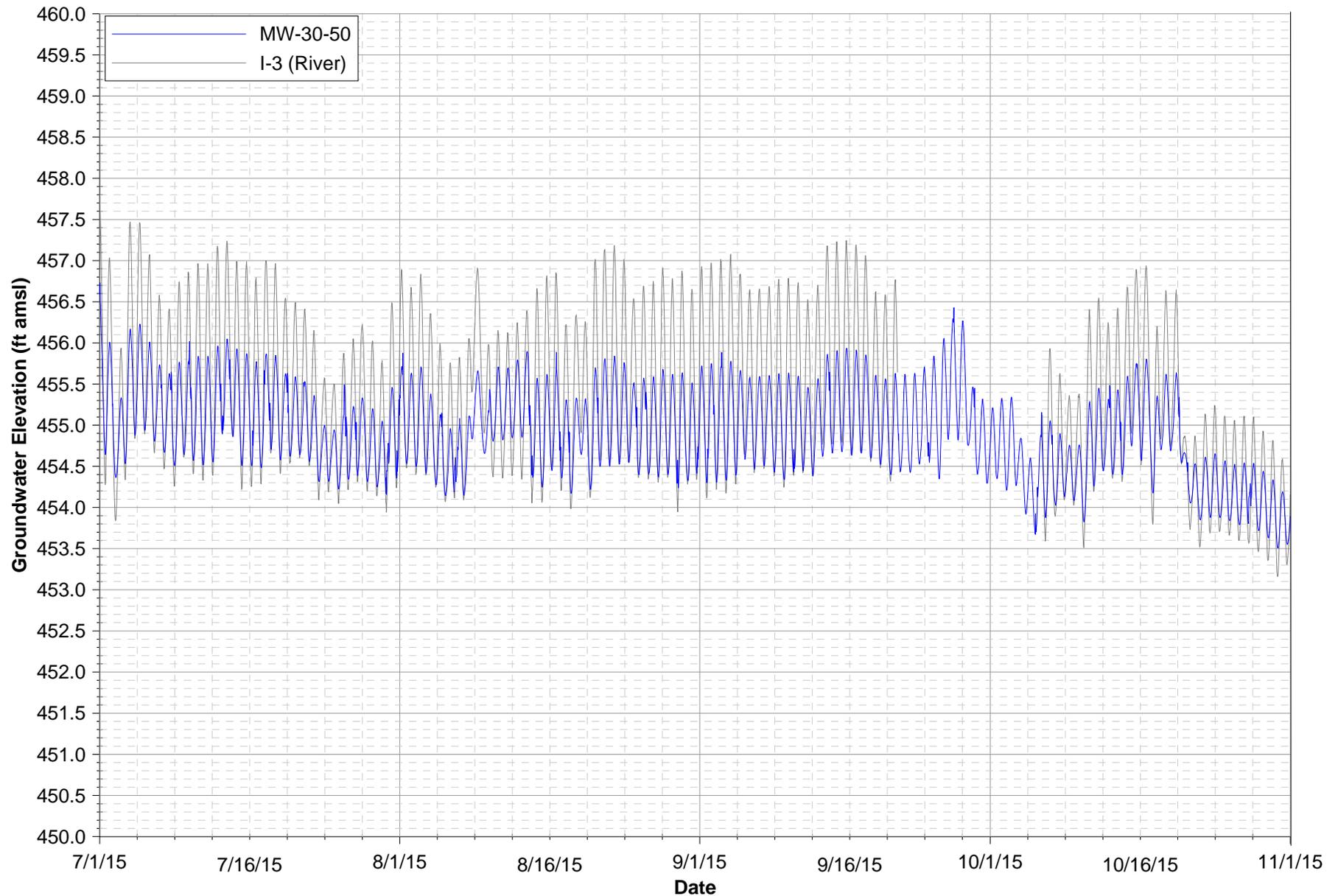
FIGURE F-1C
MW-27 CLUSTER HYDROGRAPHS

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

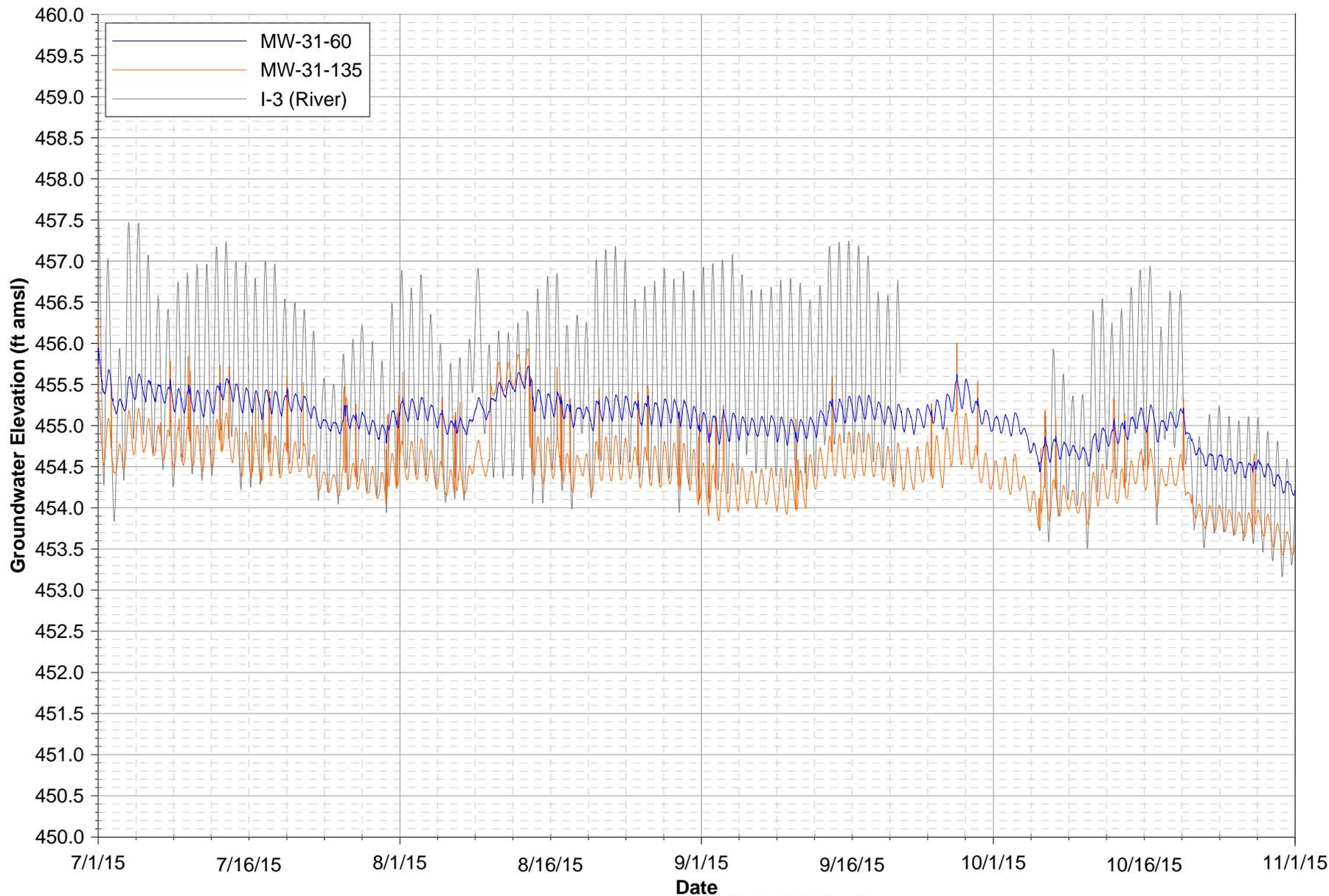
FIGURE F-1D
MW-28 CLUSTER HYDROGRAPHS
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



- Notes:
1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

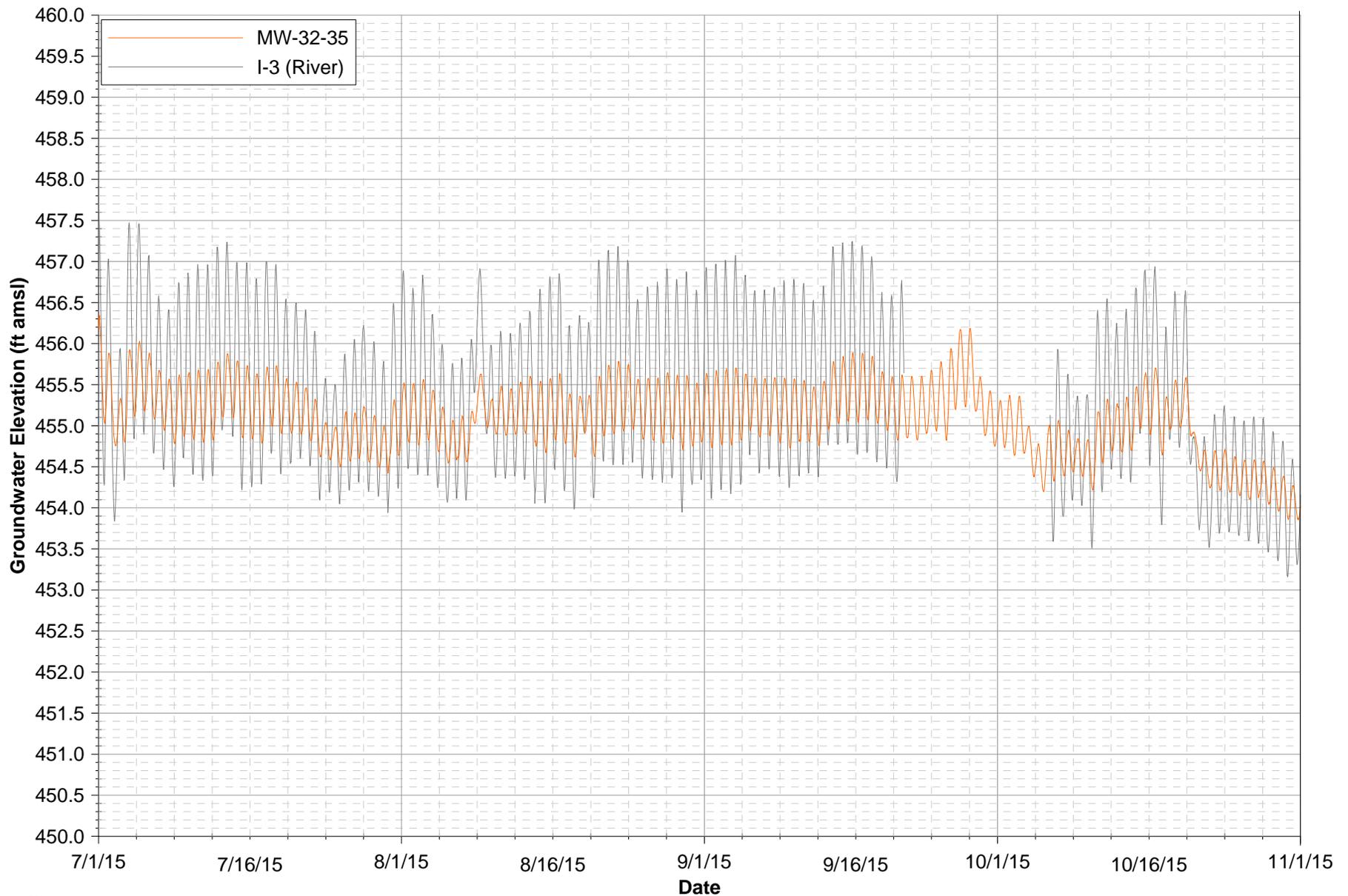
FIGURE F-1E
MW-30-50 HYDROGRAPH

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



- Notes:
1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1F
MW-31 CLUSTER HYDROGRAPHS
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

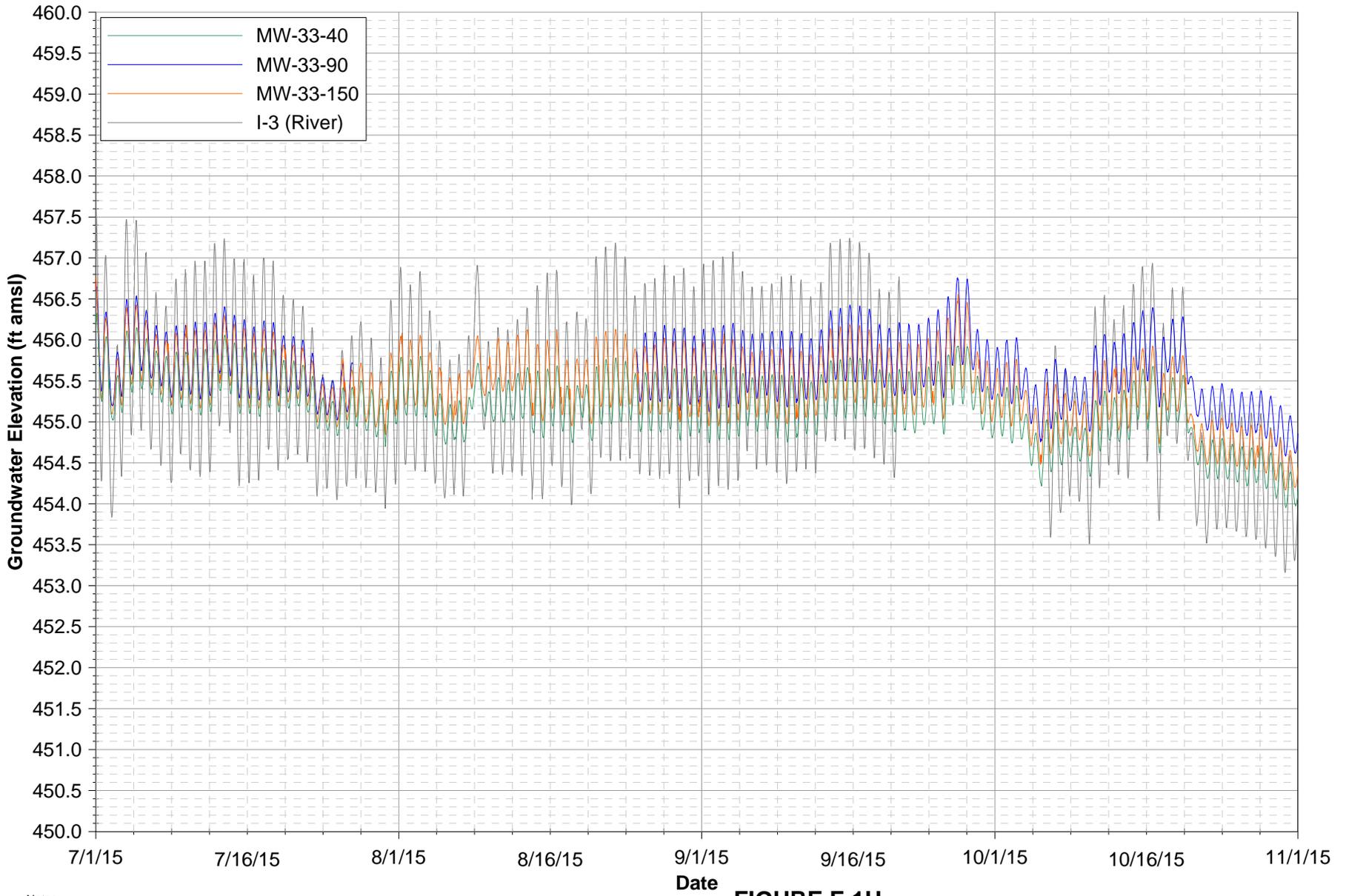


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1G
MW-32 HYDROGRAPH

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

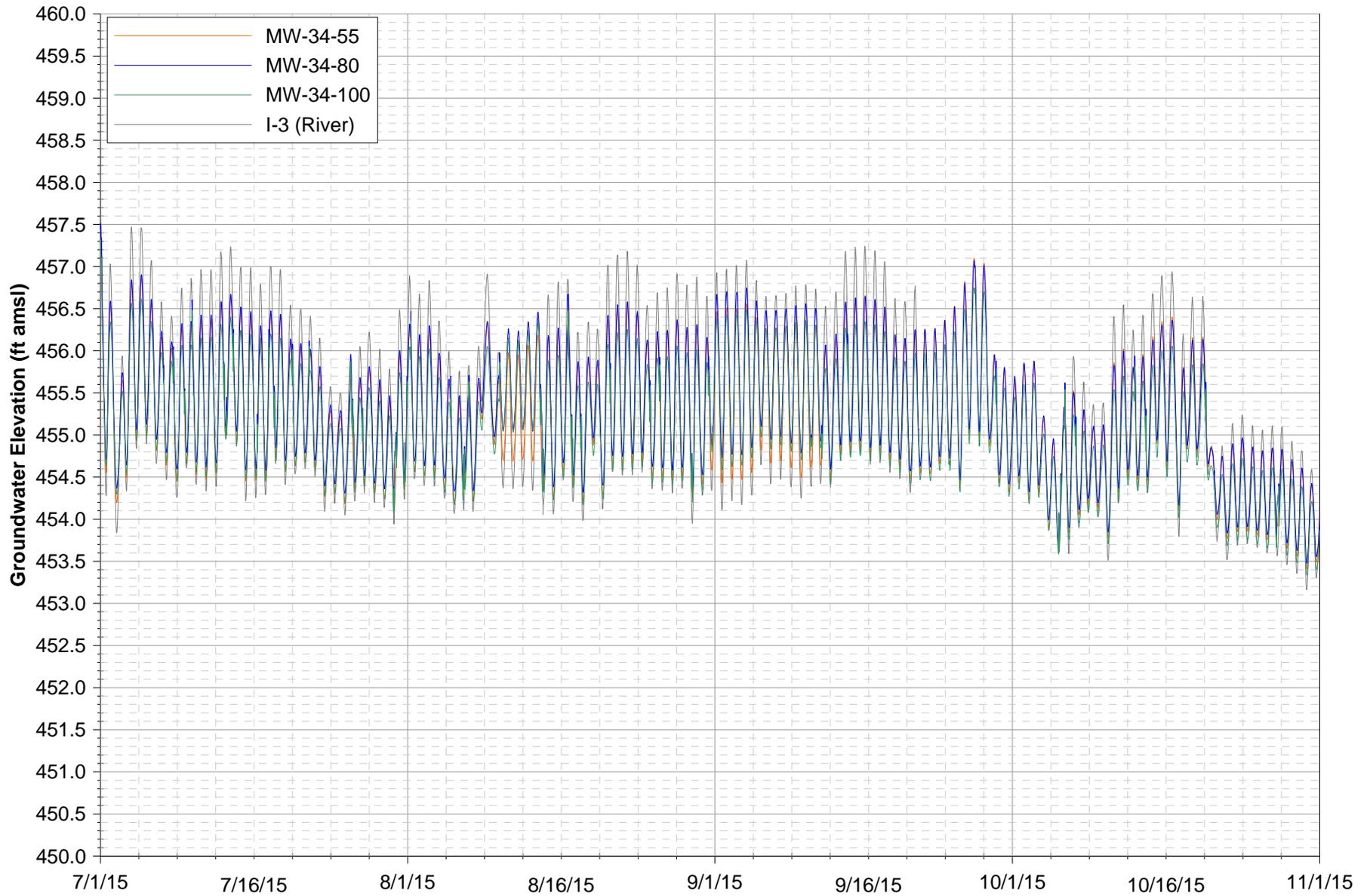


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.
4. MW-33-90 data unavailable from July 27, 2015 through August 25, 2015 due to transducer malfunction.

**FIGURE F-1H
MW-33 CLUSTER HYDROGRAPHS**

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



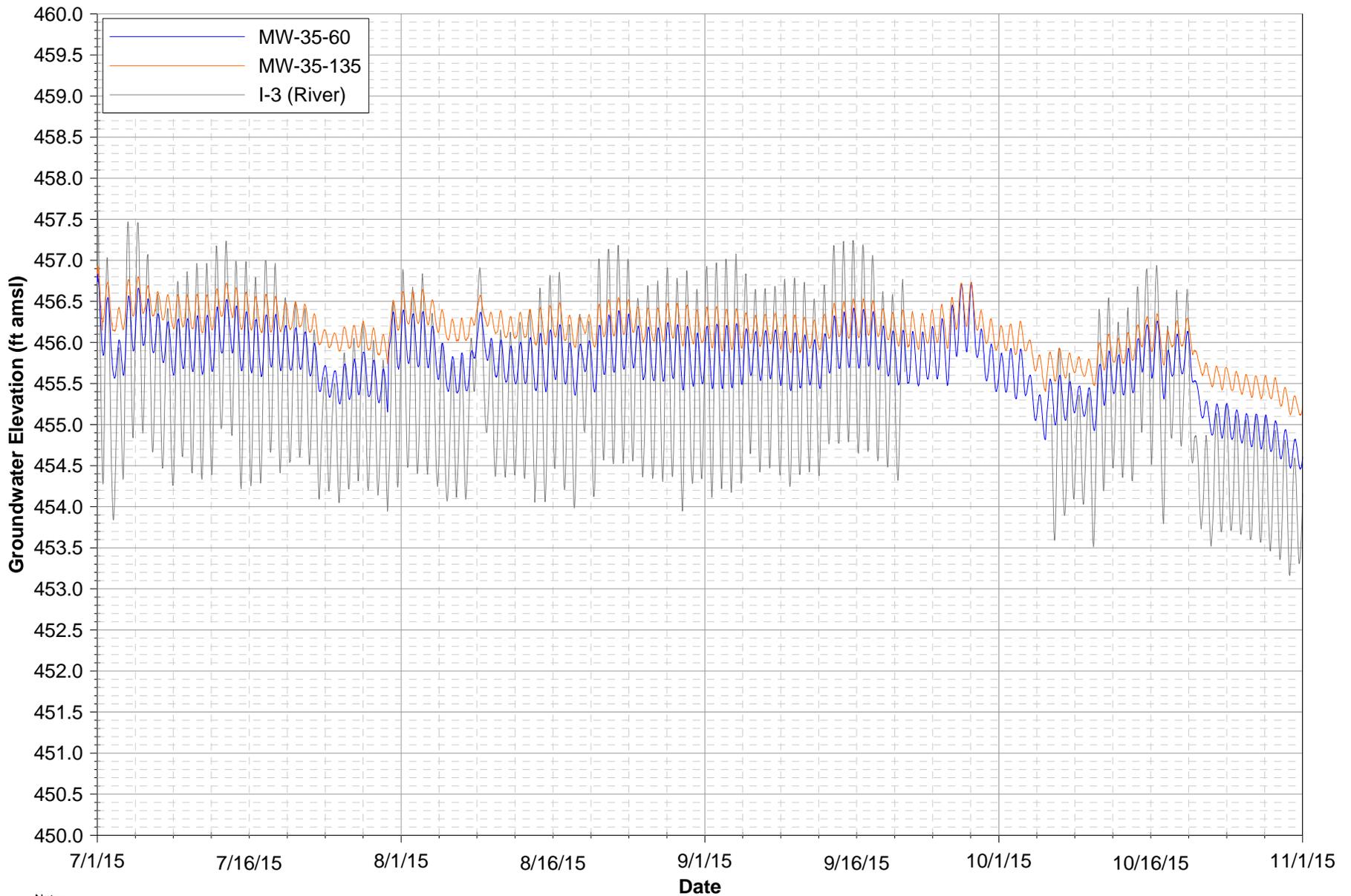
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-11

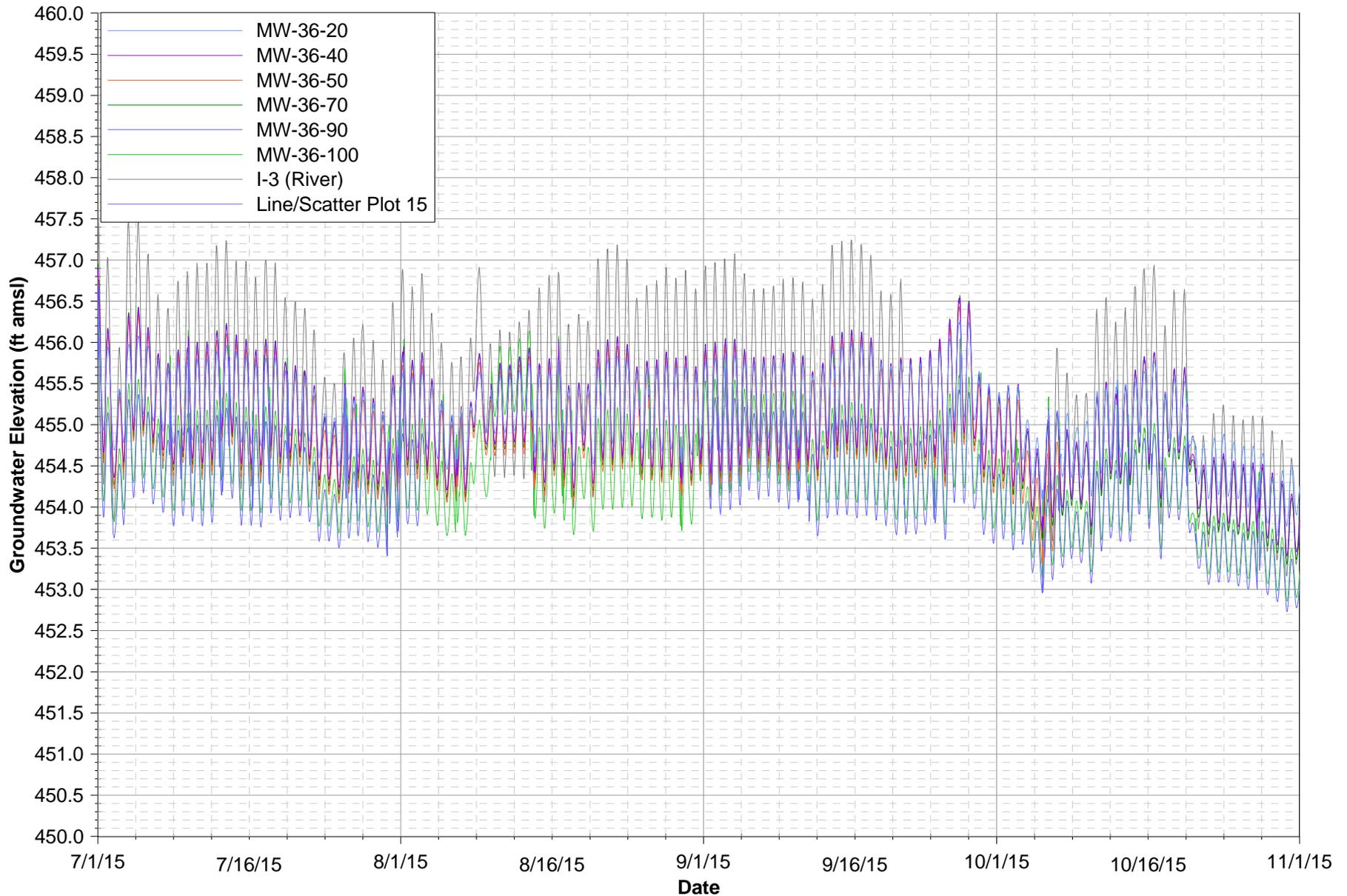
MW-34 CLUSTER HYDROGRAPHS

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1J
MW-35 CLUSTER HYDROGRAPHS
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

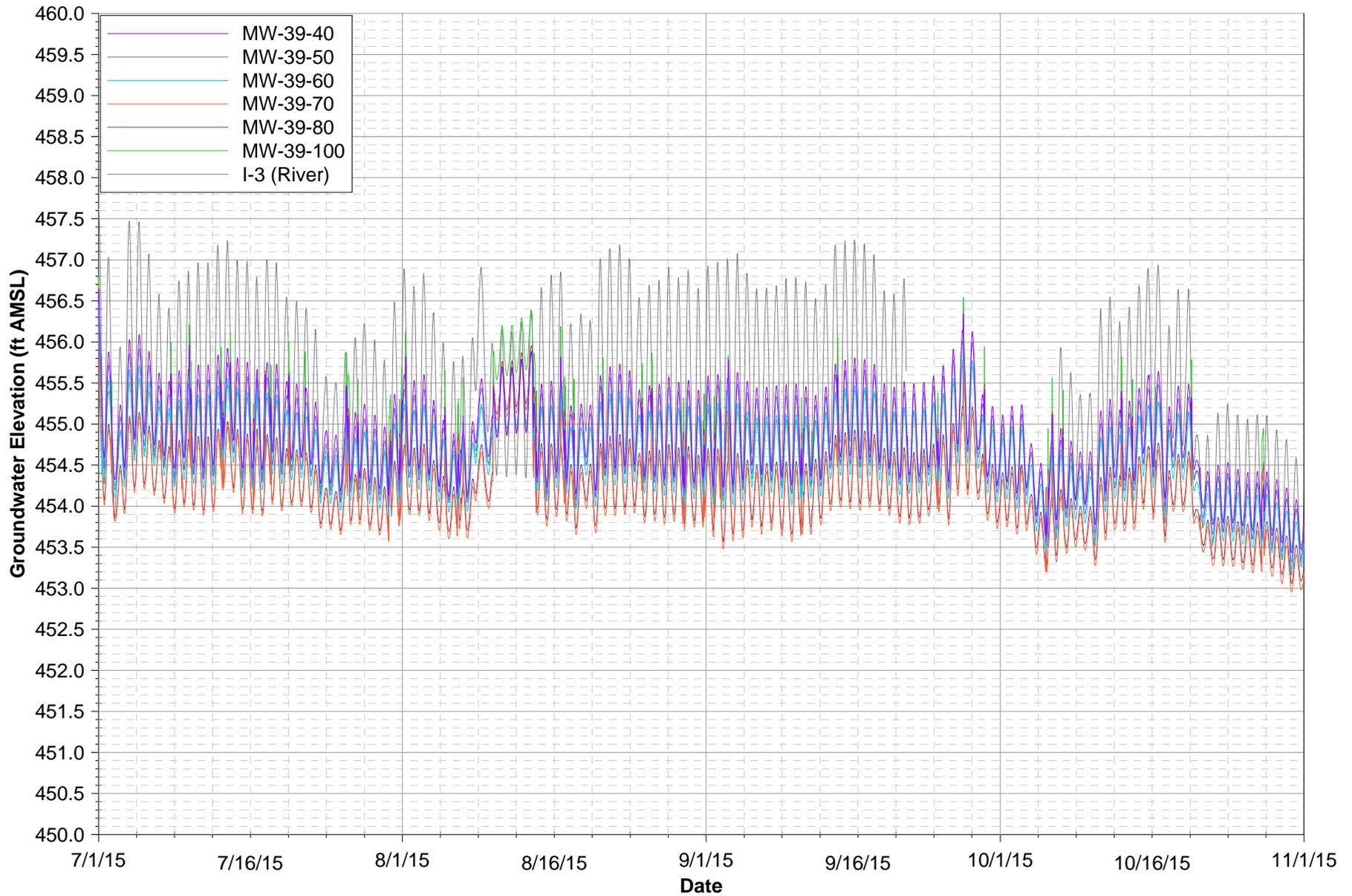


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.
4. MW-36-50 data unavailable from October 7, 2015 through October 31, 2015 due to transducer malfunction.
5. MW-36-90 data unavailable from August 3, 2015 through September 1, 2015 due to transducer malfunction.

**FIGURE F-1K
MW-36 CLUSTER HYDROGRAPHS**

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

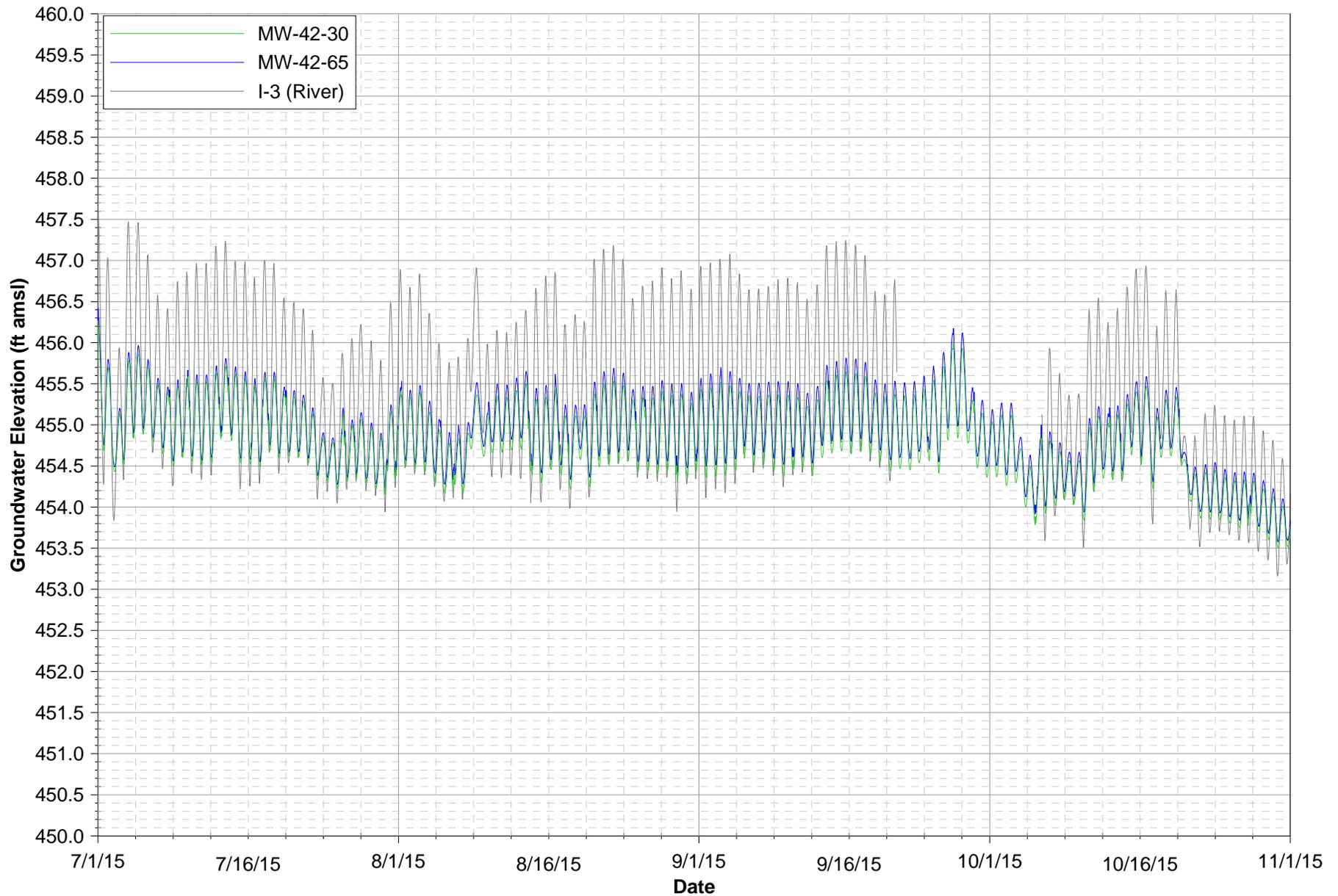


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1L
MW-39 CLUSTER HYDROGRAPHS

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

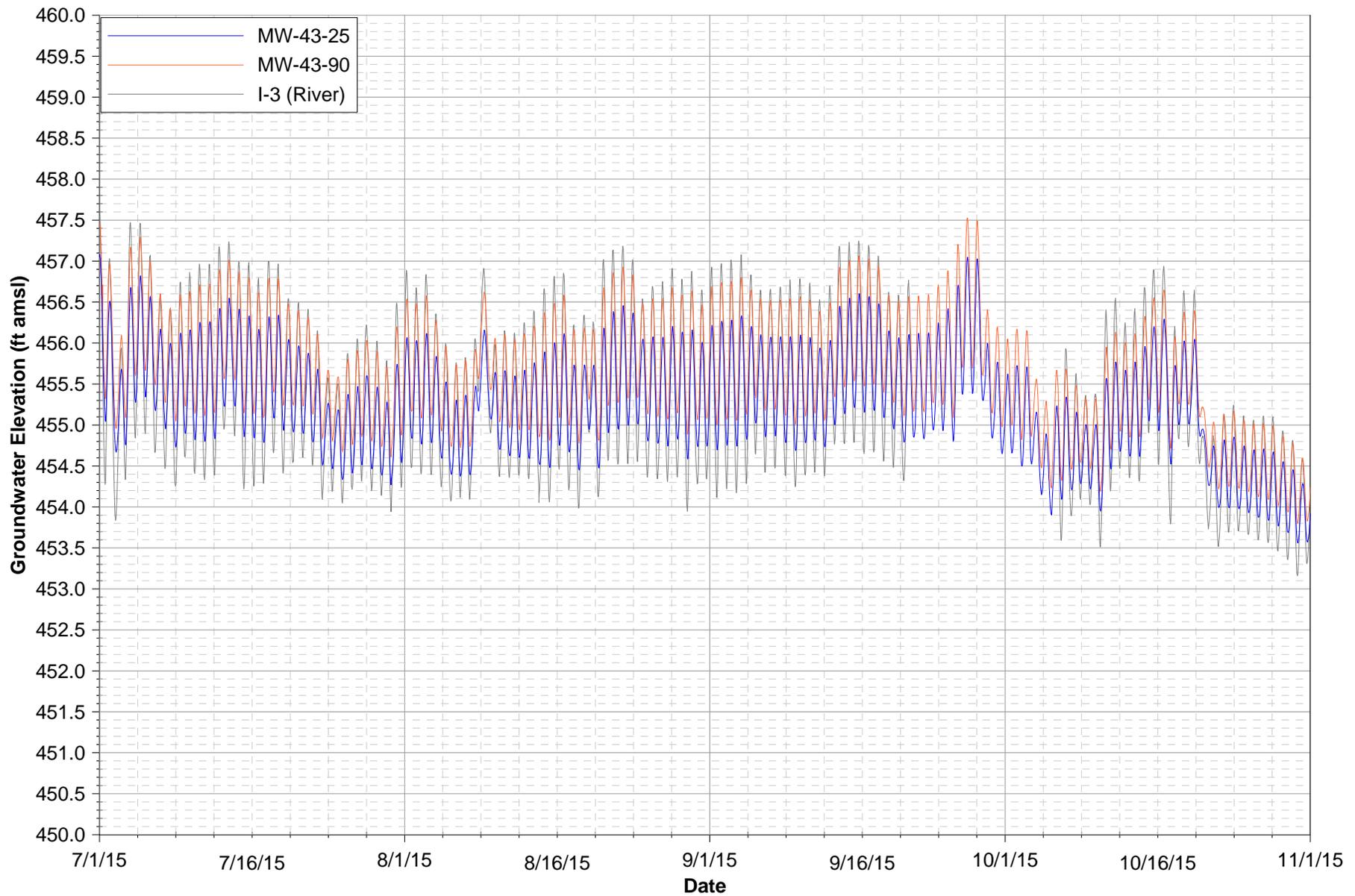


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1M
MW-42 CLUSTER HYDROGRAPHS

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

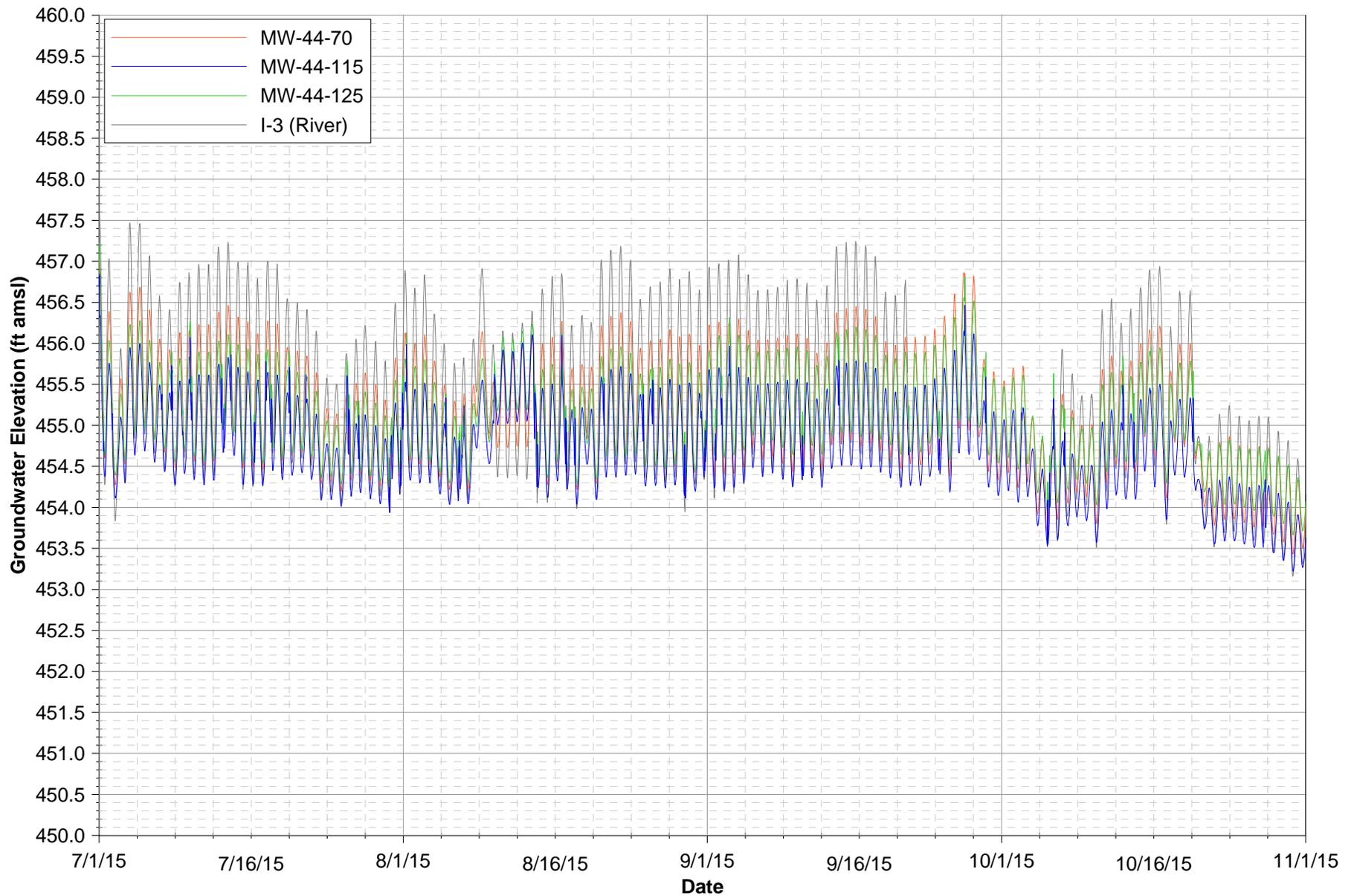


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1N
MW-43 CLUSTER HYDROGRAPHS

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



- Notes:
1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-10
MW-44 CLUSTER HYDROGRAPHS

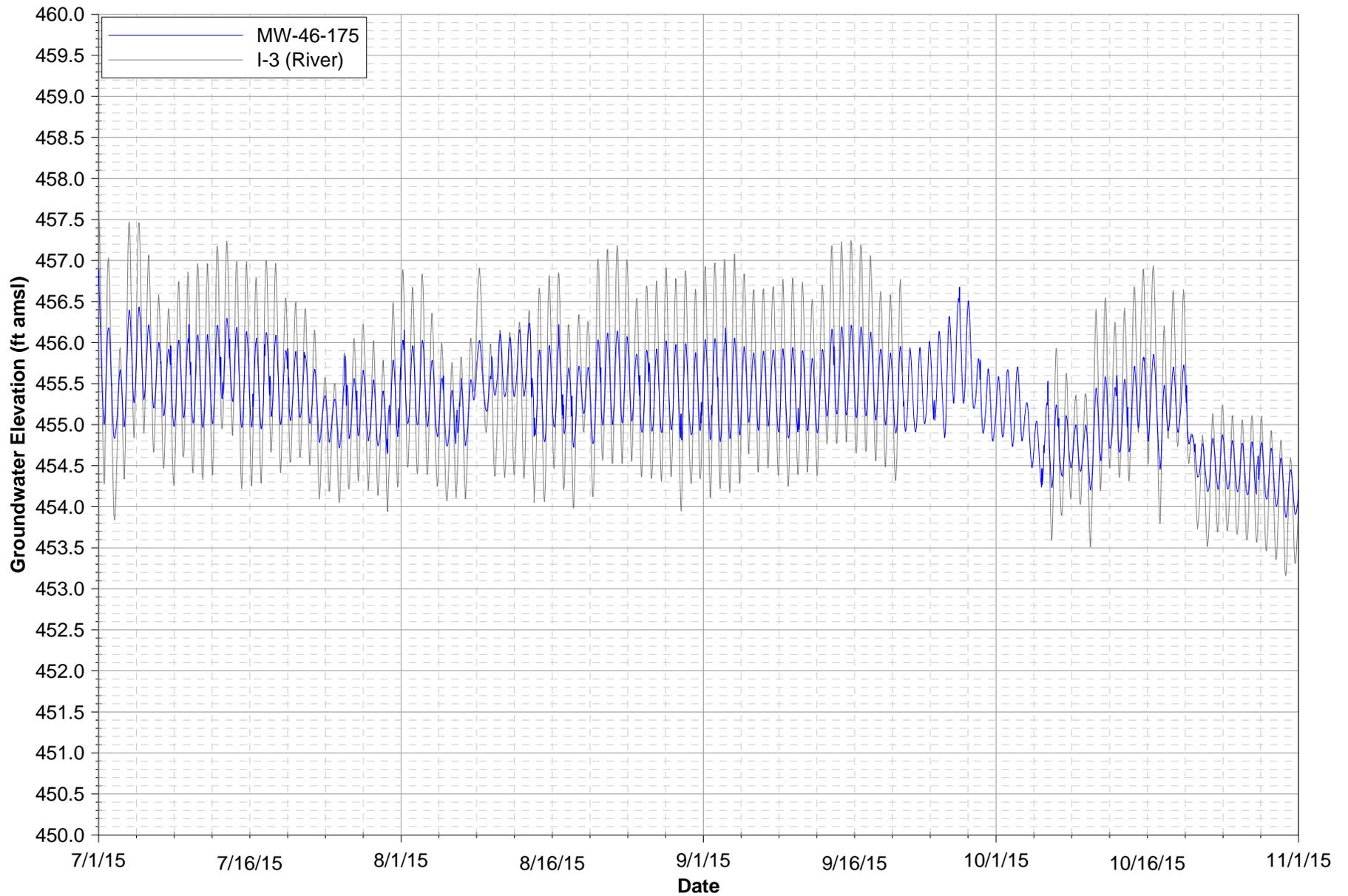
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1P
MW-45-95a HYDROGRAPH

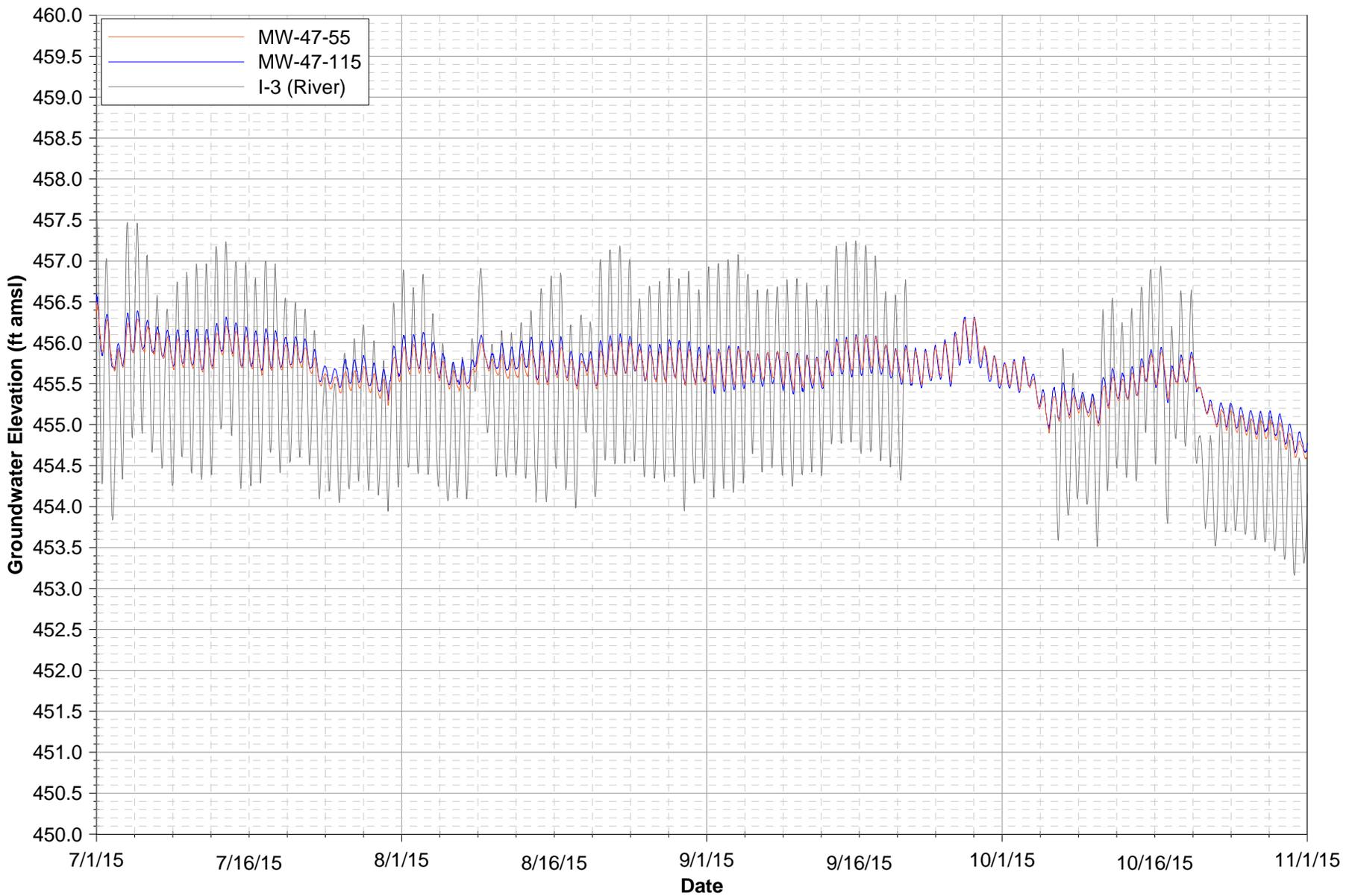
THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



- Notes:
1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1Q
MW-46 HYDROGRAPH

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

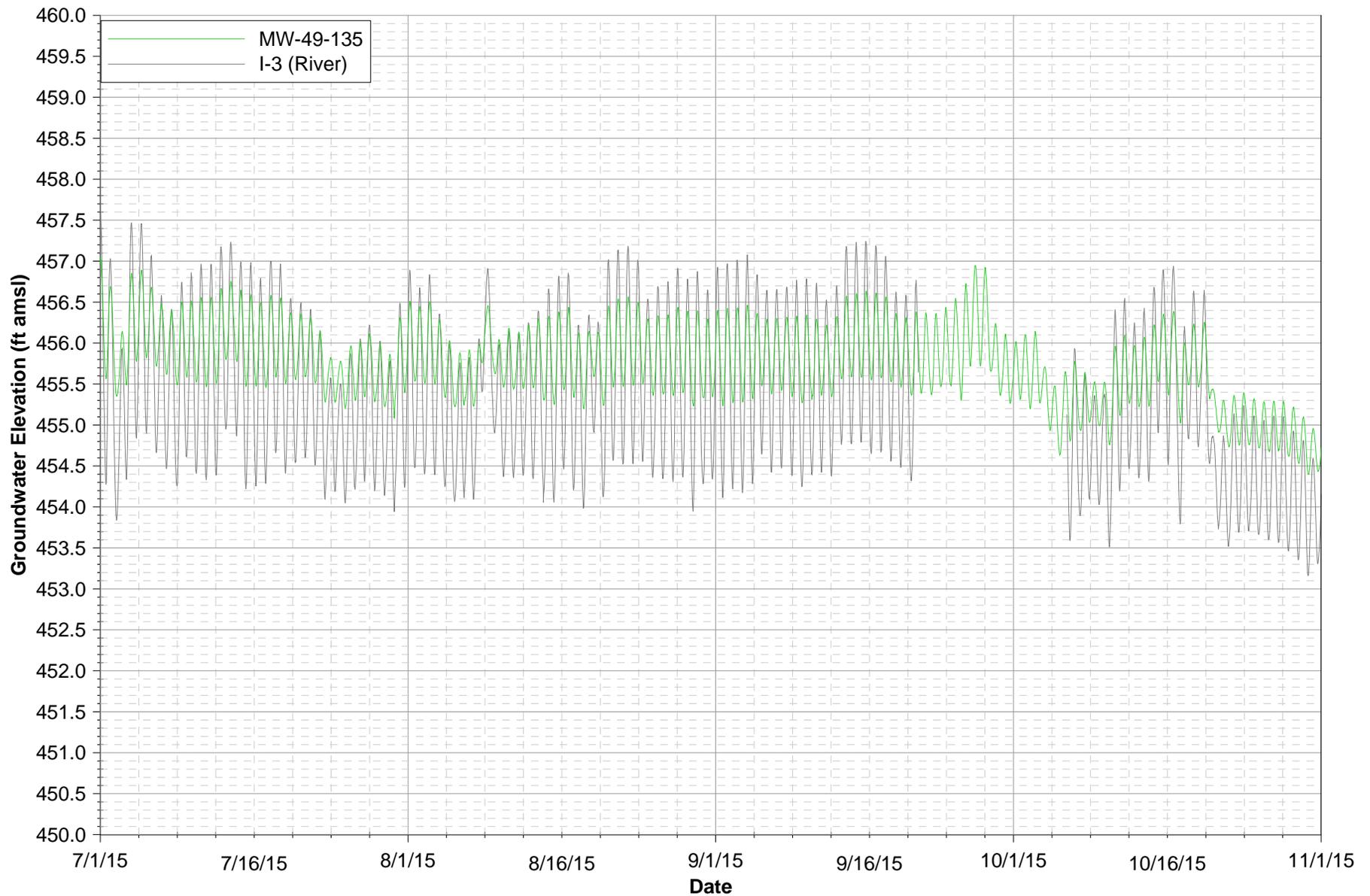


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1R
MW-47 CLUSTER HYDROGRAPHS

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

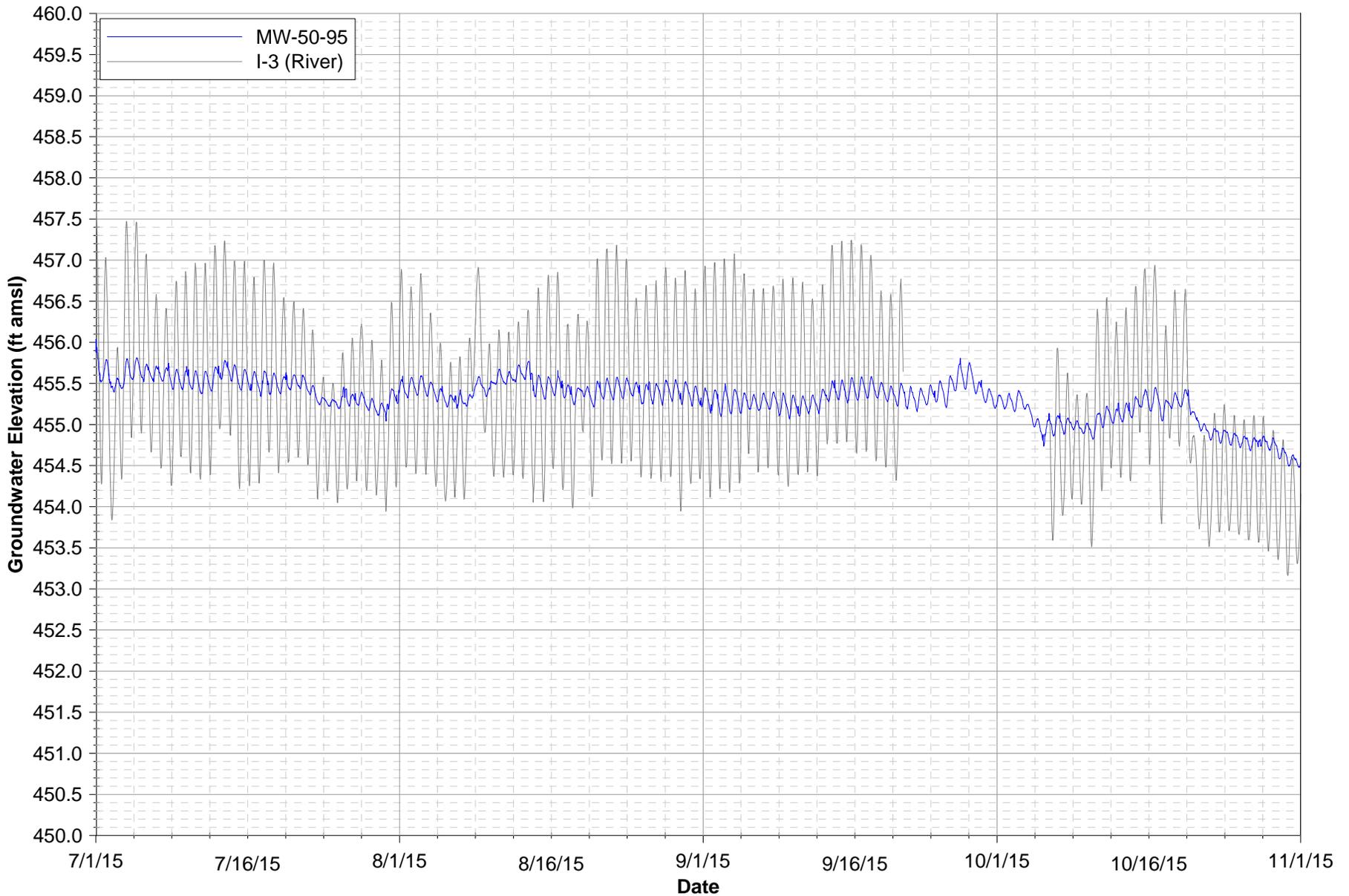


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

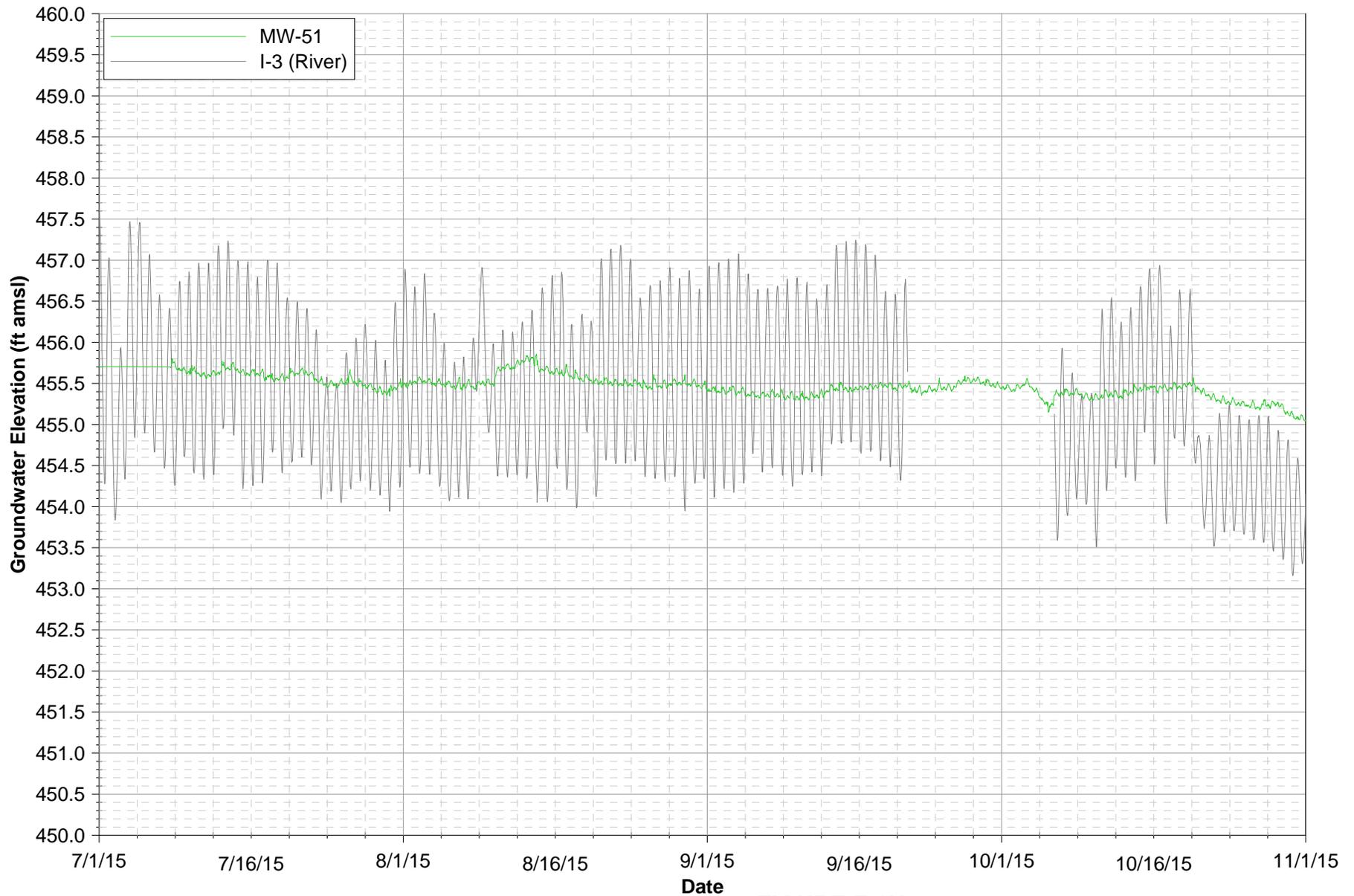
FIGURE F-1S
MW-49 HYDROGRAPH

THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



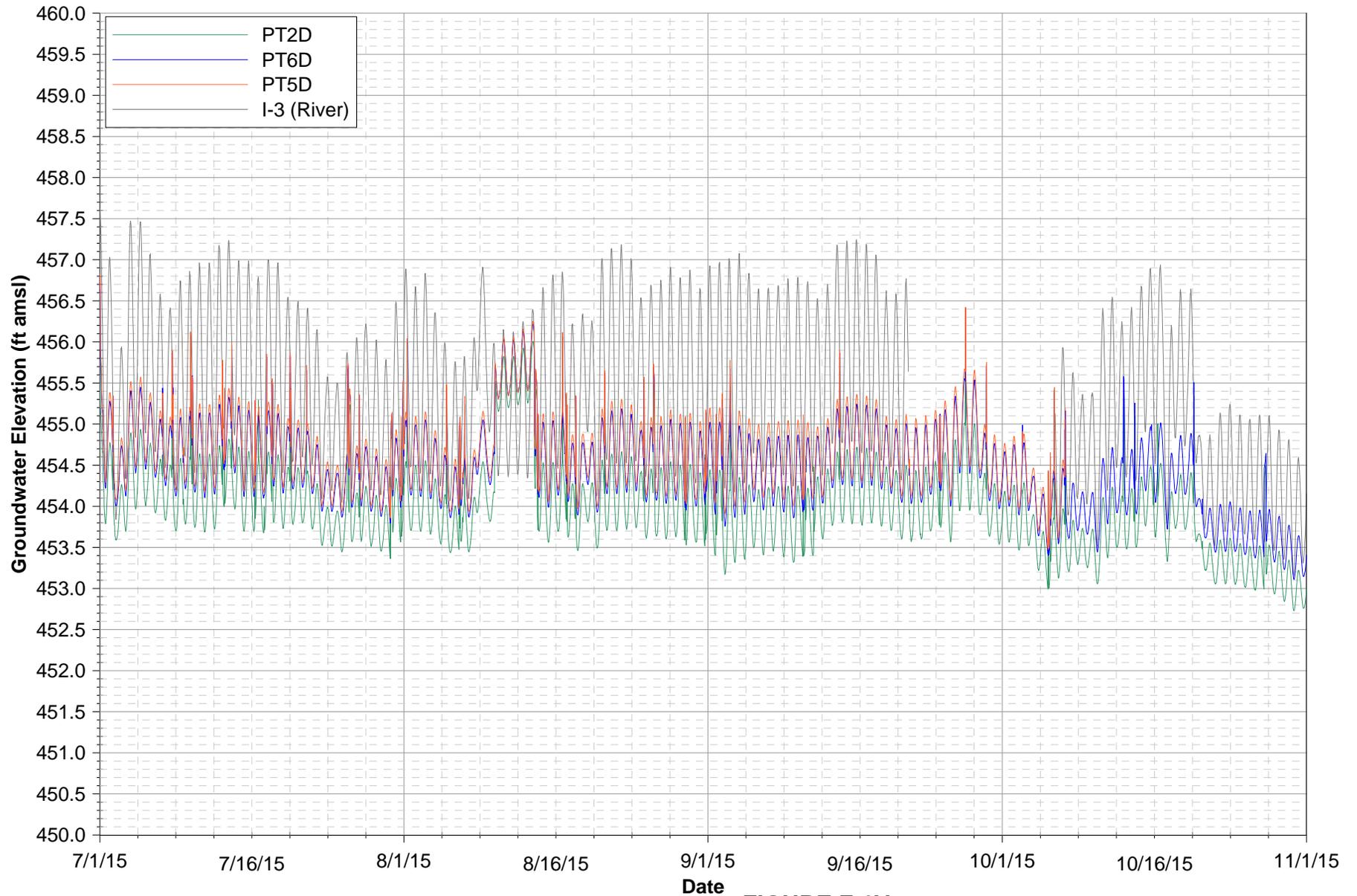
Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1T
MW-50 HYDROGRAPH
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



- Notes:
1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.

FIGURE F-1U
MW-26 AND MW-51 HYDROGRAPHS
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Note:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.
 3. I-3 data unavailable from September 21, 2015 through October 6, 2015 due to transducer malfunction.
 4. PT5D data unavailable from October 7, 2015 through October 31, 2015 due to transducer malfunction.

FIGURE F-1V
IN SITU PILOT STUDY WELL HYDROGRAPHS
 THIRD QUARTER 2015 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA